MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY

(Approved by the AICTE, New Delhi, Affiliated to Pondicherry University and Accredited by NBA, New Delhi.)

Sri Manakula Vinayagar Group of Educational Institutions

B.Tech Information Technology

1.3.2 List of Courses that include experiential learning through project work/field work/internship

2018-2019

S.No	Name of the Course and Code that include Experential Learning through (project work/field visit/internship)
1	Mini Project - MATHEMATICS-I / T101
2	Mini Project - PHYSICS/T102
3	Mini Project - CHEMISTRY / T103
4	Mini Project - BASIC ELECTRICAL AND ELECTRONICS ENGINEERING/T104
5	Mini Project - ENGINEERING THERMODYNAMICS/T105
6	Mini Project - COMPUTER PROGRAMMING/T106
7	Mini Project - COMPUTER PROGRAMMING LAB/P101
8	Mini Project - BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LAB/P103
9	Mini Project - ENGINEERING GRAPHICS/P102
10	Mini Project - MATHEMAICS-II/T107
11	Mini Project - MATERIAL SCIENCE/T108
12	Mini Project - ENVIORNMENTAL SCIENCE/T109
13	Field Visit - BASIC CIVIL AND MECHANICAL ENGINEERING/T110
14	Mini Project - ENGINEERING MECHANICS/T111
15	Mini Project - PHYSICS LAB/P104
16	Mini Project - ELECTRONICS DEVICES AND CIRCUITS/ITT32
17	Mini Project - DATA STRUCTURES/ITT33
18	Mini Project - OBJECT ORIENTED PROGRAMMING/ITT34
19	Mini Project - DIGITAL SYSTEM DESIGN/ITT35
20	Mini Project - DATA STRUCTURES LABORATORY/ITP31
21	Mini Project - ELECTRONICS DEVICES AND CIRCUITS LAB/ITP32
22	Mini Project - DIGITAL SYSTEM DESIGN LABORATORY/ITP33
23	Mini Project - COMMUNICATION ENGINEERING-I/ITT42
24	Mini Project - DESIGN AND ANALYSIS OF ALGORITHMSITT43
25	Mini Project - MICROPROCESSORS AND MICROCONTROLLERS/ITT44
26	Mini Project - JAVA PROGRAMMING/ITT45
27	Mini Project - SYSTEM SOFTWARE/ITT46
28	Mini Project - ALGORITHM LABORATORY/ITP41
29	Mini Project - MICROPROCESSOR AND MICROCONTROLLERS LAB/ITP42

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM

Kalitheerthalkuppam,
Medical College Campus, Puducherry - 605 107.
Ph: 0413-2643007, Fax: 2643008, website: www.mvit.edu.in, email: contactus@mvit.edu.in

Page 1 of 283

30	Mini Project - JAVA LABORATORY/ITP43
31	Mini Project - COMMUNICATION ENGINEERING-II/ITT51
32	Mini Project - SOFTWARE ENGINEERING/ITT52
33	Mini Project - OPERATING SYSTEMS/ITT53
34	Mini Project - DATABASE MANAGEMENT SYSTEMS/ITT54
35	Mini Project - THEORY OF COMPUTATION/ITT55
36	Mini Project - COMPUTER HARDWARE AND TROUBLE SHOOTING/ITE51
37	Mini Project - COMMUNICATION ENGINEERING LAB/ITP51
38	Mini Project - OPERATING SYSTEMS LABORATORY/ITP52
39	Mini Project - DATABASE MANAGEMENT SYSTEMS LAB/ITP53
40	Mini Project - COMPUTER NETWORK/ITT61
41	Mini Project - WEB TECHNOLOGY/ITT62
42	Mini Project - ARTIFICIAL INTELLIGENCE/ITT63
43	Mini Project - INFORMATION CODING TECHNIQUE/ITT64
44	Mini Project - OBJECT ORIENTED ANALYSIS AND DESIGN/ITE66
45	Mini Project - USER INTERFACE DESIGN/ITE68
46	Mini Project - COMPUTER NETWORK LABORATORY/ITP61
47	Mini Project - WEB TECHNOLOGY LABORATORY/ITP62
48	MINI PROJECT LAB/ITP63
49	Mini Project - MOBILE COMPUTING/ITT71
50	Mini Project - WEB SERVICE AND XML/ITT72
51	Mini Project - CRYPTOGRAPHY AND NETWORK SECURITY/ITT73
52	Mini Project - SOFTWARE TESTING/ITE72
53	Mini Project - BIG DATABASE/ITE79
54	Mini Project - MOBILE COMPUTING LABORATORY/ITP71
55	Mini Project - WSX LABORATORY/ITP72
56	PROJECT WORK (PHASE I)/ITP73
57	INDUSTRIAL TRAINING / INTERNSHIP/ITP75
58	Mini Project - PROFESSIONAL ETHICS/ITT81
59	Mini Project - DATA MINING/ITE83
60	PROJECT WORK PHASE II/ITP81

Manakula Vinayagar Institute of Technology, Puducherry - 605 107

T 110 - BASIC CIVIL AND MECHANICAL ENGINEERING

COURSE OBJECTIVE

➢ *To be able to differentiate the types of buildings according to national building code and understand building components and their functions as well as different types of roads, bridges and dams.*

➢ *To explain the concepts of thermal systems used in power plants and narrate the methods of harnessing renewable energies*

➢ *To explain the role of basic manufacturing processes and develop an intuitive understanding of underlying working principles of mechanical machines and systems*

COURSE OUTCOME

On successful completion of the module students will be able to:

➢ *Apply knowledge of mathematics, science and engineering to analyze the types of buildings according to national building code and understand building components and their functions as well as different types of roads, bridges and dams.*

➢ *Design and conduct experiment, as well as to analyze the concepts of thermal systems used in power plants and the methods of harnessing renewable energies.*

➢ *Design, construct and analyze the role of basic manufacturing processes and develop an intuitive understanding of underlying working principles of mechanical machines and systems*

PART - A Civil Engineering

UNIT – I

Buildings, Building Materials: Buildings-Definition-Classification according to NBC-plinth area, Floor area, carpet area, floor space index-construction materials-stone, brick, cement, cement-mortar, concrete, steel- their properties and uses. **(10)**

UNIT – II

Buildings and their components: Buildings- Various Components and their functions. Soils and their classification Foundations-Functions and types of foundations, Masonry Function and types, Floors-Definition and types, Roofs Definition and types. **(10)**

UNIT – III

Basic Infrastructure: Surveying-classification, general principles, types, uses, instruments used. Roads - Components, types and their advantage and disadvantage. Bridges-components and types of bridges. Dams-Purpose, need & Principles, types of dams and components. Water supply-sources and quality requirements. Rainwater harvesting. (10)

PART - B Mechanical Engineering

UNIT – IV

Internal and external combustion systems: IC engines – Classification – Diesel and petrol engines: two stroke and four stroke engines. Merits and demerit Steam generators(Boilers) – Classification – Constructional features (of only low pressure boilers)– Boiler mountings and accessories. Merits and .demerits- Application. (10)

UNIT – V

Power Generation Systems: Conventional and Non-Conventional: Hydraulic – Thermal – Nuclear power plants – Schemes and layouts (Description Only) – Solar – Wind – Geothermal – Wave – Tidal and Oceans thermal Energy Conversion systems – Basic power plant schemes and layouts (Description only). (10)

UNIT – VI

Manufacturing Process: Machines – Lathe – Drilling – Bending – Grinding – Shearing (Description only)
Machining Processes – Turning – Planning – Facing – Blanking – Drilling – Punching – Shearing – Bending – Drawing – Filing – Sawing – Grinding.
Moulding and Metal Joining - Pattern making – Green and dry sand moulding – Arc and Gas welding – Brazing – Soldering (process description only). (10)

Text Books:

1. Natarajan, K V, Basic Civil Engineering, 11th Edition, Dhanalakshmi Publications Chennai, 2011. (For Units I to III)
2. Venugopal , K and Prabhu Raja, Basic Mechanical Engineering, Anuradha Publisher, 2012 (For Units IV to VI).

Reference Books:

1. Purushothama Raj.P., Basic civil engineering, 3rd Edn., Dhanam Publications, Chennai,2001

2. Rajput, R K, Engineering Materials, S Chand & Co. Ltd., New Delhi, 2012.

3. Punmia, B.C., et. al., Surveying , Vol-I, Laxmi Publishers, New Delhi, 2012.

4. Punmia, B.C., et.al Building Construction, Laxmi Publishers, New Delhi ,2012.

5. El. Wakil, M.M., Power Plant Technology, Mc Graw Hill Book Co.,1985.

6. Hajra Choudhry, et. al., Workshop Technology Vol I and II, Media Promoters Publishers Pvt. Ltd., Bombay, 2004.

7. Lindberg, R .A. Process and Materials of Manufacture, PHI, 1999.

8. N.Gupta, R.C.Gupta and Arun Mittal, Manufacturing Processes, New Age Publications, 2001

9. Nagpal, Power Plant Engineering, Khanna Publishers, Delhi, 1998.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

Kalitheerthalkuppam, Madagadipet, Puducherry - 605 107

Department of General Engineering

Circular

Ref: Dept/GE/File/2018-19/   Date: 11.02.2019

Field visit at SMVMCH in our campus is planned for first year IT students to attain the knowledge of Rain Water Harvesting and it is scheduled on **16th February 2019**. All the students are informed to be present for the field visit and make use of it.

Staff Incharge   **Coordinator**

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHAI KUPPAM,
PUDUCHERRY - 605 J7

To:

To be circulated to all First year classes

Circulates to General Engineering staff Members

A field visit was arranged for the B. Tech first year students to learn about the rainwater harvesting system located at MIT campus.

INTRODUCTION

Groundwater, one of the most important natural resources, supports human health, economic development, and ecological diversity. The use of groundwater has increased because of factors such as high easy availability, excellent quality, recharging with rainfall consistently and low development cost. Surface water accounts for 0.3 % of the fresh water that exists on earth. In comparison, groundwater amounts to 30 % of the fresh water. Globally groundwater provides 50% of current potable water supplies, 40% of the demand for self-supplied industry and 20% of irrigation water. Therefore, systematic development and management planning is crucial for establishing stabilised and secure sources of water.

In India, where about 15% of the world's population lives, groundwater accounts for over 80% of domestic water use in rural areas, and 55 – 60% of the Indian population (about 620 million people) is directly or indirectly dependent on groundwater for agricultural purposes for their livelihood. Due to increased use of groundwater, millions of people have been lifted out of poverty .

Objectives of rainwater harvesting

> ➢ To meet the rising demand of water needs.
>
> ➢ To raise the water table underground.
>
> ➢ To reduce soil erosion.
>
> ➢ It helps preventing urban flooding due to excess rain.
>
> ➢ It can reduce the water bill in urban areas.
>
> ➢ It can be used for non-drinking purposes.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERT AI KUPPAM,
PUDUCHERRY 605 07

Components of Rainwater harvesting system located at MIT campus

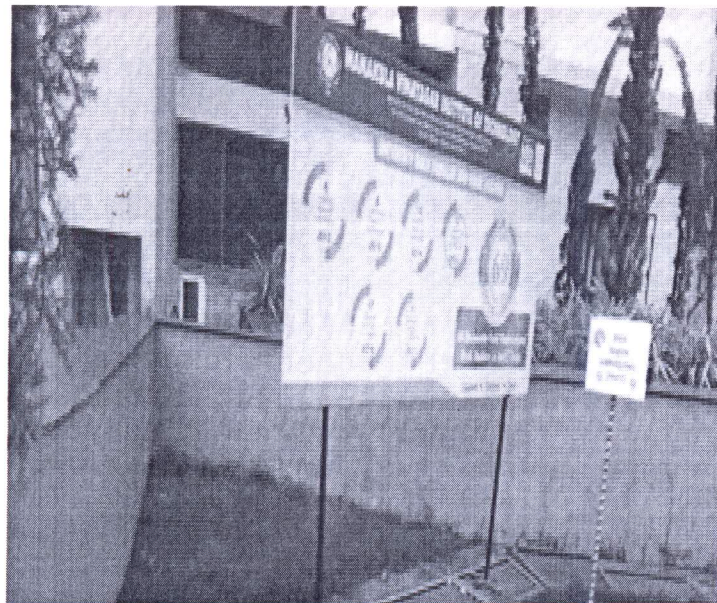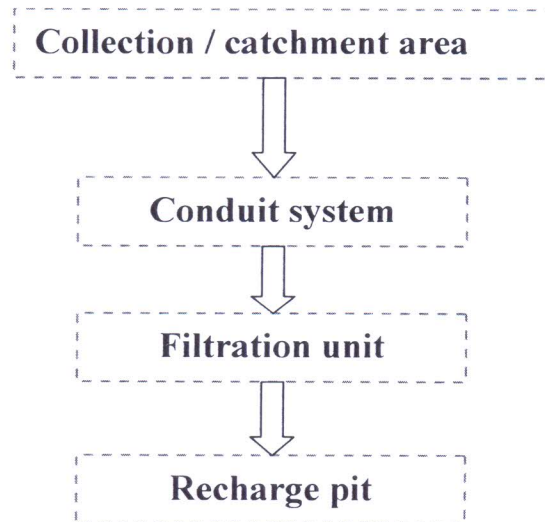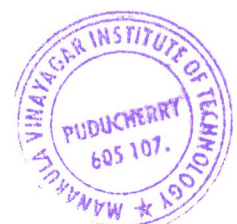A rainwater harvesting system comprises of various components.

```
┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
   Collection / catchment area
└ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
                ⇓
┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
         Conduit system
└ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
                ⇓
┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
         Filtration unit
└ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
                ⇓
┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
          Recharge pit
└ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
```


Fig 1: Collection points
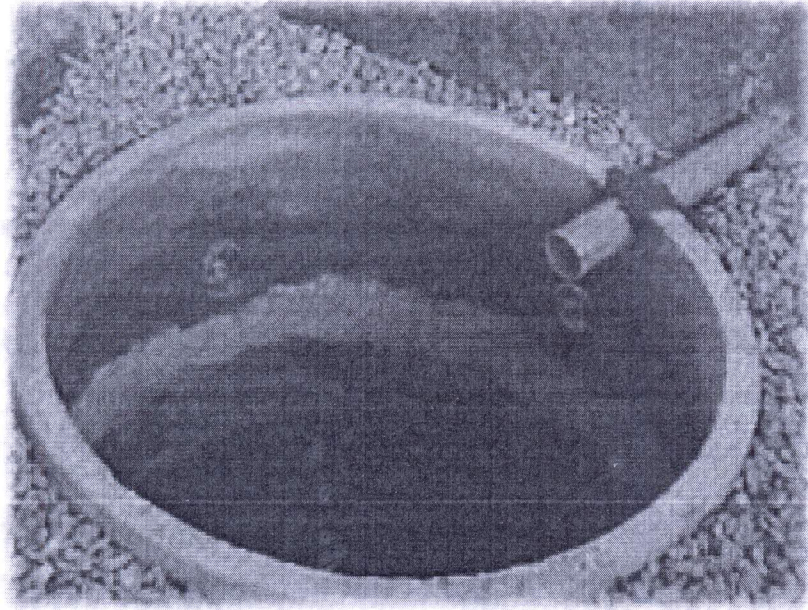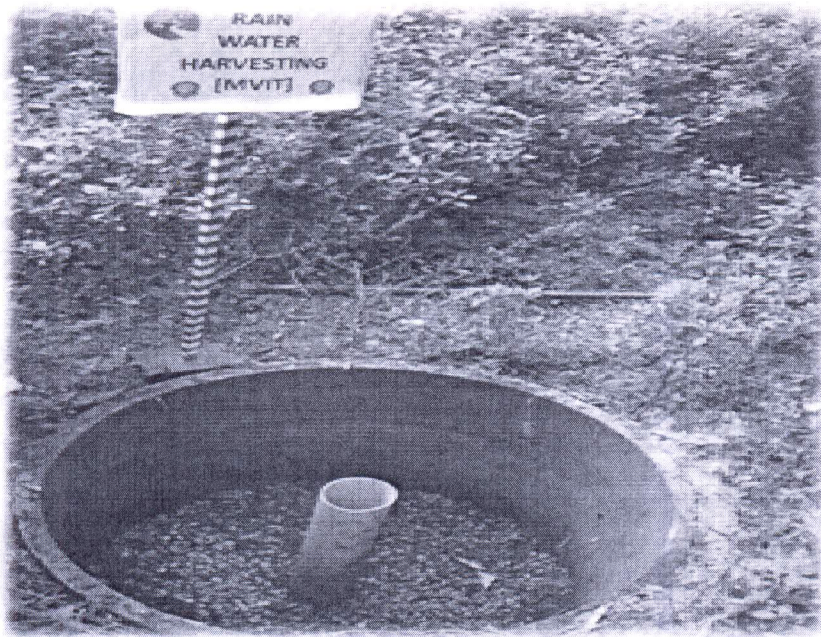
Fig 2: Filtration tank

Fig 3: Ground water recharging Pit

The rainwater catched in the area of MIT campus is transferred to the filtration tank through conduits. The filtration unit consists of various layers such as pebbles, aggregates and sand. The rain water is passed through these layers. The filter is used to remove suspended pollutants from rainwater collected over the ground surface. After filtration unit, the rainwater is passed to the ground water recharging pit.

OUTCOME OF THIS VISIT

The outcome of this field visit is to inculcate the knowledge on rainwater harvesting to the students. It also illustrates the course outcome (CO3) of Basic civil Engg subject in semester I students.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

Kalitheerthalkuppam, Madagadipet, Puducherry - 605 107

DEPARTMENT OF GENERAL ENGINEERING
I YEAR / II SEMESTER Information Technology (2018-2019)
ATTENDANCE FOR FIELD VISIT TO
RAIN WATER HARVESTING SYSTEM

DATE: 16.02.2019

S.NO	STUDENTS NAME	STUDENTS SIGNATURE
1	HARIDHA.S	HARIDHA. S
2	PRIYADARSHINI.M	Priyadarshini
3	SARANYA.S	Saranya .S
4	SARANYADHEVI.S	Sarayan
5	ANJANA.V	Anjana
6	AUROBINDH SAI.C	Auro
7	ILAKKIYA.G	Ilakkiya. G
8	BALAMURUGAN.P	bala
9	HARSHA.K.C	Harsha-KC
10	PRIYADHARSHINI.S	Priyadharshini
11	YUVASRI R	Yuvasri .R
12	ATHIFFA.M.A	Athi
13	MAHALAKSHMI	Maha
14	MAHESWARI.S	Maheswar.S
15	DEEPIKA.V	Deepika .V
16	AMIRTHALAKSHMI.P	Amir
17	ARUNA.G	Arun - G
18	DEEPIKA.S	Deepika
19	SAMPATHKUMAR D	Sampath Kumar D.
20	FAYAZ AHAMED.M.S	Fayaz Ahmed
21	DIVYA.A	Divya . A
22	SIVARAJI.M	Sivaraji. M.
23	SANDHIYA.V	Sandhiya
24	SARAN.P	Sara
25	SATHIYA.R	Sathiya .R.
26	SANKARI.S	Sankari
27	ESHWARAMOORTHY.S A	Eshwarmoorthy.
28	KIRUBARAJ.I	Kirubaraj.
29	MAHALAKSHMI	Mahalakshmi.
30	HEMAVATHI.T	Hema
31	SANTHIYA.M	Santhiya
32	PARTHIBAN.R	Parthiban
33	SURYA P	P. Surya
34	SHEIK ABDULLAH.B	Sheik Abdullah
35	UMAMAHESWARI.B	Umamah
36	KANNAN S	Kannan .S.
37	ABDUL RAHIM.S	S. Abdul Rahim.

PRINCIPAL.
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERT SAI KUPPAM,
605 07

38	YUGAVARMAN.N	
39	ABDUL RAHMAN.H	
40	ALTHAF KHAN. J	
41	HARISH.P	
42	KUMAAREYSH.R	
43	VASANTH KUMAR	
44	DHIVAGAR.K	
45	SNEHA.K	
46	HARIHARANE.V	
47	RISHIKA K	
48	YOGI.B	
49	LAVANYA.V	
50	HARIHARAN.G	
51	RAGHUL.T.P	
52	SRINIVASAN.B	
53	SUBASHRI. R	
54	VIGNESHWAR. S	
55	VIGNESHKUMAR.S	
56	NAGARAJ	
57	RENGARAJAN.T.R	

18/2/2019

Staff In-Charge

Coordinator

COURSE OBJECTIVE

- *To understand the concepts of physics and its significant contributions in the advancement of technology and invention of new products that dramatically transformed modern-day society.*
- *To expose the students to different areas of physics which have direct relevance and applications to different Engineering disciplines*
- *To understand the concepts and applications of Ultrasonics, optics and some optical devices, Lasers and Fiber optics, Nuclear energy sources and wave mechanics*

COURSE OUTCOME

On successful completion of the module students will be able to:

- *Apply knowledge of science and engineering to understand physics and its significant contributions in the advancement of technology and invention of new products that dramatically transform modern-day society.*
- *Identify different areas of physics which have direct relevance and applications to different Engineering disciplines.*
- *Apply fundamental knowledge to understand applications of Ultrasonics, optics and some optical devices, Lasers and Fiber optics, Nuclear energy sources and wave mechanics.*

UNIT – I

Acoustics & NDT: Ultrasonics- Ultrasonic Waves Productions (Piezoelectric & Magnetostriction method) – Detections (Acoustic Grating). NDT application – Ultrasonic Echo method – Liquid Penetrant method

Acoustics - Factors affecting Acoustic of Buildings (Reverberation, Loudness, Focusing, Echo, Echelon Effect and Resonance) and their Remedies - Sabine's formula for Reverberation Time–Doppler effect and its application to Random's (elementary idea)   **(12)**

UNIT – II

Optics: Interference- Air Wedge – Michelson's Interferometer – Wavelength Determination – Interference Filter – Antireflection Coatings.

Diffraction - Diffraction Grating – Dispersive power of grating - Resolving Power of Grating & Prism Polarization –Basic concepts of Double Refraction - Huygens Theory of Double Refraction – Quarter and Half Wave Plates – Specific Rotary Power – Laurent Half Shade Polari meter.   **(12)**

UNIT – III

Lasers & Fiber Optics: Lasers - Principles of Laser – Spontaneous and Stimulated Emissions - Einstein's Coefficients – Population Inversion and Laser Action – Types of optical resonators(qualitative Ideas) – Types of Lasers - NdYAG, CO2 laser, GaAs Laser – Application of Lasers.

Fiber Optics - Principle and Propagation of light in optical fiber – Numerical aperture and acceptance angle – Types of optical fibers (material, refractive index, mode)- Application to sensors and Fiber Optic communication. (12)

UNIT – IV

Wave Mechanics: Matter Waves – de Broglie Wavelength – Uncertainty Principle – Schrödinger Wave Equation – Time Dependent – Time Independent – Application to Particle in a One Dimensional potential Box – Quantum Mechanical Tunneling – Tunnel Diode. (12)

UNIT – V

Nuclear energy source: General Properties of Nucleus (Size, Mass, Density, Charge) – Mass Defect – Binding Energy - Disintegration in fission – Nuclear Reactor: Materials Used in Nuclear Reactors. – PWR – BWR – FBTR. Nuclear fusion reactions for fusion reactor – D-D and D-T reactions, Basic principles of nuclear fusion reactors. (12)

Text Books

1. V Rajendran, Engineering Physics, 2nd Ed., TMH, New Delhi 2011 (For Units I to IV only)
2. Arthur Beiser, Concept of Modern Physics, 6th Ed, TMH, New Delhi 2008 (For Unit V Only)

Reference Books

1. Ajay Ghatak, Optics, TMH, New Delhi, 2007.
2. Thiagarajan and Ghatak, Laser and Application, TMH, New Delhi 2008.
3. R. Murugeshan, Modern Physics, S. Chand & Co, New Delhi 2006
4. K.R.Nambiar, Lasers, New Age International, New Delhi, 2008
5. Science of Engineering Materials, 2nd Edition, C.M. Srivastava and C. Srinivasan, New Age Int. (P) Ltd, New Delhi, 1997
6. Avadhanulu M N Engineering Physics, Vol-I, S. Chand & Co,2009.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM,
PUDUCHERRY-605 107

T 108 - MATERIAL SCIENCE

COURSE OBJECTIVE

➤ To understand the importance of Material Science as a subject that revolutionized modern day technologies
➤ To understand the significance of material science in the development of new materials and devices for all branches of Engineering
➤ To impart knowledge to the Engineering students about some of the important areas of Materials Science so as to enable them perceive the significant contributions of the subject in Engineering and Technology

COURSE OUTCOME

On successful completion of the module students will be able to:

➤ Apply knowledge of mathematics, science and engineering to understand the importance of Material Science as a subject that revolutionized modern day technologies
➤ To analyze the significance of material science in the development of new materials and devices for all branches of Engineering
➤ Identify and analyze some of the important areas of Materials Science so as to enable them perceive the significant contributions of the subject in Engineering and Technology

UNIT – I

Crystal structure and Defects: Crystal structure - Bravais Lattices , Crystal Systems - Coordination Number, Atomic Radius, Packing Factor for FCC & HCP structures – Miller Indices- Powder X Ray Diffraction Method Lattice defects – Qualitative ideas of point, line, surface and volume defects.   **(12)**

UNIT – II

Dielectric properties: Dielectric Polarization and Mechanism –Temperature dependence of polarization, Internal or local Field - Clausius-Mossotti relation. Basic ideas of Dielectric loss - frequency dependence of dielectric constant – Measurement of Dielectric constant and loss using Scherring bridge – Elementary ideas of Piezoelectrics, Ferroelectrics and Pyroelectric materials and Applications.   **(12)**

UNIT – III

Magnetic Properties: Origin of atomic magnetic moment – Bohr magneton-Elementary Ideas of classification of magnetic materials (Dia, Para, Ferro, antiferro & Ferri). – Quantum theory of Para & Ferro Magnetism – Domain Theory of Hysteresis –

32

Heisenberg Theory of Exchange Interaction (without derivation) – Qualitative ideas of Anti ferromagnetic Ordering – Structure and Properties of Ferrites – Properties of Soft & Hard Magnetic Materials – Applications. Magnetic data storage – Magnetic tapes, Hard disks, Magneto optical recording. **(12)**

UNIT – IV

Semiconductors and superconductors: Semiconductors -Derivation of Carrier concentration in intrinsic Semiconductors –Basic ideas of Electrical conductivity in intrinsic and extrinsic semiconductors (without derivations) -temperature dependence of carrier concentration and electrical conductivity in semiconductors (qualitative ideas), Hall effect in Semiconductors --Application of Hall Effect, Basic Ideas of Compound Semiconductors (II-VI & III-V)
Superconductivity - Basic concepts – transition temperature – Meissener effect – Type I and II superconductors – High Temperature Superconductors – 123 superconductor – Applications of superconductors. **(12)**

UNIT – V

Advanced Materials: Liquid Crystals – Types – Application as Display Devices
Metallic Glasses – preparation by melt spinning. Twin roller system, properties and applications
Shape Memory alloys (SMA), Shape memory effect, Properties and applications of SMA
Nanomaterials - Nano materials (one, Two& three Dimensional) –Methods of synthesis (PVD, CVD, Laser Ablation, Solgel, Ball-milling Techniques), Properties and applications of nanomaterials. carbon nanotubes – synthesis, Properties and applications. **(12)**

Text Books:

1. V Rajendran, Engineering Physics, 2nd Edition, TMH, New Delhi 2011.

Reference Books:

1. Ali Omar M, Elementary Solid State Physics, Addison Wesley Publishing Co., 2009.
2. William D Callister Jr., Material Science and Engineering, 6th Edition, John Wiley and sons, 2009.
3. Charles Kittel, Introduction to Solid State Physics, 7th Edition, John Wiley & sons, Singapore, 2007.
4. V Raghavan , Materials Science and Engineering- A First Course, 5th Edition, Prentice Hall of India, 2008.

5. B.S. Murty, P. Shankar, Baldev Raj, B.B. Rath, and James Murday, Text book of Nanoscience and Nanotechnology, Universities Press, Hyderabad 2012
6. M.N. Avadhanulu, Enginerring Physics- Volume-II, S.Chand &Co, New Delhi, 2009
7. Pillai S.O, Solid State Physics, 6th Edition – New Age International, 2005.

34

T 104 - BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE OBJECTIVE

- *To understand and gain basic knowledge about magnetic and electrical circuits, single phase and three phase power measurement and the operating principles of stationary and rotating machines*
- *To understand the basic operation, functions and applications of PN junction diode, transistor, logic gates and flip flops.*
- *To gain knowledge on various communication systems and network models and the use of ISDN*

COURSE OUTCOME

On successful completion of the module students will be able to:

- *Will gain basic knowledge about magnetic and electrical circuits, single phase and three phase power measurement and the operating principles of stationary and rotating machines*
- *Design and conduct experiment, as well as to analyze the basic operation, functions and applications of PN junction diode, transistor, logicgates and flip flops.*
- *Identify and analyze various communication systems and network models and the applications of ISDN*

### PART A – Electrical

UNIT – I

DC Circuit: Definition of Voltage, Current, Power & Energy, circuit parameters, Ohm's law, Kirchoff's law & its applications – Simple Problems - Division of current in Series& parallel circuits - star/delta conversion - Node and mesh methods of analysis of DC circuits. **(10)**

UNIT – II

AC Circuit: Concepts of AC circuits – rms value, average value, form and peak factors – Simple RLC series circuits – Concept of real and reactive power – Power factor - Introduction to three phase system - Power measurement by two wattmeter method. **(10)**

UNIT – III

Electrical Machines and Power Plants: Law of Electromagnetic induction, Fleming's Right & Left hand rule - Principle of DC rotating machine, Single phase transformer and single phase induction motor(Qualitative approach only) - Simple layout of thermal and hydro generation (block diagram approach only).Fundamentals of fuses and circuit breakers. **(10)**

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM,
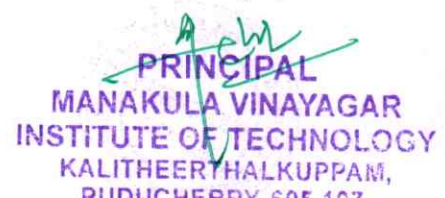
PART – B – Electronics

UNIT – IV

Electronic Circuit: V-I Characteristics of diode - Half-wave rectifier and Full-wave rectifier – with and without capacitor filter - Transistor - Construction & working - Input and output characteristics of CB and CE configuration - Transistor as an Amplifier - Principle and working of Hartley oscillator and RC phase shift oscillator - Construction and working of JFET & MOSFET.   (10)

UNIT – V

Digital Electronics: Boolean algebra – Reduction of Boolean expressions - De-Morgan's theorem – Logic gates -Implementation of Boolean expressions - Flip flops - RS, JK, T and D. Combinational logic - Half adder, Full adder and Subtractors. Sequential logic - Ripple counters and shift registers.   (10)

UNIT – IV

Communication and Computer Systems: Model of communication system – Analog and digital – Wired and wireless channel. Block diagram of various communication systems – Microwave, satellite, optical fiber and cellular mobile system. Network model – PAN, LAN, MAN and WAN – Circuit and packet switching – Overview of ISDN.   (10)

Text Books:

1. Kothari D P and Nagrath I J , Basic Electrical Engineering , Tata McGraw Hill,2009. (For Units I to III)
2. Rajendra Prasad , " Fundamentals of Electronic Engineering", Cengage learning, New Delhi, First Edition, 2011 (For Unit IV)
3. Morris Mano, "Digital design", PHI Learning, Fourth Edition, 2008 (For Unit V)
4. Wayne Tomasi, "Electronic Communication Systems- Fundamentals Theory Advanced", Sixth Edition, Pearson Education, 2004. (For Unit VI)

Reference Books:

1. R.Muthusubramaniam, S.Salivahanan and K.A. Mureleedharan, Basic Electrical Electronics and Computer Engineering, Tata McGraw Hill, 2004..
2. J.B.Gupta, A Course in Electrical Power, Katson Publishing House, New Delhi, 1993.
3. David. A. Bell, "Electronic Devices and Circuits", PHI Learning Private Ltd, India, Fourth Edition, 2008

4. Donald P Leach, Albert Paul Malvino and Goutam Saha, "Digital Principles and Applications," 6th edition, Tata McGraw Hill Publishing Company Ltd., New Delhi,2008.

5. S.K. Sahdev, Fundamentals of Electrical Engineering and Electronics, Dhanpat Rai & Co, 2013.

6. Jacob Millman and Christos C. Halkias, "Electronic Devices and Circuits" Tata McGraw Hill,2008

7. R.L. Boylestad and L. Nashelsky, "Electronic Devices and Circuit Theory", PHI Learning Private Limited, Ninth Edition, 2008.

8. M.S.Sukhija and T.K.Nagsarkar, " Basic Electrical and Electronics Engineering", Oxford University Press, 2012

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T32	Electronic Devices and Circuits	3	1	0

Course Objectives:

1. To introduce the applications of PN junction diode and Zener diode
2. To familiarize the students with an in-depth knowledge of special devices
3. To impart knowledge on biasing of BJT and FET.
4. To introduce the construction and operation of oscillators.
5. To introduce the op-amp fundamentals and to teach the applications of op-amp

Course Outcomes:

On successful completion of the module students will be able to:

1. Analyze the behavior of PN junction diode, Zener diode and other special devices.
2. Understand the application areas of diodes.
3. Gain knowledge in biasing of BJT, FET.
4. Understand the working of Power amplifiers and oscillators.
5. Understand the practical applications of op-amps.

Unit I-Diode and Its Applications

Diode current equation – V-I characteristics of PN junction diode – Applications- Half wave and Full wave rectifiers with and without filters, Derivation of ripple factors ,rectification efficiency and transformer utilization factor, Zener diode and its application, Clippers, Clampers, voltage multipliers.

Unit II-Special Diodes

Special devices: Silicon controlled rectifier, Uni-junction transistor, LED, LCD, Schottky Barrier diode, Varactor diode, Tunnel diode , photodiode, photo-transistor

Unit III-Small Signal Amplifiers

BJT – Transistor biasing and bias circuits – operating point — 'h' parameters — FET biasing – Power Amplifier – Types – Transformer coupled Class A Amplifier – Class B Amplifier – Amplifier distortion- Class C and Class D amplifiers.

Unit IV-Feedback Amplifiers

Feedback concept, general characteristics of positive feedback, Oscillators: Barkhausen Criterion- Hartley, Colpitts, Wien bridge oscillators and crystal oscillator – frequency stability.

Unit V-Operational Amplifier

Introduction to op-amp, Characteristics of op-amp, Op-amp parameters - Equivalent circuit - Applications: Inverting and non-inverting amplifier, summer, subtractor, voltage follower, differentiator, integrator, comparator, first order low pass and high pass active filters.

(Total: 60 Periods)

Content beyond Syllabus:

PSPICE Simulation on device characteristics (optional)

Text Books:

1. Robert L.Boylestad and Louis Neshelsky, Electronic devices and circuit theory, 11th Edition, Prentice Hall India, 2012.
2. Jacob Millman and Arvin Grabel, Micro-Electronics, McGraw Hill, Fifth edition, 2008.

Reference Books:

1. Jacob Millman and C. Halkias, Satya brataJit, Electronic Devices and circuits, Second edition, McGraw Hill Publications, 2007.
2. Theodore F.Bogart and etal, Electronic Devices and Circuits, pearson Education, 2004

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF IT

Mini project on <mark>Automatic Street Light Controller Circuit Using Relay and LDR</mark>

Submitted by

PAKKER MOHAMED SOHEIL
VANITHA
DHARSHINI.S
ABINAYA. M
AJEETHA JENIFER MERLINE.M

II YEAR IT

(2018-2019)

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM
PUDUCHERRY - 605 107.

Mini project on <mark>Automatic Street Light Controller Circuit Using Relay and LDR</mark>

Introduction:

Did you ever think that how the street lights automatically turn ON in the night and turn OFF automatically At morning? Is there any person who comes to ON/OFF these lights? There are several ways to turn on the Street lights but the following circuit describes an Automatic Street Light Controller Circuit that uses LDR And Relay to perform this job automatically.

Components used in this Circuit:

1. IC LM358 – 1
2. Resistor 10KΩ – 1
3. Potentiometer 10KΩ – 1
4. 5V Relay Module – 1
5. Small LED Strip
6. 9V Battery
7. LDR – 1
8. Connecting Wires
9. Breadboard
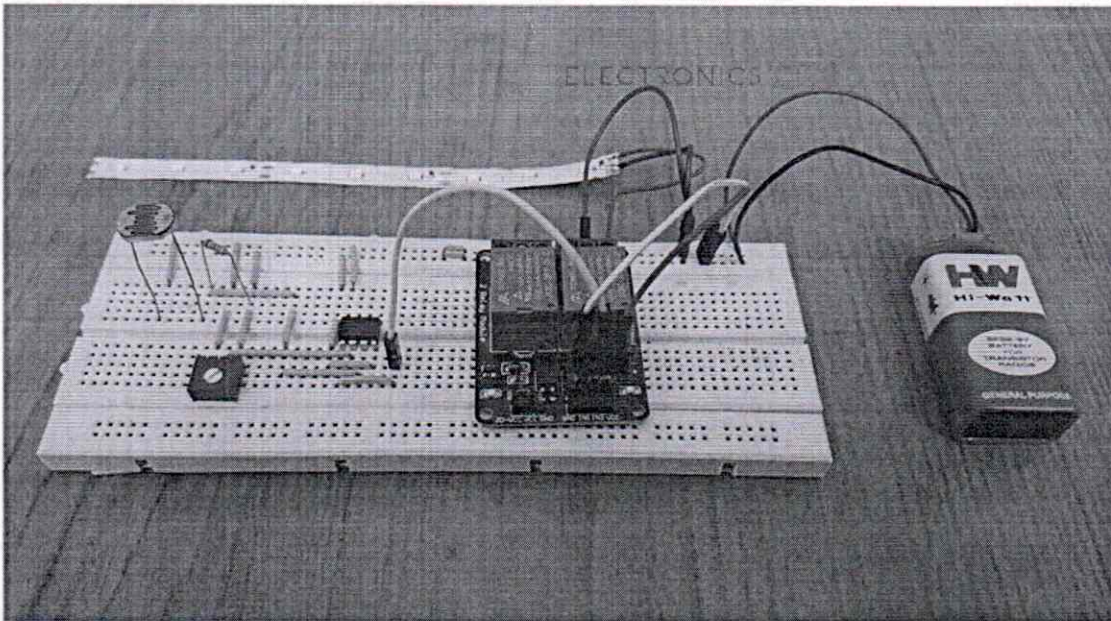
THEORY:

Many people have a phobia of darkness, so to assist them in such situations; we have explained a simple circuit that will automatically turn on the street light consisting of LEDs or bulb coupled with relay. It is lit well enough to see the objects nearby.

This circuit is very easy to work around and also it is battery operated. The power consumed by the circuit is very low because of the very few components used in the circuit.

IT-T33 DATA STRUCTURES

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T33	Data Structures	3	1	0

Course Objectives:

To introduce the primary data structures and the associated operations

To understand the applications of data structures with case studies

To learn the implementation issues of the data structures introduced

Course Outcomes:

On successful completion of this course students will be able to:

Use appropriate data structures in programming

Learn various ways of implementing the data structures

Unit I   (12 Periods)

Basics : Abstract Data Type(ADT) – introduction to data structures – representation - implementation

Stack and list: representing stack – implementation – application – balancing symbols –conversion of infix to postfix expression – evaluating a postfix expression – recursive function call – Linked list ADT – implementation using arrays – limitations - linked list using dynamic variables- linked implementation of stacks – circular list – doubly linked lists

Unit II   (12 Periods)

Queues: Queue abstract data type - Array implementation – circular queue - linked list implementation of queues – priority queues – double ended queues – multiple stacks and queues - application.

Unit III   (12 Periods)

Trees : General trees – binary tree – traversal methods – expression trees – game trees. Binary search trees – AVL trees – Splay trees – B Trees – B$^+$ Trees – Tries – application.

Unit IV   (12 Periods)

Sorting: O notation – efficiency of sorting – bubble sort – quick sort – selection sort – heap sort – insertion sort – shell sort – merge sort – radix sort.

Unit V   (12 Periods)

Hashing: Introduction – Hash function – methods - Hash table implementation - rehashing.

Graph: Directed and un directed graph – representation of graphs – graph traversals: Depth first search – Breadth first search – transitive closure – spanning trees – application - topological sorting.

                                                                                    (Total: 60 Periods)

Content beyond Syllabus:

1.   Advanced data structures and their implementation.
2.   Implementation of the data structures in different language platforms.

Text Books:

1.   Mark Allen Weiss, Data structures and algorithm analysis in C++, Pearson Education, 6th edition, 2011
2.   YedidyahLangsam, Moshe J Augenstein and Aaron M Tanenbaum, Data Structures using C and C++, 2nd edition, Prentice Hall of India, 2009.

Reference Books:

1.   G.A.V.Pai, Data Structures and Algorithms – Concepts, Techniques and Applications, Tata McGraw Hill Publishing Company Limited, New Delhi, 2008.
2.   Ellis Horowitz and SartajSahni, Fundamentals of Data structures, Galgotia Publications, 2nd Edition, New Delhi, 2001.
3.   Alfred V. Aho, Jeffrey D. Ullman, John E. Hopcroft. Data Structures and Algorithms. Addison Wesley, 1983

Websites:

http://www.cs.sunysb.edu/~skiena/214/lectures/

http://opendatastructures.org/

http://www.cplusplus.com/doc/tutorial/structures/

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY
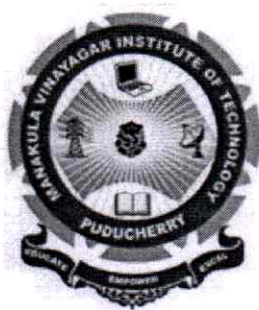
IT – T33 DATA STRUCTURE

Mini Project on

SIMPLE GRAPH USING THE ADJACENCY LIST & DEPTH FIRST SEARCH TRAVERSAL

Submitted by

DAYANARAJE.S
DEVIKA.M
DHANYA.T
DINESHKUMAR. S
DIVYABHARATHI.J
FAZAR.K
GAUTHAM. S

II YEAR – IT

(2018-2019)

SIMPLE GRAPH USING THE ADJACENCY LIST

AIM:

To write a C++ program to implement and demonstrate a simple graph using the adjacency list.

DESCRIPTION:

Here we are going to display the adjacency list for a weighted directed graph. We have used two structures to hold the adjacency list and edges of the graph. The adjacency list is displayed as (start _vertex, end_vertex, weight).

ALGORITHM:

Step1: Start the program.
Step2:Create the structure to hold the adjacency and edges of the graph.
Step 3: Create a class DiaGraph to insert new nodes into adjacency list from given graph.
Step 4: Insert the new nodes into the graph.
Step 5: Display the all adjacent vertices of given vertex.
Step 6:Stop the program

SOURCE CODE:

```cpp
#include <iostream>
using namespace std;
// stores adjacency list items
struct adjNode {
    int val, cost;
    adjNode* next;
};
// structure to store edges
struct graphEdge {
    int start_ver, end_ver, weight;
};
class DiaGraph{
    // insert new nodes into adjacency list from given graph
    adjNode* getAdjListNode(int value, int weight, adjNode* head)  {
        adjNode* newNode = new adjNode;
        newNode->val = value;
        newNode->cost = weight;

        newNode->next = head;   // point new node to current head
        return newNode;
    }
    int N;  // number of nodes in the graph
```

DEPTH FIRST SEARCH TRAVERSAL

AIM:

To implement the DFS (Depth First Search) traversal technique using C++.

DESCRIPTION:

Unlike BFS in which we explore the nodes breadthwise, in DFS we explore the nodes depthwise. In DFS we use a stack data structure for storing the nodes being explored. The edges that lead us to unexplored nodes are called 'discovery edges' while the edges leading to already visited nodes are called 'block edges'.

ALGORITHM:

Step 1: Insert the root node or starting node of a tree or a graph in the stack.
Step 2: Pop the top item from the stack and add it to the visited list.
Step 3: Find all the adjacent nodes of the node marked visited and add the ones that are not yet visited, to the stack.
Step 4: Repeat steps 2 and 3 until the stack is empty.\

SOURCE CODE:

```cpp
#include <iostream>
#include <list>
using namespace std;
//graph class for DFS travesal
class DFSGraph
{
int V;   // No. of vertices
list<int> *adjList;   // adjacency list
void DFS_util(int v, bool visited[]); // A function used by DFS
public:
  // class Constructor
DFSGraph(int V)
  {
this->V = V;
 adjList = new list<int>[V];
  }
  // function to add an edge to graph
void addEdge(int v, int w){
adjList[v].push_back(w); // Add w to v's list.
  }

void DFS();   // DFS traversal function
};
void DFSGraph::DFS_util(int v, bool visited[])
{
  // current node v is visited
```

COURSE OBJECTIVE

➢ *To introduce the basics of computers and information technology and educate problem solving techniques.*
➢ *To impart programming skills in C language.*
➢ *To practice structured programming to solve real life problems.*

COURSE OUTCOME

On successful completion of the module students will be able to:

➢ *Apply fundamental knowledge of science and engineering to understand the basics of computers and information technology and educate problem solving techniques.*
➢ *Apply logical thinking to create programs in C language.*
➢ *Design system, component and demonstrate structured programming to solve real life problems*

UNIT – I

History of Computers – Block diagram of a Computer – Components of a Computer system – Classification of computers - Hardware – Software – categories of Software – Operating System – Applications of Computers –Network Structure - Internet and its services – Intranet – Study of word processor – Preparation of worksheets. (12)

UNIT – II

Problem solving techniques – Program – Program development cycle – Algorithm design – Flowchart - Pseudo code. Introduction to C – History of C – Importance of C - C tokens – data types – Operators and expressions – I/O functions.   (12)

UNIT – III

Decision making statements – branching and looping – arrays – multidimensional arrays – Functions – Recursion – Passing array to functions .Storage classes – Strings – String library functions.   (12)

UNIT – IV

Structures – Arrays and Structures – nested structures – passing structures to functions – user defined data types– Union. Pointers – pointers and arrays – pointers and functions - pointers and strings - pointers and structures.   (12)

42

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM,
PUDUCHERRY-605 107.

UNIT – V

Files – operations on a file – Random access to files – command line arguments .Introduction to preprocessor – Macro substitution directives – File inclusion directives – conditional compilation directives – Miscellaneous directives.   **(12)**

Text Books:

1. Balagurusamy. E, "Programming in ANSI C", Tata McGraw Hill, 12th Edition, 2012

Reference Books:

1. Vikas Verma, "A Workbook on C ",Cengage Learning, Second Edition,2012
2. Ashok N Kamthane, "Computer Programming", Pearson education, Second Impression, 2008.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM,
PUDUCHERRY-605 107.

43

IT-T34 OBJECT ORIENTED PROGRAMMING

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T34	Object Oriented Programming	3	1	0

Pre-requisite: Structured Programming Language C

Course Objectives:
1. To understand the concepts of object-oriented programming and master OOP using C++.

Course Outcomes:
On successful completion of this course students will be able to:
1. Analyze and design a problem using an object-oriented approach.
2. Implement the problem using C++ programming Language.

Unit I
Object oriented programming - concepts – objects – classes – methods and messages – abstraction and encapsulation – inheritance – abstract classes – polymorphism. Introduction to C++ – classes – access specifiers – function and data members – default arguments – function overloading – friend functions – const and volatile functions - static members – Objects – pointers and objects – constant objects – nested classes – local classes

Unit II
Constructors – default constructor – Parameterized constructors – Constructor with dynamic allocation – copy constructor – destructors – operator overloading – overloading through friend functions – overloading the assignment operator – type conversion – explicit constructor

Unit III
Function and class templates - Exception handling – try-catch-throw paradigm – exception specification – terminate and Unexpected functions – Uncaught exception.

Unit IV
Inheritance – public, private, and protected derivations – multiple inheritance - virtual base class – abstract class – composite objects Runtime polymorphism – virtual functions – pure virtual functions – RTTI – typeid – dynamic casting – RTTI and templates – cross casting – down casting

Unit V
Streams and formatted I/O – I/O manipulators - file handling – random access – object serialization – namespaces - std namespace – ANSI String Objects – standard template library.

(Total : 60 Periods)

Content beyond Syllabus:
1. Implementation of the design patterns to the solution of programming problems.

Text Books:
1. B.Trivedi, "Programming with ANSI C++", Oxford University Press, 2007.

Reference Books:
1. Ira Pohl, "Object Oriented Programming using C++", Pearson Education, Second Edition Reprint 2004..
2. S. B. Lippman, JoseeLajoie, Barbara E. Moo, "C++ Primer", Fourth Edition, Pearson Education, 2005.
3. B. Stroustrup, "The C++ Programming language", Third edition, Pearson Education,2004.
4. D. S. Malik, C++ Programming: From Problem Analysis to Program Design, 2012
5. E. Balaguruswamy,ObjectOriented Programming with C++,6th edition, TMH,2013.

Websites:
1. http://www.cplusplus.com

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT-T34 OBJECT ORIENTED PROGRAMMING
Mini Project on Bank Management System

Submitted by

RAMSUGUMAR.R

SIVANESAN.R

YOGANANDHAM.M

II YEAR – IT

(2018-19)

Bank Management System

Objective:

In this <mark>C++ Projects</mark> we are going to **create C++ Bank Management System**. This application which can be used by Customers for Bank Related Transactions. It is a very simplified application and is very user friendly. We developed this project under Codeblocks editor. This Bank Management System project consist of below modules

- Create New Bank Account
- Deposit Amount to the Account
- Withdraw amount from your account
- Check Balance Inquiry
- Display All Account Holders List
- Update Bank Account
- Close Account

PROGRAM:

```cpp
#include <iostream>
#include<iostream>
#include<fstream>
#include<cctype>
#include<iomanip>
using namespace std;

void write_account(); //function to write record in binary file
void display_sp(int); //function to display account details given by user
void modify_account(int); //function to modify record of file
void delete_account(int); //function to delete record of file
void display_all();      //function to display all account details
void deposit_withdraw(int, int); // function to desposit/withdraw amount for given account
void intro(); //introductory screen function
int main()
{
  char ch;
  int num;
  intro();
  do
  {
    system("cls");
    cout<<"\n\n\n\tMAIN MENU";
    cout<<"\n\n\t01. NEW ACCOUNT";
    cout<<"\n\n\t02. DEPOSIT AMOUNT";
    cout<<"\n\n\t03. WITHDRAW AMOUNT";
    cout<<"\n\n\t04. BALANCE ENQUIRY";
    cout<<"\n\n\t05. ALL ACCOUNT HOLDER LIST";
    cout<<"\n\n\t06. CLOSE AN ACCOUNT";
    cout<<"\n\n\t07. MODIFY AN ACCOUNT";
    cout<<"\n\n\t08. EXIT";
    cout<<"\n\n\tSelect Your Option (1-8) ";
    cin>>ch;
    system("cls");
    switch(ch)
    {
    case '1':

      break;
    case '2':
```

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHAL KUPPAM.

```
        }
    File.close();
    if(found==false)
        cout<<"\n\n Record Not Found ";
}


//*************************************************************
//    INTRODUCTION FUNCTION
//*************************************************************


void intro()
{
    cout<<"\n\n\n\t  BANK";
    cout<<"\n\n\tMANAGEMENT";
    cout<<"\n\n\t  SYSTEM";
    cout<<"\n\n\n\nMADE BY : RRTutors";
    cout<<"\n\n Bank : Bank Of RRT";
    cin.get();
}
```

Output:

Conclusion: In c++ we create bank management System Project with Add account, display balance, modify account, close bank account features.

COURSE OBJECTIVE

➢ To introduce functions of several variables and the idea of applying calculus concepts to problems in Engineering.

➢ To acquaint the student with mathematical tools needed in evaluating multiple integrals and their usage.

➢ To introduce effective mathematical tools for the solutions of differential equations that model physical processes.

COURSE OUTCOME

On successful completion of the module students will be able to:

➢ Apply knowledge of mathematics to solve functions of several variables.

➢ Identify, formulate, and solve engineering problems likemultiple integrals and their usage.

➢ To solve differential equations that model physical processes using effective mathematical tools

UNIT – I

Calculus: Curvature, radius of curvature, evolutes and involutes. Beta and Gamma functions and their properties.   (12)

UNIT – II

Function of Several variables: Partial derivatives, Total derivatives, Differentiation of implicit functions, Change of variables, Jacobians and their properties, Taylor's series for functions of two variables, Maxima and minima, Lagrange's method of undetermined multipliers.   (12)

UNIT – III

Multiple Integrals and Applications: Multiple Integrals, change of order of integration and change of variables in double integrals (Cartesian to polar). Applications: Areas by double integration and volumes by triple integration (Cartesian and polar).   (12)

UNIT – IV

Differential Equations: Exact equations, First order linear equations, Bernoulli's equation, orthogonal trajectories, growth, decay and geometrical applications: Equations not of first degree: equations solvable for p, equations solvable for y, equations solvable for x and Clairaut's type.   (12)

14

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM,

UNIT – V

Differential Equations (Higher order): Linear differential equations of higher order – with constant coefficients, the operator D, Euler's linear equation of higher order with variable coefficients - simultaneous linear differential equations, solution by variation of parameters method– simple applications to electric circuits. **(12)**

Text Books:

1. Venkataraman, M. K, Engineering Mathematics (First Year), Second Edition, The National Publishing Company, Chennai 2010 (For units I, III, IV, V)
2. Grewal B.S., Higher Engineering Mathematics, Khanna Publishers, New Delhi, 41stEdition, 2011. (For Unit II only)

Reference Books:

1. Veerarajan T., Engineering Mathematics for first year, Tata McGraw-Hill, New Delhi, 2008.
2. Kandasamy P. et al, Engineering Mathematics, Vol.1 & 2, S. Chand & Co., New Delhi.
3. Ramana B.V., Higher Engineering Mathematics, Tata McGraw Hill New Delhi, 11th Reprint, 2010.
4. Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons, New Delhi, 8th Edition.
5. Bali, N. P, and Manish Goyal, A Text Book of Engineering Mathematics, Lakshmi Publications, New Delhi, 2007

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM,
PUDUCHERRY-605 107.

15

COURSE OBJECTIVE

➤ *To develop the use of matrix algebra techniques for practical applications and to introduce the concepts of Curl, Divergence and integration of vectors in vector calculus which is needed for many application problems.*

➤ *To introduce Laplace transform which is a useful technique in solving many application problems and to solve differential and integral equations*

➤ *To acquaint the students with Fourier transform techniques used in wide variety of situations in which the functions used are not periodic.*

COURSE OUTCOME

On successful completion of the module students will be able to:

➤ *Apply knowledge of mathematics to solve matrix algebra techniques for practical applications and Curl, Divergence and integration of vectors in vector calculus for many application problems.*

➤ *Identify, formulate, and solve engineering problems like Laplace transform which is a useful technique in solving many application problems and to solve differential and integral equations*

➤ *Apply formulae and analyze problems of Fourier transform techniques*

UNIT – I

Matrices: Eigenvalues and Eigen vectors of a real matrix, Characteristic equation, Properties of Eigenvalues and Eigenvectors. Cayley-Hamilton Theorem, Diagonalization of matrices. Reduction of a quadratic form to canonical form by orthogonal transformation. Nature of quadratic forms   **(12)**

UNIT – II

Vector Calculus: Gradient, divergence and curl, their properties and relations. Gauss divergence theorem and Stoke's theorem (without proof). Simple application problems
(12)

UNIT – III

Laplace Transform: Definition, Transforms of elementary functions, properties. Transform of derivatives and integrals. Multiplication by t and division by t. Transform of unit step function, transform of periodic functions. Initial and final value theorems
(12)

30

UNIT – IV

Applications of Laplace Transform: Methods for determining inverse Laplace Transforms, convolution theorem, Application to differential equations and integral equations. Evaluation of integrals by Laplace transforms.   **(12)**

UNIT – V

Fourier Transform: Fourier Integral theorem (statement only), Fourier transform and its inverse, properties. Fourier sine and cosine transforms, their properties, convolution and Parseval's identity.   **(12)**

Text Books:

1. Venkataraman M.K, Engineering Mathematics The National Publishing Company, Chennai, 2012.
2. Kandasamy P. et al, Engineering Mathematics, Vol.2 & 3, S. Chand & Co., New Delhi.

Reference Books:

1. Veerarajan T., Engineering Mathematics for first year, Tata McGraw-Hill, New Delhi, 2008.
2. Grewal B.S., Higher Engineering Mathematics, Khanna Publishers, New Delhi, 41st Edition, 2011.
3. Ramana B.V., Higher Engineering Mathematics, Tata McGraw Hill New Delhi, 11th Reprint, 2010.
4. Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons, New Delhi.
5. Bali N. and Goyal M., Advanced Engineering Mathematics, Lakshmi Publications Pvt. Ltd., New Delhi, 7th Edition, 2010

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM,
PUDUCHERRY-605 107.

31
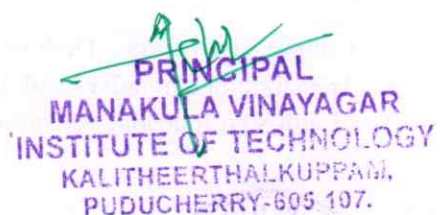
IT-T35 DIGITAL SYSTEM DESIGN

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T35	Digital System Design	3	1	-

Pre-requisite: Basic Electronics

Course Objectives:
- To apply knowledge of number systems, codes and Boolean algebra to the analysis and design of digital logic circuits.
- To identify, formulate, and solve engineering problems in the area of digital logic circuit design.
- To use the techniques, skills, and modern engineering tools such as logic works and VHDL, necessary for engineering practice.
- To design a digital system, components or process to meet desired needs within realistic constraints

Course Objectives:
- To apply knowledge of number systems, codes and Boolean algebra to the analysis and design of digital logic circuits.
- To identify, formulate, and solve engineering problems in the area of digital logic circuit design.
- To use the techniques, skills, and modern engineering tools such as logic works and VHDL, necessary for engineering practice.
- To design a digital system, components or process to meet desired needs within realistic constraints

UnitI–Number Systems and Boolean Algebra   (12 Periods)

Revision of logic gates – Binary number systems and conversion-Binary arithmetic-Binary codes-Boolean algebra - Basic operations-Basic Theorems - Boolean functions – Canonical forms - Simplification of Boolean functions – Karnaugh maps- Tabulation method.

UnitII–Combinational Logic   (12 Periods)

Adders – subtractors– code converters – binary parallel adder –decimal adder – magnitude comparator –encoders–decoders–multiplexers–demultiplexers-BinaryMultiplier–Parity generator and checker.

UnitIII–Sequential Logic I   (12 Periods)

Sequentialcircuits:latches–flipflops–analysisofclockedsequentialcircuits–statereduction and assignments - RegistersandCounters:Registers–shiftregisters–ripplecounters–synchronouscounters–ringcounters–up/downcounters–moduluscounters.

UNITIV –Sequential Logic II   (12 Periods)

Memory and Programmable Logic: Random Access Memory–memory decoding–error detection and correction–ReadOnlyMemory–ProgrammableLogicArrays–
ProgrammableArrayLogic.AsynchronousSequentialLogic:Analysisprocedure–circuitswithLatches–Designprocedure–Reduction of state and Flow tables–Race-Free state assignment–Hazards.

UNITV-Introduction to Verilog Hardware Description Language   (12 Periods)

Introduction–HDLforcombinationalcircuits–Sequentialcircuits–Registersandcounters–HDLdescriptionforbinarymultiplier.

      (Total : 60 Periods)

Content beyond Syllabus:
      Design of ALU and simple computer logic

TEXT BOOKS
1. M.MorrisMano,DigitalDesign,4th edition,Prentice-HallofIndiaPvt. Ltd.,2006.

Reference Books:
1. ThomasL.Floyd,R.P.Jain,DigitalFundamentals,10th edition,PearsonEducation,   2008.
2. LeachMalvino,DigitalPrinciplesandApplications,5th edition,TataMcGrawHill,2005.
3. CharlesH.Roth,FundamentalsofLogicDesign,5th edition,ThomsonBrooks/cole.2003.
4. ThomasCBartee,ComputerArchitectureandLogicDesign,McGrawHill,Singapore,2002.
5. T.R.Padmanabhan,DesignthroughVerilogHDL,Wiley-IEEEPress,2003.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT T35 Digital System Design

Mini Project on Simplification of Boolean Function using K-Map

Submitted by

JAYABALAGURU. V

KAARTHIK.R

KALAISELVI. R

KALAISRIRAM .S

KANIMOZHI. D

KIRUTHIGAIPRIYA.K

KIRUTHIKA.B

KISHOR KUMAR .J

II YEAR – IT

(2018-2019)

Aim: Design and realize a given function using <mark>K-maps and verify its performance</mark>

f (A, B, C, D) =A'BC+AB'C+ABC'+ABC (SOP)

APPARATUS REQUIRED: Power Supply, Digital Trainer, IC's (7404, 7408, 7432) Connecting leads.

BRIEF THEORY: Karnaugh maps are the most extensively used tool for simplification of Boolean functions. It is mostly used for functions having up to six variables beyond which it becomes very cumbersome. In an n-variable K-map there are 2^n cells. Each cell corresponds to one of the combination of n variable, since there are 2^n combinations of n-variables. Gray code has been used for the identification of cells.

PROCEDURE:

(a) With given equation in SOP/POS forms first of all draw a K-map.

(b) Enter the values of the O/P variable in each cell corresponding to its Min/Max term

. (c) Make group of adjacent ones.

(d) From group write the minimized equation.

(e) Design the circuit of minimized equation & verify the truth table.

PRECAUTIONS:

1) Make the connections according to the IC pin diagram.

2) The connections should be tight.

3) The Vcc and ground should be applied carefully at the specified pin only.

Solution:

Reduced form is BC+AC+AB and POS form is f(X, Y, Z) = Y' (X'+Y+Z') (X+Z)
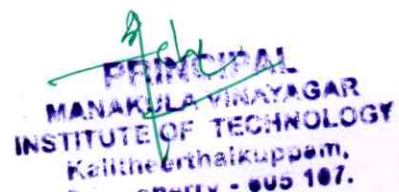
LOGIC DIAGRAM
SOP form

B

C

A

BC

AC

AB

x = BC + AC + AB
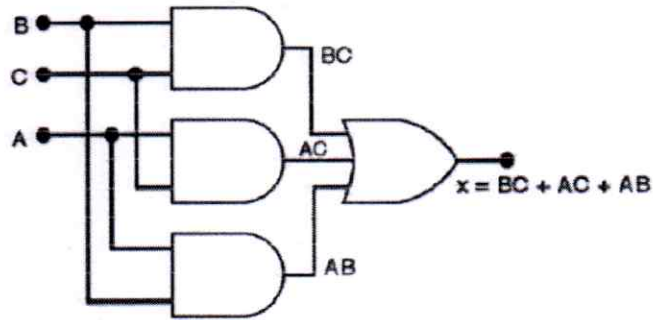
RESULT/CONCLUSION: Implementation of SOP and POS form is obtained with AND and OR gates.

P 101 - COMPUTER PROGRAMMING LAB

List of Exercises

1. Study of OS Commands
2. Write a C program to find the Area of the triangle.
3. Write a C program to find the total and average percentage obtained by a student for 6 subjects.
4. Write a C program to read a three digit number and produce output like

      1 hundreds

      7 tens

      2 units for an input of 172.
5. Write a C program to check whether a given character is vowel or not using Switch – Case statement.
6. Write a C program to print the numbers from 1 to 10 along with their squares.
7. Write a C program to find the sum of 'n' numbers using for, do – while statements.
8. Write a C program to find the factorial of a given number using Functions.
9. Write a C program to swap two numbers using call by value and call by reference.
10. Write a C program to find the smallest and largest element in an array.
11. Write a C program to perform matrix multiplication.
12. Write a C program to demonstrate the usage of Local and Global variables.
13. Write a C program to perform various string handling functions: strlen, strcpy, strcat, strcmp.
14. Write a C program to remove all characters in a string except alphabets.
15. Write a C program to find the sum of an integer array using pointers.
16. Write a C program to find the Maximum element in an integer array using pointers.
17. Write a C program to create student details using Structures.
18. Write a C program to display the contents of the file on the monitor screen.
19. Create a File by getting the input from the keyboard and retrieve the contents of the file using file operation commands.
20. Write a C program to pass the parameter using command line arguments

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM,
PUDUCHERRY-605 107.

44

IT-P31 DATA STRUCTURES LAB

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-P31	DATA STRUCTURES LAB	0	0	3

Course Objectives:

1. To introduce the basics of C++ programming language.

2. To introduce the concepts of ADTs.

3. To introduce the concepts of Hashing and Sorting.

4. Solving various problems using techniques introduced in this course

5. Analyze the algorithm's / program's efficiency in terms of time and space complexity

Course Outcomes:

On successful completion of this practical's students will be able to:

1. Solve any given problem by identifying appropriate Data Structure

2. Evaluate program's efficiency in terms of time and space complexity

Exercises:

1. Programs using C++ concepts like
   - classes & objects
   - Constructors & Destructors
   - Function Overloading
   - Inheritance
   - Operator overloading
   - Polymorphism & virtual functions
   - I/O streams
   - File operations.
   - Templates
   - Exception handling (to be included in all problems)
   - String operations

2. Programs related to data structures using C++

Implementation of Sorting techniques

Implementation of Searching techniques

Implementation of stack and queue operations using linked list and array.

Expression evaluation

Polynomial addition

Sparse matrix addition

Binary tree representation and traversal techniques

Binary search trees

Graph representation and traversal techniques

Single source shortest path algorithm

Hashing and collision resolution techniques

AVL Trees

Content beyond Syllabus:

1. Analyze program's efficiency in terms of time and space complexity

Text Books:

3. Mark Allen Weiss, Data structures and algorithm analysis in C++, Pearson Education, 6th edition, 2011

4. YedidyahLangsam, Moshe J Augenstein and Aaron M Tanenbaum, Data Structures using C and C++, 2nd edition, Prentice Hall of India, 2009.

Reference Books:

1. G.A.V.Pai, Data Structures and Algorithms – Concepts, Techniques and Applications, Tata McGraw Hill Publishing Company Limited, New Delhi, 2008.

2. Ellis Horowitz and SartajSahni, Fundamentals of Data structures, Galgotia Publications, 2nd Edition, New Delhi, 2001.

3. Alfred V. Aho, Jeffrey D. Ullman, John E. Hopcroft. Data Structures and Algorithms. Addison Wesley, 1983

Websites:

1. http://www.cs.sunysb.edu/~skiena/214/lectures/

2. http://cse.yeditepe.edu.tr/~odemir/spring2012/cse211/analysis.pdf

MANAKULAVINAYAGARINSTITUTEOFTECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENTOFINFORMATIONTECHNOLOGY

IT–P31 DATA STRUCTURE LABORATORY

Mini Project

on

SIMPLE GRAPH USING THE ADJACENCY LIST& DEPTH FIRST SEARCH TRAVERSAL

Submittedby
LAVANYA.D
LOGASOWMYA. V
MADHAN KAVI.M
MADHAVAN.G
MAPPILLAIMEERAN.K
MEENA.S
NANDHINI.M
NIVETHA.K

II YEAR–IT

(2018-2019)

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

SIMPLEGRAPHUSINGTHEADJACENCYLIST

AIM:

TowriteaC++programtoimplementanddemonstrateasimplegraphusingtheadjacencylist.

DESCRIPTION:

Herewearegoingtodisplaytheadjacencylistforaweighteddirectedgraph.Wehaveusedtwo structures to hold the adjacency list and edges of the graph. The adjacency list is displayed as (start_vertex, end_vertex, weight).

ALGORITHM:

Step1:Starttheprogram.
Step2:Createthestructuretohold theadjacencyandedgesof the graph.
Step3:CreateaclassDiaGraphtoinsertnewnodesintoadjacencylistfromgivengraph. Step 4: Insert the new nodes into the graph.
Step5:Displaythealladjacentverticesofgivenvertex. Step 6:Stop the program

SOURCECODE:

```
#include <iostream>
usingnamespacestd;
//storesadjacencylistitems
structadjNode {
    intval, cost;
    adjNode*next;
};
//structuretostoreedges
structgraphEdge {
    intstart_ver,end_ver,weight;
};
classDiaGraph{
    //insertnewnodesintoadjacencylistfromgivengraph
    adjNode*getAdjListNode(intvalue,intweight,adjNode*head){
        adjNode* newNode = new adjNode;
        newNode->val = value;
        newNode->cost=weight;

        newNode->next=head;//pointnewnodetocurrenthead return
        newNode;
    }
    intN;//numberofnodesin thegraph
```

AIM:

ToimplementtheDFS(DepthFirstSearch)traversaltechniqueusingC++.

DESCRIPTION:

Unlike BFS in which we explore the nodes breadthwise, in DFS we explore the nodes depth-wise.InDFSweuseastackdatastructureforstoringthenodesbeingexplored.Theedgesthat lead us to unexplored nodes are called 'discovery edges' while the edges leading to already visited nodes are called 'block edges'.

ALGORITHM:

Step1: Inserttherootnodeorstartingnodeofatreeoragraphinthestack.
Step2: Popthetopitemfromthestackand addittothevisited list.
Step3: Findalltheadjacentnodesofthenodemarkedvisitedandaddtheonesthatare not yet visited, to the stack.
Step4: Repeatsteps2and3untilthestackis empty.\

SOURCECODE:

```cpp
#include<iostream>
#include <list>
usingnamespacestd;
//graphclassforDFStravesal
class DFSGraph
{
intV;     //No.ofvertices
list<int>*adjList;     //adjacencylist
voidDFS_util(intv,boolvisited[]);//AfunctionusedbyDFS public:
   //classConstructor
DFSGraph(int V)
   {
this->V= V;
adjList=new list<int>[V];
   }
   //functiontoaddanedgetograph void
addEdge(int v, int w){
adjList[v].push_back(w);//Addwtov'slist.
   }

void DFS();    //DFStraversalfunction
};
voidDFSGraph::DFS_util(intv,boolvisited[])
{
   //currentnodevisisited
```

P103 - BASIC ELECTRICAL AND ELECTRONICS LAB

Electrical Laboratory Experiments

1. Electrical Safety, Precautions, study of tools and accessories.
2. Practices of different joints.
3. Wiring and testing of series and parallel lamp circuits.
4. Staircase wiring.
5. Doctor's room wiring.
6. Bed room wiring.
7. Godown wiring.
8. Wiring and testing a ceiling fan and fluorescent lamp circuit.
9. Study of different types of fuses, circuits breakers and A.C and D.C meters

Electronics Laboratory Experiments

1. Study of CRO

(a) Measurement of AC and DC voltages

(b) Frequency and phase measurements (using Lissajou's figures)

2. Verification of Kirchoff's Voltage and Current Laws

Determine the voltage and current in given circuits using Kirchoff's laws theoretically and verify the laws experimentally.

3. Characteristics and applications of PN junction diode.

Forward and Reverse characteristics of PN junction diode.

Application of Diode as Half wave Rectifier – Measurement of ripple factor with and without capacitor filter

4. Frequency Response of RC Coupled Amplifiers

Determination of frequency response of given RC coupled amplifier - Calculation of bandwidth.

5. Study of Logic Gates

(a) Verification of Demorgan's theorems

(b) Verification of truth tables of OR, AND, NOT, NAND, NOR, EX-OR, EX-NOR gates and Flipflops - JK, RS, T and D

(c) Implementation of digital functions using logic gates and Universal gates

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM,
PUDUCHERRY-605 107.

46

Subject Code	Subject Name	Lectures (Periods)	Tutorial (Periods)	Practical (Periods)
IT-P32	**ELECTRONIC DEVICES AND CIRCUITS LAB**	0	0	3

Course Objectives:
1. Introduce the basic concepts of various electronic circuits.
2. To study the performance of various types of feedback amplifiers.
3. To analyze and test the performance of small signal and large signal amplifiers.
4. To test and examine the applications of operational amplifiers.

Course Outcomes:
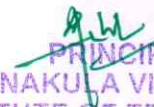
On successful completion of the lab classes students will be able to,

1. Conceptually and fully aware of the basic concepts, techniques and applications of electronic circuits.
2. To enhance their technical skills through analyzing the waveforms obtained at various stages of the circuit.
3. Carry out design of the various electronic circuits suitable for a specific application.

- **Experiment List:**
- VI characteristics of semiconductor diodes.

- Diode clipping and clamping circuits.

- Characteristics of CB transistor configuration.

- Input and Output characteristics of CE transistor configuration.

- Characteristics of FET, Determination of drain resistance, mutual conductance and amplification factor.

- Feedback amplifier, To determine the frequency response with and without feedback.

- Hartley oscillator and Wein-bridge oscillator.

- Class B push-pull power amplifier.

- Applications of OP-Amps - Adder, Subtractor, Integrator and Differentiator.

- Active low pass and high pass filters using OP-AMP.

Text Books:

1. Jacob Millman and C. Halkias, Satya brataJit, Electronic Devices and circuits, Second edition, McGraw Hill Publications, 2007.

2. Jacob Millman and Arvin Grabel, Micro-Electronics, McGraw Hill, Fifth edition, 2008.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

DEPARTMENT OF IT

VOLTAGE REGULATOR USING LM317

Submitted by

PARTHIBAN .P
PRAVEEN KUMAR.G
RAJNIVASH.M
RAM SUGUMAR. R
SITHARTHAN.S
SIVANESAN. R

II YEAR IT

(2018-2019)

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM
PUDUCHERRY - 605 107.

VOLTAGE REGULATOR USING LM317

To Study of LM317 serves a wide variety of applications including local, on card regulation. This device can also be used to make a programmable output regulator, or by connecting a fixed resistor between the adjustment and output, the LM317 can be used as a precision current regulator.

Components Required:

SPECIFICATIONS

BR1 = BRIDGE RECTIFIER, 100V - 3AC1 =
1000 µF, 63V

IC1 = LM317, ADJUSTABLE REGULATOR

C2 = 0.1 µF

Circuit Diagram:

Variable Regulated Power Supply
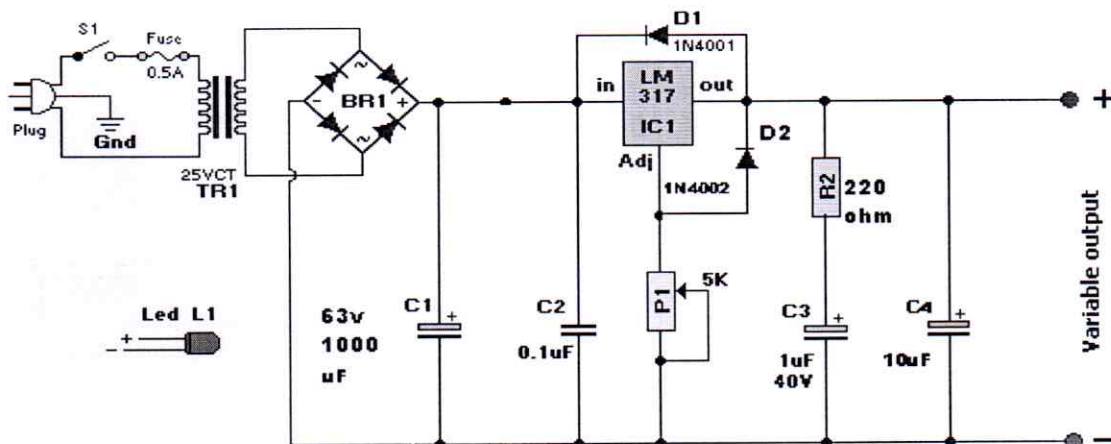
IT-P33 DIGITAL LAB

Subject Code	Subject Name	Lectures (Periods)	Tutorial (Periods)	Practical (Periods)
IT-P33	DIGITAL LAB	0	0	3

Course Objectives:

1. To perform fundamental operations on digital circuits.
2. To apply the concepts of basic combinational logic circuits, sequential circuit elements, and programmable logic in the laboratory setting.
3. To design the combinational and sequential circuits using Verilog Hardware Description Language (VHDL)

Course Objectives:

- To apply knowledge of number systems, codes and Boolean algebra to the analysis and design of digital logic circuits.
- To identify, formulate, and solve engineering problems in the area of digital logic circuit design.
- To use the techniques, skills, and modern engineering tools such as logic works and VHDL, necessary for engineering practice.
- To design a digital system, components or process to meet desired needs within realistic constraints

List of Experiments:

1. Implementation of logic circuits using gates
    - Full adder/full subtractor
    - Implementation of logic functions using universal gates only
    - Code converters
    - Parity generator and Checker
    - Design of priority encoder
    - Implementation of Boolean functions using MUX
    - Design of decoder, Demultiplexer.
2. Implementation of circuits using MSI
    - Synchronous counters
    - Asynchronous counters
    - Binary multiplier
    - Decimal Adder
    - Universal shift register
    - Design of Arithmetic unit
3. Interface experiments with MSI
    - Interface of ALU with memory
4. Design and Implementation of combinational circuits using Verilog Hardware Description Language (VHDL)
    - Combinational circuits – Adder/ Subtractor, Binary multiplier
    - Sequential circuits – Flip flops, counters

Text Books:

1. Morris Mano, Digital Design, Third Edition, Pearson Education, 2002.
2. Carl Hamacher, ZvonkoVranesic And SafwatZaky, Computer Organization, Fifth Edition, Tata McGraw Hill, 2002.

Reference Books:

1. Charles H. Roth, Jr., Fundamentals of Logic Design, Fifth Edition, Jaico Publishing House, 2003.
2. William Stallings, Computer Organization and Architecture – Designing for Performance, Sixth Edition, Pearson Education, 2003.
3. David A. Patterson And John L. Hennessy, Computer Organization and Design: The Hardware/Software Interfacel, Third Edition, Elsevier, 2005.
4. John P. Hayes, Computer Architecture and Organization, Third Edition, Tata McGraw Hill, 1998.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY
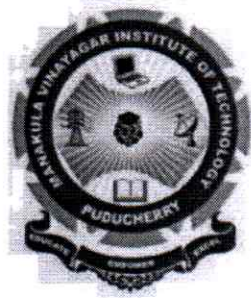
IT P33 Digital Lab

Mini Project on ==Simplification of Boolean Function==

Submitted by

SUNDARAVARADHAN.T

SURESH. C

SWARAJBAL

SWATHI .B

SWETHA. A

UMA SANKARI .S

YOGANANDHAN.M

YUVARAJA .P

II YEAR – IT

(2018-2019)

AIM: To simplify the given expression and to realize it using basic gates and universal gates.

LEARNING OBJECTIVE:

i)   Simplify the Boolean expression and build the logic circuit.

ii)   For a given truth table derive the Boolean expressions and build the logic circuit to realize it.

COMPONENTS REQUIRED:

IC 7400, IC 7408, IC 7432, IC 7406, IC 7402, Patch cards and IC Trainer Kit.

THEORY:

A Karnaugh map (K-map) is a pictorial method used to minimize Boolean expressions without having to use Boolean algebra theorems and equation manipulations. A K-map can be thought of as a special version of a truth table. Using a K-map, expressions with two to four variables are easily minimized.

Canonical Forms (Normal Forms): Any Boolean function can be written in disjunctive normal form (sum of min-terms) or conjunctive normal form (product of max-terms). A Boolean function can be represented by a Karnaugh map in which each cell corresponds to a minterm. The cells are arranged in such a way that any two immediately adjacent cells correspond to two minterms of distance 1. There is more than one way to construct a map with this property.

Karnaugh Maps

For a function of two variables, say, f(x, y),

	X'	X
y'	f(0,0)	f(1,0)
y	f(0,1)	f(1,1)

For a function of three variables, say, f(x, y, z)

	X'Y'	X'Y	XY	XY'
Z'	f(0,0,0)	f(0,1,0)	f(1,1,0)	f(1,0,0)
Z	f(0,0,1)	f(0,1,1)	f(1,1,1)	f(1,0,1)

For a function of four variables: f (w, x, y, z)

	W'X'	W'X	WX	WX'
Y'Z'	0	4	12	8
Y'Z	1	5	13	9
YZ	3	7	15	11
YZ'	2	6	14	10

Realization of Boolean expression:

Y=A'B'CD'+A'BCD'+ABCD'+AB'CD'+AB'C'D'+AB'C'D+AB'CD
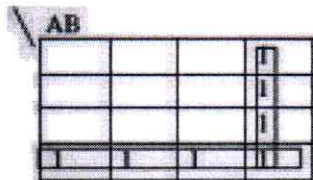
After simplifying using K-Map method we get   Y=AB'+CD'

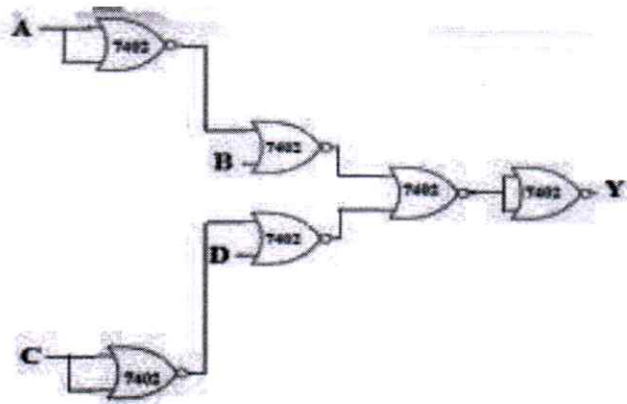**Realization using Basic gates**
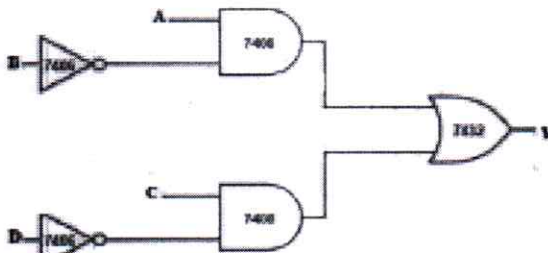
Realization using NAND gates
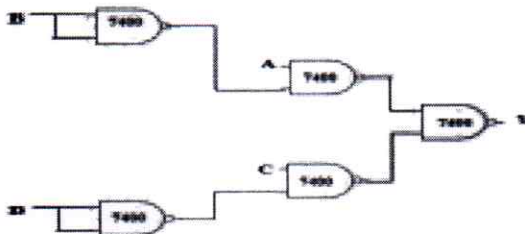
INPUTS				OUTPUT
A	B	C	D	Y
0	0	0	0	0
0	0	0	1	0
0	0	1	0	1
0	0	1	1	0
0	1	0	0	0
0	1	0	1	0
0	1	1	0	1
0	1	1	1	0
1	0	0	0	1
1	0	0	1	1
1	0	1	0	1
1	0	1	1	1
1	1	0	0	0
1	1	0	1	0
1	1	1	0	1
1	1	1	1	0

2) For the given Truth Table, realize a logical circuit using basic gates and NAND gates

Inputs				Output
A	B	C	D	Y
0	0	0	0	1
0	0	0	1	1
0	0	1	0	0
0	0	1	1	0
0	1	0	0	1
0	1	0	1	1
0	1	1	0	0
0	1	1	1	0
1	0	0	0	0
1	0	0	1	0
1	0	1	0	0
1	0	1	1	0
1	1	0	0	0
1	1	0	1	1
1	1	1	0	0
1	1	1	1	1

PROCEDURE:
- Check the components for their working.
- Insert the appropriate IC into the IC base.
- Rig up the circuit as shown in the logic circuit diagram.
- Apply various input data to the logic circuit via the input logic switches.
- Note down the corresponding output and verify the truth table.

Result: Thus simplified the Given Expression using logic gates and Universal gates.

Course Objectives:
1. To introduce the basics of electronic communication s
2. To introduce different analog modulation systems.
3. To introduce the operation of modulator and demodulator for different analog modulation systems.
4. To explore the use of pulse modulation system
5. To introduce the techniques of digital modulation.

Course Outcomes:

On successful completion of the course students:
1. Will be clear with the concepts of different analog modulation systems
2. Will understand the need for pulse modulation systems
3. Will have a clear idea on concept and applications of digital modulation systems

Unit I: Amplitude Modulation Systems	(12 Periods)

External and internal noise - Noise figure - Need for modulation - Amplitude modulation –Frequency spectrum of AM wave – Representation of AM – Power relation – Generation of AM waves – Balanced modulators – Suppression of carrier – DSB and SSB –Demodulation of AM waves – Synchronous and envelope detectors.

Unit II: Angle Modulation System	(10 Periods)

Frequency modulation and phase modulation – Mathematical representation of FM – Frequency spectrum of FM wave – Generation of FM wave – Direct and Indirect methods – Demodulation of FM waves – Slope detector –Balanced slope detector – Foster-Seeley discriminator – Ratio detector.

Unit III: Transmitters and Receivers	(10 Periods)

Low level and high level AM transmitters – FM transmitter – Super heterodyne AM receiver – Receiver characteristics - Communication receiver – Diversity reception – FM receivers.

Unit IV: Pulse Modulation	(9 Periods)

Principles of pulse modulation – sampling theorem, PAM – PWM – PPM— Generation of PAM, PPM and PWM waves – Demodulation of PAM, PWM and PPM. Principle of Pulse code modulation - elements of PCM system- Delta modulation and DPCM-transmitter and receiver

Unit V: Digital Communication	(9 Periods)

Principle of ASK- Transmitter and receiver for coherent BPSK, BFSK and QPSK- Principle of QAM - transmitter and receiver for 8- QAM and 8-PSK. Basic principle of M-ary PSK and M-ary FSK. Bandwidth efficiency and error performance comparisons of PSK, FSK and QAM (detailed derivations not required)

Content beyond the Syllabus:

Students will be motivated to visit the websites of AIR and Doordharshan and understand the practical frequency assignment, broadcast power level and coverage area of all the Indian radio and TV stations

Text Books:
1. George Kennedy and Bernard Davis, Electronic Communication Systems, Fourth edition, Tata Mc Graw Hill, 2008.
2. Simon Haykin, Communication Systems, Fourth edition, Wiley, 2013

Reference Books:
1. Wayne Tomasi, Electronic Communication Systems, Fifth edition, Pearson Education, 2008.
2. D. Roddy and Coolen, Electronic Communications, Fourth edition, Pearson Education, 2008.

Website:
1. http://drdo.gov.in/drdo/labs/LRDE/English

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF IT

Mini Project on Encryption and Decryption Using Mono Alphabetic Cipher

Submitted by

PAKKER MOHAMED SOHEIL
VANITHA
DHARSHINI.S
ABINAYA. M
AJEETHA JENIFER MERLINE.M
AMUDHA. R

II YEAR IT

(2018-2019)

Encryption and Decryption Using Mono Alphabetic Cipher

AIM:

To write a matlab program for encrypting and decrypting a message using mono alphabetic ciphering technique.

REQUIREMENTS:

1. MATLAB

2. PC

ALGORITHM:

1. Start

2. Get the message to be encrypted and assign to a variable.

3. Get the key value as input.

4. For each letter of ASCII value, add the key value.

5. Display the encrypted alphabet for the input message

6. For decryption, each encrypted ASCII value of the alphabet has to subtracted by the key value.

7. Display the decrypted alphabet.

ENCRYPTION AND DECRYPTION USING MONO ALPHABETIC CIPHER PROGRAM

```
% START
clc;
clear all;
close all;
% GETTING TEXT TO BE ENCRYPTED & FINDING LENGTH OF THE TEXT
x=input('Enter Input Text =','s');
len=length(x);
Array1=[];
input1=[];
% GETTING THE KEY FOR ENCRYPTION
key = input( 'Enter Key Value:');
for i=1:len
input1(i)=x(i);
end;
% ASCII VALUE OF EACH ALPHABET IS ADDED WITH KEY VALUE
for i=1:len
Array1(i)=input1(i)+key;
%HANDLING SMALL ALPHABETS
```

IT-T43 DESIGNANDANALYSISOFALGORITHMS

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T43	Design and Analysis of Algorithms	3	1	0

Course Objectives:

1. To introduce the fundamental strategies of different algorithm design techniques.
2. Solving various problems using techniques introduced in this course.
3. Analyze the algorithm's / program's efficiency in terms of time and space complexity.

Course Outcomes:

On successful completion of this course students will be able to:

1. Analyze / compare the given algorithm.
2. Compute the time complexity/space complexity of any recursive/non recursive algorithms.
3. Solve any given problem using the fundamental design techniques.

Unit: I (12 Periods)

Introduction: what is an Algorithm – contradiction- mathematical induction -Efficiency of algorithms – average and worst-case – the order of - asymptotic notation.

Analysis Of Algorithms: Analyzing control structures – solving recurrences – homogeneous recurrences – inhomogeneous recurrences.

Unit: II (12 Periods)

Divide And Conquer Method: General method - Binary search – finding maximum and minimum - merge sort – quick sort – strassen's matrix multiplication.

Greedy Method: General method - Knapsack problem – job sequencing with deadlines - Prim's algorithm – Kruskal's algorithm – optimal storage on tapes – optimal merge patterns - Dijkstra's algorithm.

Unit: III (12 Periods)

Dynamic Programming: General method –Principle of optimality – multi stage graph - all pairs shortest paths - Warshall's and Floyd's algorithms – optimal binary search tree – 0 / 1 knapsack problem – traveling salesman problem

Unit: IV (12 Periods)

Tree traversals: Depth first search – articulation points – breadth first search

Backtracking: General method - n queen's problem – sum of subsets – graph coloring – Hamiltonian cycle – knapsack problem

Unit: V (12 Periods)

Branch And Bound: Least Cost search – 15 puzzle – control abstractions for LC search – bounding – FIFO Branch and bound – LC branch and Bound - Knapsack problem: LC branch and bound – FIFO branch and bound solutions – Traveling salesman problem – assignment problem

(Total : 60 Periods)

Content beyond Syllabus:

1. Algebraic problems
2. NP Hard and NP complete problems
3. Approximation Algorithms

Text Books:

1. Gilles Brassard and Paul Brately, Fundamentals of Algorithmics, Prentice Hall of India, 1997.
2. AnanyLevitin, Introduction to Design and Analysis of Algorithms, Pearson Education Inc., 2005.
3. Ellis Horowitz, SartajSahni and S. Rajasekaran, Fundamentals of Computer Algorithms , Galgotia Publications, 2nd Edition, New Delhi, 2003.

Reference Books:

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT-P41 - ALGORITHM LABORATORY

Mini Project On
RABIN-KARP ALGORITHM & VERTEX COVER PROBLEM

Submitted by

RAM SUGUMAR. R
SITHARTHAN.S
SIVANESAN. R
SNEHASHRI.V

II YEAR – IT
(2018-2019)

RABIN-KARP ALGORITHM

AIM : To implement Rabin karp algorithm using c++

DESCRIPTION:

The Naive String Matching algorithm slides the pattern one by one. After each slide, it one by one checks characters at the current shift and if all characters match then prints the match. Like the Naive Algorithm, Rabin-Karp algorithm also slides the pattern one by one. But unlike the Naive algorithm, Rabin Karp algorithm matches the hash value of the pattern with the hash value of current substring of text, and if the hash values match then only it starts matching individual characters.
So Rabin Karp algorithm needs to calculate hash values for following strings:

1) Pattern itself.
2) All the substrings of text of length m.

Since we need to efficiently calculate hash values for all the substrings of size m of text, we must have a hash function which has following property. Hash at the next shift must be efficiently computable from the current hash value and next character in text or we can say hash(txt[s+1 .. s+m]) must be efficiently computable from hash(txt[s .. s+m-1]) and txt[s+m] i.e., hash(txt[s+1 .. s+m])= rehash(txt[s+m], hash(txt[s .. s+m-1])) and rehash must be O(1) operation.
The hash function suggested by Rabin and Karp calculates an integer value. The integer value for a string is numeric value of a string. For example, if all possible characters are from 1 to 10, the numeric value of "122" will be 122. The number of possible characters is higher than 10 (256 in general) and pattern length can be large. So the numeric values cannot be practically stored as an integer. Therefore, the numeric value is calculated using modular arithmetic to make sure that the hash values can be stored in an integer variable (can fit in memory words). To do rehashing, we need to take off the most significant digit and add the new least significant digit for in hash value. Rehashing is done using the following formula.

hash(txt[s+1 .. s+m]) = (d (hash(txt[s .. s+m-1]) - txt[s]*h) + txt[s + m]) mod q
hash(txt[s .. s+m-1]) : Hash value at shift s.
hash(txt[s+1 .. s+m]) : Hash value at next shift (or shift s+1)
d: Number of characters in the alphabet
q: A prime number
h: $d^{\wedge}(m-1)$

ALGORITHM:

RABIN-KARP-MATCHER (T, P, d, q)

n <- length [T]

VERTEX COVER PROBLEM

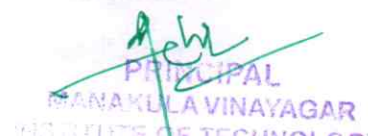**AIM :** To implement vertex cover problem using c++

DESCRIPTION:

A vertex cover of an undirected graph is a subset of its vertices such that for every edge (u, v) of the graph, either 'u' or 'v' is in the vertex cover. Although the name is Vertex Cover, the set covers all edges of the given graph. Vertex Cover Problem is a known NP Complete problem, i.e., there is no polynomial-time solution for this unless P = NP. There are approximate polynomial-time algorithms to solve the problem though.

ALGORITHM:

1) Initialize the result as {}

2) Consider a set of all edges in given graph. Let the set be E.

3) Do following while E is not empty

...a) Pick an arbitrary edge (u, v) from set E and add 'u' and 'v' to result

...b) Remove all edges from E which are either incident on u or v.

4) Return result

PROGRAM:

```cpp
#include<iostream>
#include <list>
using namespace std;
// This class represents a undirected graph using adjacency list
class Graph
{
    int V;    // No. of vertices
    list<int> *adj; // Pointer to an array containing adjacency lists
public:
    Graph(int V);  // Constructor
    void addEdge(int v, int w); // function to add an edge to graph
    void printVertexCover();  // prints vertex cover
```

DEPARTMENT OF INFORMATION TECHNOLOGY

IT-P41 - ALGORITHM LABORATORY

Mini Project On Longest Common Subsequence & Activity Selection Problem

Submitted by

NIVETHA.K
PARTHIBAN .P
PRAVEEN KUMAR.G
RAJNIVASH.M

II YEAR – IT

(2018-2019)

LONGEST COMMON SUBSEQUENCE

AIM:

To implement Longest Common Subsequence using c program.

DESCRIPTION:

Here longest means that the subsequence should be the biggest one. The common means that some of the characters are common between the two strings. The subsequence means that some of the characters are taken from the string that is written in increasing order to form a subsequence.

ALGORITHM:

Suppose X and Y are the two given sequences

Initialize a table of LCS having a dimension of X.length * Y.length

XX.label = X

YY.label = Y

LCS[0][] = 0

LCS[][0] = 0

Loop starts from the LCS[1][1]

Now we will compare X[i] and Y[j]

   if X[i] is equal to Y[j] then

LCS[i][j] = 1 + LCS[i-1][j-1]

Point an arrow LCS[i][j]

Else

LCS[i][j] = max(LCS[i-1][j], LCS[i][j-1])

SOURCE CODE:

```c
#include <stdio.h>
#include <string.h>
int i, j, m, n, LCS_table[20][20];
char S1[20] = "abaaba", S2[20] = "babbab", b[20][20];
void lcsAlgo() {
m = strlen(S1);
n = strlen(S2);
// Filling 0's in the matrix
for (i = 0; i <= m; i++)
```

ACTIVITY SELECTION PROBLEM

AIM:

To implement activity selection problem using c program .

DESCRIPTION:

The Activity Selection Problem is an optimization problem which deals with the selection of non-conflicting activities that needs to be executed by a single person or machine in a given time frame.

Each activity is marked by a start and finish time. Greedy technique is used for finding the solution since this is an optimization problem.

ALGORITHM:

Following are the steps we will be following to solve the activity selection problem,

Step 1: Sort the given activities in ascending order according to their finishing time.

Step 2: Select the first activity from sorted array `act[]` and add it to `sol[]` array.

Step 3: Repeat steps 4 and 5 for the remaining activities in `act[]`.

Step 4: If the start time of the currently selected activity is greater than or equal to the finish time of previously selected activity, then add it to the `sol[]` array.

Step 5: Select the next activity in `act[]` array.

Step 6: Print the `sol[]` array.

SOURCE CODE:

```c
#include<stdio.h>
int main(){
    int start[] = {1 , 5 , 12};
    int finish[] = {10, 13, 23};
    int activities = sizeof(start)/sizeof(start[0]);
    int i, j;
    printf ("Following activities are selected \t");
```

IT-T44 MICROPROCESSORS AND MICROCONTROLLERS

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T44	Microprocessors and Microcontrollers	3	1	0

Pre-requisite:

Digital Electronics and Computer Architecture

Course Objectives:

1. To understand the architectures and the instruction set of 8085 microprocessor
2. To understand the architectures and the instruction set of 8086 microprocessor
3. To understand the architectures and the instruction set of 8051 microcontroller
4. To learn the assembly language program using 8085, 8086 and 8051 instruction set
5. To learn interfacing of microprocessors and microcontrollers with various peripheral

Course Outcomes:

On successful completion of this course students will be able to:

1. Understanding the inner working components of the microprocessor and microcontrollers
2. Developing assembly language program using 8085 instruction set
3. Developing assembly language program using 8086 instruction set
4. Developing assembly language program using 8051 instruction set
5. Developing various I/O programs for 9085, 8086 and 8051

Unit: I

Intel 8085 Microprocessor: Introduction - Need for Microprocessors – Evolution – Intel 8085 Hardware - Architecture – Pin description - Internal Registers – Arithmetic and Logic Unit – Control Unit – Instruction word size - Addressing modes – Instruction Set – Assembly Language Programming - Stacks and Subroutines - Timing Diagrams. Evolution of Microprocessors – 16-bit and 32-bit microprocessors.

Unit II

Intel 8085 Interrupts and DMA: 8085 Interrupts – Software and Hardware Interrupts – 8259 Programmable Interrupt Controller - Data Transfer Techniques – Synchronous, Asynchronous and Direct Memory Access (DMA) and 8237 DMA Controller- 8253 Programmable Interval Timer.

Unit III

Memory & I/O Interfacing: Types of memory – Memory mapping and addressing – Concept of I/O map – types – I/O decode logic – Interfacing key switches and LEDs – 8279 Keyboard/Display Interface - 8255 Programmable Peripheral Interface – Concept of Serial Communication – 8251 USART – RS232C Interface.

Unit IV

Intel 8086 Microprocessor: Introduction-Intel 8086 Hardware – Pin description – External memory Addressing – Bus cycles – Interrupt Processing. Addressing modes - Instruction set – Assembler Directives.

Unit V

Microcontroller: Intel 8051 Microcontroller: Introduction – Architecture – Memory Organization – Special Function Registers – Pins and Signals – Timing and control – Port Operation – Memory and I/O interfacing – Interrupts – Instruction Set and Programming.

(Total : 60 Periods)

Content beyond Syllabus:

Study of Multi-core Architecture and Programming
Study of Intel i5 processor

Text Books:

1. Ramesh S. Gaonkar, "Microprocessor Architecture, Programming and Applications with 8085", Penram International Publications, Fifth Edition,2002.
2. Krishna Kant, "Microprocessors and Microcontrollers – Architectures, Programming and System Design 8085, 8086, 8051, 8096", PHI, 2008.
3. N. Senthil Kumar, M Saravanan and S. Jeevananthan, "Microprocessors and Microcontrollers", Oxford University Press, 2010.

Reference Books:

1. A. P. Godse and D.A Godse, "Microprocessors and Microcontrollers", Technical Publications, Fourth Edition, 2008.
2. Barry B. Brey, "The Intel Microprocessors 8086/8088, 80186/80188, 80286, 80386 and 80486, Pentium, Pentium Pro Processor, Pentium II, Pentium III Pentium 4 – Architecture, Programming and Interfacing, 7thEdn., PHI, 2008.
3. Ajay V Deshmukh, "Microcontrollers – Theory and Applications", Tata McGraw-Hill, Seventh Edition, 2007.

Websites:

1. http://infocenter.arm.com/help/index.jsp?topic=/com.arm.doc.dai0211a/index.html
2. http://www.arm.com/products/processors/classic/arm7/index.php
3. http://infocenter.arm.com/help/index.jsp?topic=/com.arm.doc.dai0211a/index.html
4. http://www.embeddedindia.com/

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT – T44 MICROPROCESSORS AND MICROCONTROLLERS

Mini Project on Fading a LED

Submitted by

HARISH.B

HARSHANAA. U. S

HARSHAVARDENI .D

HASHVANDHINI .K

INSHANIYA BAHADUR .N

JANAVICA. R

JAYABALAGURU. V

II YEAR – IT

(2018-2019)

Demonstrates the use of the analogWrite() function in fading an LED off and on. AnalogWrite uses pulse width modulation (PWM), turning a digital pin on and off very quickly with different ratio between on and off, to create a fading effect.

Hardware Required

- Arduino board

- LED

- 220 ohm resistor

- hook-up wires

- breadboard

CIRCUIT

Connect the anode (the longer, positive leg) of your LED to digital output pin 9 on your board through a 220 ohm resistor. Connect the cathode (the shorter, negative leg) directly to ground.

IT-T45 JAVA PROGRAMMING

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T45	Java Programming	3	1	---

Pre-requisite: Object Oriented Programming

Course Objectives:
1. To understand the basics of Java
2. To learn the features of Java
3. To learn the advanced concepts in Java.

Course Outcomes: Students will understand the benefits and capabilities of Java.

Unit: I

Creation of Java, importance of Java to internet, byte code, Java buzzwords, data types, declaring variables, dynamic initialization, scope and life time of variables, arrays, operators, control statements, type conversion and casting, compiling and running of simple Java program. Concepts of classes and objects, class fundamentals Declaring objects, assigning object reference variables, introducing methods, constructors, usage of static with data and methods, usage of final with data, access control, this key word, garbage collection, overloading methods and constructors, parameter passing - call by value, recursion, nested classes and inner classes, exploring the String class.

Unit: II

Basic concepts, member access rules, usage of super key word, forms of inheritance, method overriding, abstract classes, dynamic method dispatch, using final with inheritance, the Object class. Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages, differences between classes and interfaces, defining an interface, implementing interface, applying interfaces, variables in interface and extending interfaces.

Unit: III

Concepts of Exception handling, types of exceptions, usage of try, catch, throw, throws and finally keywords, Built-in exceptions, creating own exception sub classes, Concepts of Multithreading, differences between process and thread, thread life cycle ,creating multiple threads using Thread class, Runnable interface, Synchronization, thread priorities, inter thread communication, daemon threads, deadlocks, thread groups.

Unit: IV

Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes.
AWT : Concepts of components, container, panel, window, frame, canvas, Font class, Color class and Graphics.
Applets - Concepts of Applets, differences between applets and applications, life cycle of an applet, types of applets, creating applets, passing parameters to applets.

Unit: V

RMI- JDBC- Developing Java Program for RMI and JDBC.

(Total : 60 Periods)

Content beyond Syllabus:
Java's support in graphics, networking, web technology etc.

Text Books:
1. The Complete Reference Java J2SE 5th Edition, Herbert Schildt, TMH Publishing Company Ltd, NewDelhi.
2. Big Java 2nd Edition, Cay Horstmann, John Wiley and Sons.

Reference Books:
1. Java How to Program, Sixth Edition, H.M.Dietel and P.J.Dietel, Pearson Education/PHI
2. Core Java 2, Vol 1, Fundamentals, Cay.S.Horstmann and Gary Cornell, Seventh Edition, Pearson Education.
3. Core Java 2, Vol 2, Advanced Features, Cay.S.Horstmann and Gary Cornell, Seventh Edition, Pearson Education.

Websites:
1. http://www.ibm.com/developerworks/java/
2. http://docs.oracle.com/javase/tutorial/rmi/.
3. IBM's tutorials on Swings, AWT controls and JDBC.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT-T45 JAVA PROGRAMMING

Java program using Synchronized Threads, demonstrates Producer Consumer concept

Submitted by

KIRUTHIGAIPRIYA.K

KIRUTHIKA.B

KISHOR KUMAR .J

II YEAR – IT

(2018-2019)

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

Java program using Synchronized Threads that demonstrates Producer Consumer concept.

Producer Consumer problem:

The producer-consumer problem is the classical concurrency of a multi process synchronization problem. It is also known as bound-buffer problem.

The problem describes two processes, the producer and the consumer, who share a common, fixed-size buffer used as a queue. The producer generates a piece of data, put it into the buffer and starts again.

ProducerConsumer.java

```java
public class ProducerConsumer
{
    public static void main(String[] args)
    {
        Shop c = new Shop();
        Producer p1 = new Producer(c, 1);
        Consumer c1 = new Consumer(c, 1);
        p1.start();
        c1.start();
    }
}
class Shop
{
    private int materials;
    private boolean available = false;
    public synchronized int get()
    {
        while (available == false)
        {
            try
            {
                wait();
            }
            catch (InterruptedException ie)
            {
```

```java
            }
        }
        available = false;
        notifyAll();
        return materials;
    }
    public synchronized void put(int value)
    {
        while (available == true)
        {
            try
            {
                wait();
            }
            catch (InterruptedException ie)
            {
                ie.printStackTrace();
            }
        }
        materials = value;
        available = true;
        notifyAll();
    }
}
class Consumer extends Thread
{
    private Shop Shop;
    private int number;
    public Consumer(Shop c, int number)
    {
        Shop = c;
        this.number = number;
    }
    public void run()
    {
        int value = 0;
```

```java
        for (int i = 0; i < 10; i++)
        {
            value = Shop.get();
            System.out.println("Consumed value " + this.number+ " got: " + value);
        }
    }
}
class Producer extends Thread
{
    private Shop Shop;
    private int number;

    public Producer(Shop c, int number)
    {
        Shop = c;
        this.number = number;
    }
    public void run()
    {
        for (int i = 0; i < 10; i++)
        {
            Shop.put(i);
            System.out.println("Produced value " + this.number+ " put: " + i);
            try
            {
                sleep((int)(Math.random() * 100));
            }
            catch (InterruptedException ie)
            {
                ie.printStackTrace();
            }
        }
    }
}
```

IT-T46 SYSTEM SOFTWARE

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T46	System Software	3	1	0

Pre-requisite:
Knowledge in C Programming, Assembly languages, Discrete mathematics and data structures.

Course Objectives:
1. Understand the design and implementation of Assemblers, loaders, linkers and compilers.
2. Understand how source language programs are implemented at the machine level.
3. Understand compilation as an instance of language translation.

Course Outcomes:
On successful completion of this course students will be able to:
1. To use of formal attributed grammars for specifying the syntax and semantics of programming languages.
2. Have in depth Working knowledge of the major phases of Loading linking and compiling.
3. To design and implement a significant portion of a compiler for a language chosen by the instructor.

Unit: I (8 periods)

Introduction to System Software and Machine architecture – Simplified Instructional Computer (SIC)- Traditional machines-VAX Architecture-Pentium Pro Architecture- RISC machines.

Unit: II (10 periods)

Assemblers: Basic assembler functions- machine – dependent and machine independent assembler features - Assembler design – Two-pass assembler with overlay structure- one – pass assembler and multi - pass assembler.
Interpreters: Virtual Machine concept- Java Byte Codes- Microsoft Intermediate Language

Unit: III (9 periods)

Loaders and Linkers: Basic loader functions, machine – dependent and machine – independent loader features. Loader design – Linkage editors, dynamic linking and bootstrap loaders.

Unit: IV (9 periods)

Macro Processors: Functions – Machine independent macro processor features – macro processor design option- Implementation examples.

Unit: V (9 periods)

Text editors - Overview of the Editing Process - User Interface – Editor Structure. - Interactive debugging systems - Debugging functions and capabilities – Relationship with other parts of the system – User-Interface Criteria. - Introduction to Compilers -Analysis of the source program - The phases of Compiler.

(Total: 45 Periods)

Content beyond Syllabus:
1. Implementation examples on Assemblers – MASM, SPARC and AIX.
2. Implementation examples on Linkers- MSDOS, SunOS and CRAY MPP.
3. Implementation examples on Compilers- SunOS, GNU NYA Ada Translator, Java compiler and YACC Compiler-compiler.

Text Books:
1. Leland L Beck and D. Manjula, "System Software",III Edition, Pearson Education , First Impression, 2007.
2. John J Donovan, Systems Programming, Tata McGraw Hill Company, New Delhi, 2004.
3. Alfred V. Aho, Monica S. Lam, Ravi Sethi, Jeffrey D. Ullman, Compilers: Principles, Techniques, & Tools, 2nd edition Addison-Wesley, 2006.

Reference Books:
1. Dhamdhere D M, Systems Programming and Operating Systems, Tata McGraw Hill Company, New Delhi, 2002
2. David Galles, Modern Compiler Design, Addison Wesley, 2004

Websites:
1. http://www.edunotes.in/system-software-notes
2. http://www.uotechnology.edu.iq/sweit/Lectures/Dr.Sharma-Sys-Prog/lec1-2-3-4.pdf
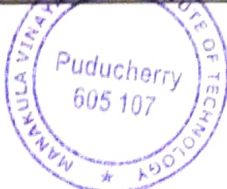
MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT T46 System Software

Implementation of Token Separation using C Program

Submitted by

LAVANYA.D

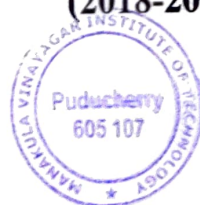LOGASOWMYA. V

MADHAN KAVI.M

MADHAVAN.G

MAPPILLAIMEERAN.K

MEENA.S

NANDHINI.M

II YEAR – IT

(2018-2019)

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kalitheerthalkuppam,
Puducherry - 605 107.

AIM:

To write a program to implement the ==token separation operation==

AlGORITHM:

Step 1: Start the program.

Step 2: Store the possible keywords in an array key[][] and their corresponding byte value
in b[ ].

Step 3: Declare all the variables.

Step 4: Declare the file pointer fp for file operation.

Step 5: Open a file sym.c in write mode.

Step 6: Enter valid data into sym.c file until "#" symbol encountered. Then close the file.

Step 7: Open d.c file in read mode.Read the character one by one.

Step 8: If not End of file using switch case check for special symbols.Print the special
symbol.

Step 9: Check whether the string is alphabet or alphanumeric using isalpha() and isalnum() functions.

Step 10: If the string is alphabet assign it to variable "a" and compare with keywords in
array using strcmp() function.

Step 11: If string is keyword print the ==keyword== and its corresponding byte value and copy
the string to variable "data" using strcpy() .

Step 12: Else copy to variable "sym".

Step 13: Check for the character is constant value using isdigti() function and copy the
constant in the variable "val" using strcpy().

Step 14: Print all the datatype, identifier and constant value.

Step 15: Stop the program.

PROGRAM:

```
#include<stdio.h>
#include<conio.h>
#include<string.h>
char key[5][10]={"int","float","char","double"};
```

```c
int b[5]={2,1,4,8};
int main()
{
int byte;
int label;
int i,j,n,k=0;
char data[10],sym[10],val[10];
char a[20];
char str;
FILE *fp;
clrscr();
fp=fopen("sym.c","w");
printf("\n enter a valid declarations:");
while((str=getchar())!='#')
{
fputc(str,fp);
}
fclose(fp);
fp=fopen("d.c","r");
printf("\n_____");
printf("\t\t SYMBOL TABLE\n");
printf("\n_____");
printf("\ndata-type\tidentifier\tvalue\tbytes-occupied\n");
while((str=fgetc(fp))!=EOF)
{
i=0;
label=0;
switch(str)
{
case ';':
printf("\n\t%d\t%c\t a special symbol",n++,str);
break;
default:
if(isalpha(str))
{
```

```c
do{
a[i]=str;
i++;
str=fgetc(fp);
}while(isalpha(str)||isalnum(str));
a[i]='\0';
fseek(fp,-1,1);
for(i=0;i<5;i++)
{
if(strcmp(a,key[i])==0)
{
// printf("\n\t%d\t%s\t a keyword",n++,a);
byte=b[i];
strcpy(data,a);
label=1;
goto aa;
}
}
if(label==0)
{
strcpy(sym,a);
}
}
else if(str=='=')
{
str=fgetc(fp);
if(str=='\"')
str=fgetc(fp);
goto aa;
}
else
aa:
if(isdigit(str)||isalpha(str))
{
do{
```

```
a[i]=str;
i++;
str=fgetc(fp);
}while(isdigit(str)||str=='.'||isalpha(str));
a[i]='\0';
fseek(fp,-1,1);
strcpy(val,a);
}
}
}
fclose(fp);
getch();
}
```

OUTPUT:

enter a valid data:

```
void main()
{
int a=5;
}
#
```

token no. token name token-type
1 void a keyword
2 main a keyword
3 (a special symbol
4) a special symbol
5 { a special symbol
6 int a keyword
7 a an identifier
8 = an operator
9 5 a constant
10 ; a special symbol
11 } a special symbol

RESULT:

Thus the program was implemented and verified.
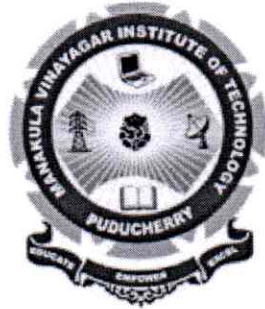
IT-P41 ALGORITHMS LAB

Subject Code	Subject Name	Lectures Periods)	Tutorials (Periods)	Practical (Periods)
IT-P41	Algorithms Lab	0	0	3

Course Objectives:

To introduce the implementation of various design techniques using C and C++.

Course Outcomes:

On successful completion of this course, the students will be able to:

Learn to implement the complex tasks using various design techniques.

Programs to implement the following :

1. Quick sort using divide and conquer
2. Merge sort using divide and conquer
3. Prim's algorithm
4. Kruskal's algorithm
5. Dijikstra's algorithm
6. Optimal binary search tree
7. TSP using dynamic programming.
8. N-queens problem using backtracking.
9. Sum of subsets using backtracking.
10. Graph coloring using backtracking.
11. Hamilton Cycle using backtracking.
12. Knapsack using branch and bound.

Content beyond Syllabus:

1. Advanced data structures and their implementation
2. Implementation of the data structures in different language platforms

Text Books:

1. Robert Sedgewick, Algorithms in C , 3rd Edition, PHI, 2007.

Reference Books:

1. Brian W Kernighan and Dennis M. Ritche, C Programming Language, PHI, 2005.

Websites:

1. http://www.cse.iitd.ernet.in/~ssen/csl356/root.pdf

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT-P41 - ALGORITHM LABORATORY

Mini Project On
RABIN-KARP ALGORITHM & VERTEX COVER PROBLEM

Submitted by

RAM SUGUMAR. R
SITHARTHAN.S
SIVANESAN. R
SNEHASHRI.V

II YEAR – IT
(2018-2019)

RABIN-KARP ALGORITHM

AIM : To implement Rabin karp algorithm using c++

DESCRIPTION:

The Naive String Matching algorithm slides the pattern one by one. After each slide, it one by one checks characters at the current shift and if all characters match then prints the match. Like the Naive Algorithm, Rabin-Karp algorithm also slides the pattern one by one. But unlike the Naive algorithm, Rabin Karp algorithm matches the hash value of the pattern with the hash value of current substring of text, and if the hash values match then only it starts matching individual characters.

So Rabin Karp algorithm needs to calculate hash values for following strings:

1) Pattern itself.
2) All the substrings of text of length m.

Since we need to efficiently calculate hash values for all the substrings of size m of text, we must have a hash function which has following property. Hash at the next shift must be efficiently computable from the current hash value and next character in text or we can say hash(txt[s+1 .. s+m]) must be efficiently computable from hash(txt[s .. s+m-1]) and txt[s+m] i.e., hash(txt[s+1 .. s+m])= rehash(txt[s+m], hash(txt[s .. s+m-1])) and rehash must be O(1) operation.

The hash function suggested by Rabin and Karp calculates an integer value. The integer value for a string is numeric value of a string. For example, if all possible characters are from 1 to 10, the numeric value of "122" will be 122. The number of possible characters is higher than 10 (256 in general) and pattern length can be large. So the numeric values cannot be practically stored as an integer. Therefore, the numeric value is calculated using modular arithmetic to make sure that the hash values can be stored in an integer variable (can fit in memory words). To do rehashing, we need to take off the most significant digit and add the new least significant digit for in hash value. Rehashing is done using the following formula.

hash(txt[s+1 .. s+m]) = (d (hash(txt[s .. s+m-1]) - txt[s]*h) + txt[s + m]) mod q
hash(txt[s .. s+m-1]) : Hash value at shift s.
hash(txt[s+1 .. s+m]) : Hash value at next shift (or shift s+1)
d: Number of characters in the alphabet
q: A prime number
h: d^(m-1)

ALGORITHM:

RABIN-KARP-MATCHER (T, P, d, q)

n <- length [T]

VERTEX COVER PROBLEM

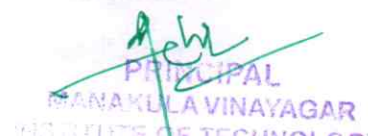**AIM :** To implement vertex cover problem using c++

DESCRIPTION:

A vertex cover of an undirected graph is a subset of its vertices such that for every edge (u, v) of the graph, either 'u' or 'v' is in the vertex cover. Although the name is Vertex Cover, the set covers all edges of the given graph. Vertex Cover Problem is a known NP Complete problem, i.e., there is no polynomial-time solution for this unless P = NP. There are approximate polynomial-time algorithms to solve the problem though.

ALGORITHM:

1) Initialize the result as {}

2) Consider a set of all edges in given graph. Let the set be E.

3) Do following while E is not empty

...a) Pick an arbitrary edge (u, v) from set E and add 'u' and 'v' to result

...b) Remove all edges from E which are either incident on u or v.

4) Return result

PROGRAM:

```cpp
#include<iostream>
#include <list>
using namespace std;
// This class represents a undirected graph using adjacency list
class Graph
{
    int V;   // No. of vertices
    list<int> *adj; // Pointer to an array containing adjacency lists
public:
    Graph(int V); // Constructor
    void addEdge(int v, int w); // function to add an edge to graph
    void printVertexCover(); // prints vertex cover
```

DEPARTMENT OF INFORMATION TECHNOLOGY

IT-P41 - ALGORITHM LABORATORY

Mini Project On Longest Common Subsequence & Activity Selection Problem

Submitted by

NIVETHA.K
PARTHIBAN .P
PRAVEEN KUMAR.G
RAJNIVASH.M

II YEAR – IT

(2018-2019)

LONGEST COMMON SUBSEQUENCE

AIM:

To implement Longest Common Subsequence using c program.

DESCRIPTION:

Here longest means that the subsequence should be the biggest one. The common means that some of the characters are common between the two strings. The subsequence means that some of the characters are taken from the string that is written in increasing order to form a subsequence.

ALGORITHM:

Suppose X and Y are the two given sequences

Initialize a table of LCS having a dimension of X.length * Y.length

XX.label = X

YY.label = Y

LCS[0][] = 0

LCS[][0] = 0

Loop starts from the LCS[1][1]

Now we will compare X[i] and Y[j]

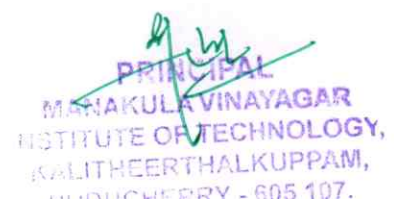   if X[i] is equal to Y[j] then

LCS[i][j] = 1 + LCS[i-1][j-1]

Point an arrow LCS[i][j]

Else

LCS[i][j] = max(LCS[i-1][j], LCS[i][j-1])

SOURCE CODE:

```c
#include <stdio.h>
#include <string.h>
int i, j, m, n, LCS_table[20][20];
char S1[20] = "abaaba", S2[20] = "babbab", b[20][20];
void lcsAlgo() {
m = strlen(S1);
n = strlen(S2);
// Filling 0's in the matrix
for (i = 0; i <= m; i++)
```

ACTIVITY SELECTION PROBLEM

AIM:

To implement activity selection problem using c program .

DESCRIPTION:

The Activity Selection Problem is an optimization problem which deals with the selection of non-conflicting activities that needs to be executed by a single person or machine in a given time frame.

Each activity is marked by a start and finish time. Greedy technique is used for finding the solution since this is an optimization problem.

ALGORITHM:

Following are the steps we will be following to solve the activity selection problem,

Step 1: Sort the given activities in ascending order according to their finishing time.

Step 2: Select the first activity from sorted array act[] and add it to sol[] array.

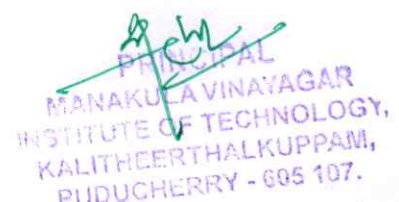**Step 3:** Repeat steps 4 and 5 for the remaining activities in act[].

Step 4: If the start time of the currently selected activity is greater than or equal to the finish time of previously selected activity, then add it to the sol[] array.

Step 5: Select the next activity in act[] array.

Step 6: Print the sol[] array.

SOURCE CODE:

```c
#include<stdio.h>
int main(){
    int start[] = {1 , 5 , 12};
    int finish[] = {10, 13, 23};
    int activities = sizeof(start)/sizeof(start[0]);
    int i, j;
    printf ("Following activities are selected \t");
```

IT-P42 MICROPROCESSORS AND MICROCONTROLLERS LABORATORY

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-P42	Microprocessors and Microcontrollers Laboratory	0	0	3

Pre-requisite:
Digital Electronics and Computer Architecture

Course Objectives:

1. To understand the architectures and the instruction set of 8085 microprocessor
2. To understand the architectures and the instruction set of 8086 microprocessor
3. To understand the architectures and the instruction set of 8051 microcontroller
4. To learn the assembly language program using 8085, 8086 and 8051 instruction set
5. To learn interfacing of microprocessors and microcontrollers with various peripheral

Course Outcomes:
On successful completion of this course students will be able to:
1. Understanding the inner working components of the microprocessor and microcontrollers
2. Developing assembly language program using 8085 instruction set
3. Developing assembly language program using 8086 instruction set
4. Developing assembly language program using 8051 instruction set
5. Developing various I/O programs for 9085, 8086 and 8051

LIST OF EXPERIMENTS
Experiment Using 8085 Microprocessor

1. Study of 8085 Microprocessor Trainer Kit
2. 8-bit Arithmetic Operations
3. (Addition, Subtraction, Multiplication and Division)
4. Block Operations
5. (Move, Exchange, Compare, Insert and Delete)
6. Code Conversions
7. Digital Clock simulation
8. Moving Display
9. Serial Communication
10. Interrupt Programming
11. Elevator Simulation
12. Traffic Light Control

Experiments Using 8086 Microprocessor with MASM
1. Arithmetic Operations
2. Sorting and Searching

Experiments Using 8051 Microcontroller
1. Arithmetic operations
2. ADC & DAC Interfacing
3. Stepper Motor and DC Motor Interface

Content beyond Syllabus:
Multi-core Programming

Websites:
1. http://infocenter.arm.com/help/index.jsp?topic=/com.arm.doc.dai0211a/index.html
2. http://www.arm.com/products/processors/classic/arm7/index.php
3. http://infocenter.arm.com/help/index.jsp?topic=/com.arm.doc.dai0211a/index.html
4. **http://www.embeddedindia.com/**

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT – P41 MICROPROCESSORS AND MICROCONTROLLERS LAB

Mini Project on Keyboard and Mouse Control

Submitted by

SUDHARSANAN. K

SUNDARAVARADHAN.T

SURESH. C

SWARAJBAL

SWATHI .B

II YEAR – IT

(2018-2019)

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

HARDWARE REQUIRED

- Arduino Leonardo, Micro or Arduino Due board

- 5 pushbuttons

- 5 10k ohm resistors

- hook-up wires

- breadboard

SOFTWARE REQUIRED

- Any text editor

CIRCUIT

Attach one end of the the pushbuttons to pins 2, 3, 4, 5, and 6 on the board. Attach the other end to +5V. Use the resistors as pull-downs, providing a reference to ground for the switches. Attach them from the pin connecting to the board to ground.
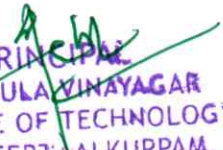
Once you've programmed your board, unplug the USB cable and open a text editor. Connect your board to your computer and press the buttons to write in the document as you move the cursor.
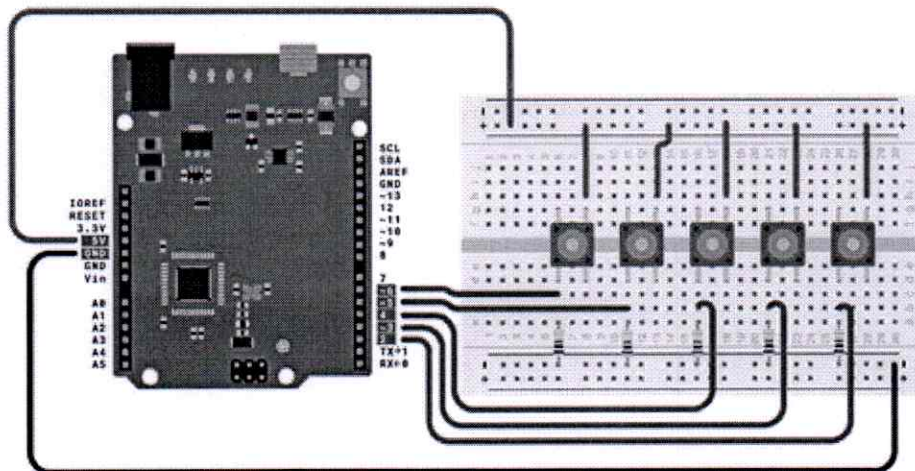
IT-P43 JAVA LAB

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-P43	Java Lab	-	-	9

Pre-requisite: Object oriented programming

Course Objectives:
1. To understand the basics of java
2. To write programs in Java covering the object oriented concepts.
3. To write programs covering advanced concepts in java like thread handling, applets, RMI and JDBC

Course Outcomes: Students will learn how to write programs and develop projects in Java.

Develop Java programs to cover the following topics:
1. Simple Java program with one or more classes
2. Exception Handling
3. Inheritance
4. Packages
5. Interfaces
6. Event Handling
7. File Handling
8. Thread Handling
9. AWT controls/Java Swings/Struts framework
10. Applets
11. RMI
12. JDBC

Content beyond Syllabus:

Java's support in graphics, networking, web technology etc.

Text Books:
1. The Complete Reference Java J2SE 5th Edition, Herbert Schildt, TMH Publishing Company Ltd, NewDelhi.
2. Big Java 2nd Edition, Cay Horstmann, John Wiley and Sons.

Reference Books:
1. Java How to Program, Sixth Edition, H.M.Dietel and P.J.Dietel, Pearson Education/PHI
2. Core Java 2, Vol 1, Fundamentals, Cay.S.Horstmann and Gary Cornell, Seventh Edition, Pearson Education.
3. Core Java 2, Vol 2, Advanced Features, Cay.S.Horstmann and Gary Cornell, Seventh Edition, Pearson Education.

Websites:
1. http://www.ibm.com/developerworks/java/
2. http://docs.oracle.com/javase/tutorial/rmi/.
3. IBM's tutorials on Swings, AWT controls and JDBC.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHAI KUPPAM,
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY
PUDUCHERRY
605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT-P43 JAVA LAB

Mini Project – Moving Balls using Java Applet

Submitted by

KAARTHIK.R

KALAISELVI. R

KALAISRIRAM .S

KANIMOZHI. D

II YEAR – IT

(2018-2019)

Write a program to develop a application in java applet which will show balls that will move across the screen .

In Moving Balls using Java Applet project we have two balls moving perpendicular to each other. Also balls have some sort of animation which will change it's color a regular intervals.

Program

```java
import java.util.*;
import java.applet.*;
import java.awt.*;
import java.awt.event.*;
//Package Declarations

/*
<applet code="balls.class" width=670 height=300>
</applet>
*/

public class balls extends Applet implements Runnable
{
    Random r = new Random(); // Random number generation for Different Colours
    int x = 10, y = 10,sang1 = 0, sang2 = 0, he = 500 , wi = 500;
    public void init()
    {
        Thread t = new Thread(this); // Thread creation for animation
        t.start();
    }
    public void run()
    {
        while(true)
        {
        try
        {
            repaint();
            Thread.sleep(100);  // Thread time interval set to 100 mil seconds
            if( x < wi - 100)   // Playing with position of balls on the applet screen
            x += 5;
            if( y < he - 100)
```

```java
                        y += 5;
                        if( x > wi - 100)
                        x = wi - 100;
                        if( y > he - 100)
                        y = he - 100;
                        sang1 += 10;
                        sang2 += 10;
                }
                catch(Exception e)
                { }
                }
        }
        public void paint(Graphics g)
        {
                Dimension d = getSize();
                he = d.height;
                wi = d.width;
                g.setColor(new Color(r.nextInt(255),r.nextInt(255),r.nextInt(255))); // Balls
                random colors sets
                g.fillArc(x,20,100,100,sang1,90);
                g.setColor(new Color(r.nextInt(255),r.nextInt(255),r.nextInt(255)));
                g.fillArc(x,20,100,100,sang1 + 90,90);
                g.setColor(new Color(r.nextInt(255),r.nextInt(255),r.nextInt(255)));
                g.fillArc(x,20,100,100,sang1 + 180,90);
                g.setColor(new Color(r.nextInt(255),r.nextInt(255),r.nextInt(255)));
                g.fillArc(x,20,100,100,sang1 + 270,90);
                g.setColor(new Color(r.nextInt(255),r.nextInt(255),r.nextInt(255)));
                g.fillArc(10, y, 100, 100, sang2 ,90);
                g.setColor(new Color(r.nextInt(255),r.nextInt(255),r.nextInt(255)));
                g.fillArc(10,y,100,100, sang2 + 90,90);
                g.setColor(new Color(r.nextInt(255),r.nextInt(255),r.nextInt(255)));
                g.fillArc(10,y,100,100,sang2 + 180,90);
                g.setColor(new Color(r.nextInt(255),r.nextInt(255),r.nextInt(255)));
                g.fillArc(10,y,100,100,sang2 + 270,90);
        }
}
```

IT-T51 COMMUNICATION ENGINEERING-II

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T51	Communication Engineering- II	3	1	0

Course Objectives:

1. To learn the various orbits used for satellite communication systems.
2. To understand the working principle of various satellite systems and their applications.
3. To understand the concept of spread spectrum technologies, Rake receivers and CDMA
4. To introduce the concept and operation of cellular mobile communication and to introduce various cellular standards
5. To learn the need for fiber optics communication and the operation of fiber optic communication system.

Course Outcomes:

On successful completion of this course students will be able to:
1. Understand the operation of various types of communication systems
2. Understand the application of various types of communication systems

UNIT I (12 Periods)

Satellite Communication systems: Satellite Orbits, launch vehicles, look angles, satellite parameters, satellite link model and link budget calculations, satellites used for mobile networks and personal communication systems-GPS services.

UNIT II (12 Periods)

Spread Spectrum Communication: Introduction-PN sequences-Direct sequence spread spectrum systems-Frequency hopping spread spectrum systems- slow and fast frequency hopping- RAKE receivers-principle of code division multiple access-applications.

UNIT III (12 Periods)

Cellular Mobile Communication concepts: Basic cellular concept-frequency reuse-interference-uniqueness of mobile radio environment - Performance metrics in cellular system-Elements of cellular mobile radio-Handoff-Frequency management and channel assignment-concepts of cell splitting and cell sectoring

UNIT IV (12 Periods)

Mobile Communication systems and standards : Second Generation systems- Global System for Mobile Communication (GSM) – architecture-channels-radio resource, mobility, communication and network management – IS-95 standard- CDMA frequency and channel allocations- CDMA traffic channels- radiated power - GPRS –architecture and services- principle of EDGE- Third Generation systems- UMTS network architecture- UTRAN architecture- basic principles of cdma2000

UNIT V (12 Periods)

Optical fiber communication Systems: Need for fiber optics, introduction to optical fiber, principle of light transmission through a fiber, fiber characteristics and classification, various fiber losses– Light sources and photo detectors -Block diagram of fiber optic system- Power budget analysis for an optical link-Recent applications of fiber optics.

(Total: 60 Periods)

Content beyond Syllabus:

To implement a wireless link and study its performance using computer programs

Text Books:

1. Wayne Tomasi, Electronics Communication systems, Pearson Education, Fifth edition, 2008.
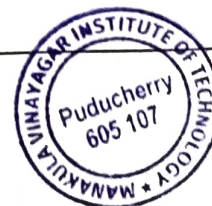
PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

COMMUNICATION ENGINEERING-II/ IT-T51

MINI PROJECT

ON

Interfacing GSM Module to Arduino- Send and Receive SMS

III YEAR

(2018-2019)

Submitted by,

VISHNU.M
SUNDAR.S
ABARNA.M
ABINAYA.J
AISWARYA.R
AJITHA.K
AKSHAYA.M
ALEXIA.A
AMARNATH.G

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM
PUDUCHERRY - 605 107.

Miniproject on Interfacing GSM Module to Arduino-Send and Receive SMS

Aim:

To interface GSM module to arduino for sending and receiving SMS

Software required:

MATLAB Software, PC

Objective:

In this article, interfacing GSM Module to Arduino was explained. There are different kinds of GSM modules available in market. Here, the most popular module based on **Simcom SIM900** and Arduino Uno was used. Interfacing a GSM module to Arduino is pretty simple with 3 connections between the GSM module and arduino.

A **GSM Module** is basically a GSM Modem (like SIM 900) connected to a PCB with different types of output taken from the board – say TTL Output (for Arduino, 8051 and other microcontrollers) and RS232 Output to interface directly with a PC (personal computer). The board will also have pins or provisions to attach mic and speaker, to take out +5V or other values of power and ground connections. These type of provisions vary with different modules.

IT-T52 SOFTWARE ENGINEERING

Subject Code	Subject Name	Lectures (Periods)	Tutorial (Periods)	Practical (Periods)
IT-T52	Software Engineering	3	1	0

Course Objectives:
1. To learn, practice and apply the software engineering industry practices.
2. To acquire knowledge on the various techniques, tools and models for each of the phases of software development.

Course Outcomes:
1. Ability to apply basic knowledge and understanding of the analysis, synthesis and design of complex systems
2. Develop, maintain and evaluate large-scale software systems
3. Produce efficient, reliable, robust and cost-effective software solutions

Syllabus:

UNIT I

Introduction to Software Engineering: The Software Engineering Discipline – Evolution and Impact – Software Development projects – Emergence of Software Engineering – Computer System Engineering **Software Life Cycle Models:** classic Waterfall model – Iterative Lifecycle model – prototyping model – Evolutionary model – spiral model – Comparison of Life cycle models.

UNIT II

Software Project Management: Responsibilities of a Software Project Manager – Project Planning – Metrics for Project Size Estimation – Empirical Estimation Techniques – COCOMO – Halstead's Software Science – Staffing Level Estimation – Scheduling – Organization and Team structures – Staffing – Risk Management – Software Configuration Management

Requirements Analysis and Specification: Requirements Gathering and Analysis – Software Requirements specification – Formal System Specification – Axiomatic Specification - Algebraic Specification – 4GL.

UNIT III

Software Design: Outcome of a Design Process – Characteristiscs of a Good Software Design – Coupling and Cohesion – Approaches to Software Design – Object Oriented Vs Function Oriented Software Design approaches
Function Oriented Software Design: Structured Analysis – Data Flow Diagrams – Applying DFD to Real time systems – Structured and Detailed Design.

UNIT IV

Coding and Testing: Coding – Software Documentation – Testing – Unit Testing – Black Box testing – White Box testing – Debugging – Program Analysis tools – Integration testing – Testing Object Oriented programs – System Testing – Issues.

UNIT V

Software Reliability and Quality : - Software Reliability – Software Quality – ISO 9000 – SEI CMM – Six Sigma.
CASE and Software Maintenance: - CASE environment – CASE support in Software Life cycle – Characteristics of CASE tools – characteristics of software maintenance – software reverse engineering – software maintenance process models.

(Total: 60 Periods)

Content beyond the Syllabus:
The students can be encouraged to apply concepts learnt in this course for the development / documentation of their mini project and final year project

Text Books:
1. Rajib Mall, " Fundamentals of Software Engineering", PHI Learning, Third Edition, 2013.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT – T52 SOFTWARE ENGINEERING

MINI PROJECT FOR LEAVE MANAGEMENT SYSTEM

Submitted by

ANANTHARAMAN.R
ANBARASAN.S
ARAVINDAKUMAR.S
BALAJI.R
BHARATH KUMAR.M
BHUVANESWAR.T
BRAINARD SAMUEL.R
DHARANI.R(w)
GEETHA LAKSHMI.R

III YEAR – IT

(2018-2019)

LEAVE MANAGEMENT SYSTEM

This project is aimed at developing a <mark>web based Leave Management Tool,</mark> which is of importance to either an **organization or a college**.

The **Easy Leave** is an **Intranet** based application that can be accessed throughout the **organization or a specified group/Dept**. This system can be used to **automate** the workflow of **leave applications** and their approvals. The periodic crediting of leave is also automated. There are features like notifications, cancellation of leave, automatic approval of leave, report generators etc in this Tool.

Functional components of the project:

There are **registered people** in the system. Some are approvers. An approver can also be a requestor. In an organization, the **hierarchy** could be **Engineers/Managers/Business Managers/Managing Director** etc. In a **college**, it could be **Lecturer/Professor/Head of the Department/Dean/Principal** etc.

Existing system:

In the existing paper work related to leave management, leaves are maintained using the attendance register for staff. The staff needs to submit their leaves manually to their respective authorities. This increases the paperwork & maintaining the records becomes tedious. Maintaining notices in the records also increases the paperwork.

Issues in Existing System:

It does not ensure security of every record. It increases the redundancy of data and gives various facilities .It leads to loss of data .The staff has to write a letter to its superior for leave which makes it a tedious work for the staff.

Proposed System:

To automate the existing leave management in educational institutes To decrease the paperwork and enable the process with efficient, reliable record maintenance by using centralized database, thereby reducing chances of data loss . To provide for an automated leave management system that intelligently adapts to HR policy of the organization and allows employees and their line managers to manage leaves and replacements for better scheduling of work load & processes.
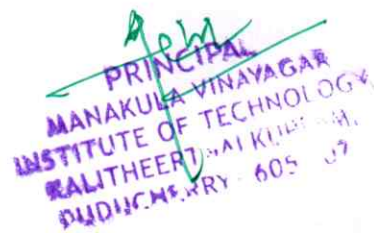
<mark>Software Requirement Analysis:</mark>

Number of Stakeholders in the course management system is 2:

➢ Employee
➢ Admin
Types of functionalities in Employee are 2:
  ✓ General User
  ✓ Superior User

Requirements of Employee:

General User functionalities:

Functional Requirements:

- Login to the system through the first page of the application.
- Change the password after logging into the system.
- See his/her eligibility details (like how many days of leave he/she is eligible for etc).
- Query the leave balance.
- See his/her leave history since the time he/she joined the company/college.
- Apply for leave, specifying from and to dates, reason for taking leave, and address for communication while on leave and his/her superior's email id.
- See his/her current leave applications and the leave applications that are submitted to him/her for approval or cancellation.
- Withdraw his/her leave application (which has not been approved yet).
- As soon as any operation made by the employee, an automatic email should be sent to the Employee mail id giving details about the action.
- The number of days of leave (as per the assumed leave policy) should be automatically credited to everybody and a notification regarding the same be sent to them automatically.
- An automatic leave-approval facility for leave applications which are older than 2 weeks should be there.

Non functional Requirements:

Understandability

- Get help about the leave system on how to use the different features of the system.
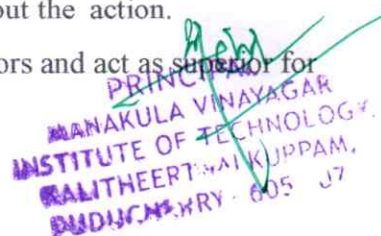
Security

- In this user unable to approve the leaves.
- Unable to see the other employee leave details.

Superior User Functionalities:

Functional Requirements:

- Approve/reject the leave applications that are submitted to him/her.
- Cancel his/her leave (which has been already approved).
- As soon as any operation made by the subordinate, an automatic email should be sent to the superior mail id giving details about the action.
- Need to act as normal user for his/her superiors and act as superior for his/her subordinates.

IT-T53 OPERATING SYSTEMS

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T53	Operating Systems	3	1	0

Course Objectives:

1. To grasp a fundamental understanding of operating systems
2. To learn the concepts and creation computer processes and threads
3. To understand memory management and virtual memory concepts in modern OS
4. To understand process concurrency and synchronization
5. Understand the concepts of data input/output, storage and file management
6. To learn the scheduling policies, memory management and file management of some commercial operating systems

Course Outcomes:

On successful completion of this course students will be able to:

1. Understand fundamental operating system abstractions such as processes, threads, files, semaphores, IPC abstractions, shared memory regions, etc.,
2. Understand how the operating system abstractions can be used in the development of application programs, or to build higher level abstractions,
3. Understand how the operating system abstractions can be implemented,
4. Understand the principles of concurrency and synchronization, and apply them to write correct concurrent programs/software,
5. Understand basic resource management techniques (scheduling or time management, space management) and principles and how they can be implemented. These also include issues of performance and fairness objectives, avoiding deadlocks, as well as security and protection.

Unit I (12 Periods)

Introduction: Mainframe Systems – Desktop Systems – Multiprocessor Systems – Distributed Systems – Clustered Systems – Real Time Systems – Hardware Protection – System Components – Handheld Systems - Operating System Services – System Calls – System Programs – Process Concept – Process Scheduling – Operations on Processes – Cooperating Processes – Inter-process Communication.

Unit II (12 Periods)

Threads – Overview–Threading issues-CPU Scheduling–Basic Concepts–Scheduling Criteria – Scheduling Algorithms–Multiple – Processor Scheduling – Real Time Scheduling – The Critical- SectionProblem – Synchronization Hardware- Semaphores– Classic problems of Synchronization –Critical regions–Monitors.

Unit III (12 Periods)

System Model – Deadlock Characterization – Methods for handling Deadlocks –Deadlock Prevention – Deadlock avoidance – Deadlock detection – Recovery from Deadlocks – Storage Management –Swapping – Contiguous Memory allocation – Paging – Segmentation – Segmentation with Paging -Virtual Memory – Demand Paging – Process creation – Page Replacement – Allocation of frames – Thrashing.

Unit IV (12 Periods)

File Concept – Access Methods–Directory Structure–File System Mounting–File Sharing–Protection -File System Structure – File System Implementation – Directory Implementation – Allocation Methods - Free-space Management-Kernel I/O Subsystems – Disk Structure – Disk Scheduling – Disk Management – Swap-Space Management.

Unit V (12 Periods)

Linux overview – Kernel Architecture–Process, memory, file and I/O management –Inter- process communication and synchronization – Security - Windows XP - System Architecture – System management mechanisms – Process, thread, memory and file management– I/O subsystem–Interprocess communication–Security

(Total : 60 Periods)

Content beyond Syllabus:

1. Introduction to Multiprocessor, Network and Distributed Operating Systems.

Text Books:

1. Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, Operating System Concepts, Seventh Edition, John Wiley & Sons (ASIA)Pvt.Ltd,2005.
2. Harvey M. Deitel, PaulJ. Deitel, andDavid R. Choffnes, Operating Systems, Third Edition,Prentice Hall,2003.

Reference Books:

1. William Stallings, Operating System, Prentice Hall of India, 6th Edition, 2009.
2. Harvey M. Deitel, Operating System, Second Edition, Pearson Education Pvt. Ltd, 2002.
3. Gary J. Nutt, Operating Systems: A Modern Perspective, Second Edition, Addison Wesley, 2001.

Websites:

1. http://www.tcyonline.com/tests/operating-system-concepts
2. http://www.galvin.info/history-of-operating-system-concepts-textbook
3. http://www.ittestpapers.com/operating-system-concepts

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT-T53 OPERATING SYSTEM

Mini Project on Bankers Algorithm for Deadlock Avoidance

Submitted by

GIRIDHARAN.S

GOWRI.D

HARIHARAN JAUBIN.R

HARSHINI.V

III YEAR – IT A

(2018-2019)

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHAI KUPPAM,
PUDUCHERRY - 605 07

Bankers Algorithm for Deadlock Avoidance

Objective:

Write a C program to simulate Bankers algorithm for the purpose of deadlock avoidance.

Procedure:

In a multiprogramming environment, several processes may compete for a finite number of resources. A process requests resources; if the resources are not available at that time, the process enters a waiting state. Sometimes, a waiting process is never again able to change state, because the resources it has requested are held by other waiting processes. This situation is called a deadlock. Deadlock avoidance is one of the techniques for handling deadlocks. This approach requires that the operating system be given in advance additional information concerning which resources a process will request and use during its lifetime. With this additional knowledge, it can decide for each request whether or not the process should wait. To decide whether the current request can be satisfied or must be delayed, the system must consider the resources currently available, the resources currently allocated to each process, and the future requests and releases of each process. Banker's algorithm is a deadlock avoidance algorithm that is applicable to a system with multiple instances of each resource type.

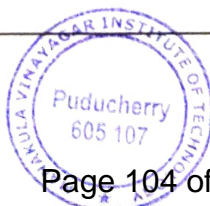## Program:

```c
#include<stdio.h>
struct file
{
        int all[10];
        int max[10];
        int need[10];
        int flag;
};
void main()
{
        struct file f[10];
        int fl;
        int i,j,k,p,b,n,r,g,cnt=0,id,newr;
        int avail[10],seq[10];
        clrscr();
        printf("Enter number of processes--");
        scanf("%d",&n);
        printf("Enter number of resources--");
        scanf("%d",&r);
        for(i=0;i<n;i++)
        {
                printf("Enter details for P%d",i);
                printf("\nEnter allocation\t--\t");
                for(j=0;j<r;j++)
                        scanf("%d",&f[i].all[j]);
                        printf("Enter Max\t\t -- \t");
```
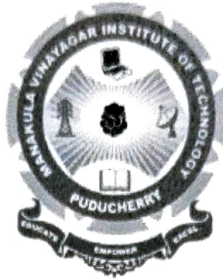
PRINCIPAL
MANAKULA
INSTITUTE OF TECHNOLOGY,

IT-T54 DATABASE MANAGEMENT SYSTEMS

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T54	Data Base Management Systems	3	1	0

Pre-requisite:
1. Knowledge about Memory Management
2. Programming Skills

Course Objectives:

To introduce the fundamental concepts of Database Management System to the students and to make them understand the usage of Database Management System in the current industry scenario.

Course Outcomes:

The students can be able to understand the concepts of Database Management System and to choose and design the database for the specific requirement of the project.

Unit I

Introduction: Introduction to Database Systems: Overview – Data Models – Database System Architecture – History of Database Systems. Entity-Relationship Model: Basic Concepts – Constraints – Keys – Design Issues – Entity Relationship Diagram – Weak Entity Sets – Extended E-R Features – Design of an E-R Database Schema.

Unit II

Relational Model: Structure of Relational Databases – Relational Algebra – Extended - Relational Algebra Operations – Modification of Database – Views – Tuple Relational - Calculus – Domain Relational Calculus. SQL: Background – Basic Structure – Set - Operations – Aggregate Functions – Null Values – Nested Sub-queries – Views – Complex Queries – Modification of the database –Joined Relations – Data-Definition Language.

Unit III

Integrity and Security: Domain Constraints – Referential Integrity – Assertions –Triggers – Security and Authorization – Authorization in SQL .Relational-Database Design: Normalization -First Normal Form, Second Normal Form, Third Normal Form, Boyce-Codd Normal Form.

Unit IV

Storage and File Structures: Overview of Physical Storage Media – Magnetic Disks – RAID – Tertiary Storage – Storage Access – File Organization. Indexing and Hashing: Basic Concepts –Static Hashing – Dynamic Hashing.

Unit V

Transactions: Transaction concept – Transaction State – Implementation of Atomicity and Durability – Concurrent Executions – Serializability – Testing for Serializability. Concurrency Control: Lock-Based Protocols – Timestamp-Based Protocols. Recovery System: Failure Classification – Storage Structure – Recovery and Atomicity – Log-Based Recovery – Shadow Paging.

(Total : 60 Periods)

Content beyond Syllabus: The recent developments of the Database Management System and the current standards of the IT organizations have to be introduced to the students.

Text Books:

1. Silberschatz, Korth, Sudarshan, *Database System Concepts*, 6th Edition – McGraw-Hill Higher Education, International Edition, 2011.

Reference Books:

1. Fred R McFadden, Jeffery A Hoffer, Mary B. Prescott, Modern Database Management, Seventh Edition, Addison Wesley, 2004.
2. Elmasri, Navathe, Fundamentals of database Systems, Sixth Edition, Addison Wesley, 2010.
3. JefreyD.Ulman, Jenifer Widom, A First Course in Database Systems, Pearson Education Asia, 2001.
4. Bipin C Desai, An Introduction to Database Systems, Galgotia Publications Pvt Limited, 2003.

Websites:

1. http://www.database.com/
2. www.infoworld.com/t/dbms

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kalitheerthalkuppam,
Puducherry - 605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT T54 Data Base Management Systems

Mini Project on Employee Management System

Submitted by

KAVIYA.R

III YEAR – IT

(2018-2019)

AIM

To develop a software to maintain the Employee details for an organization using JDBC connectivity.

ALGORITHM

STEP 1: Start

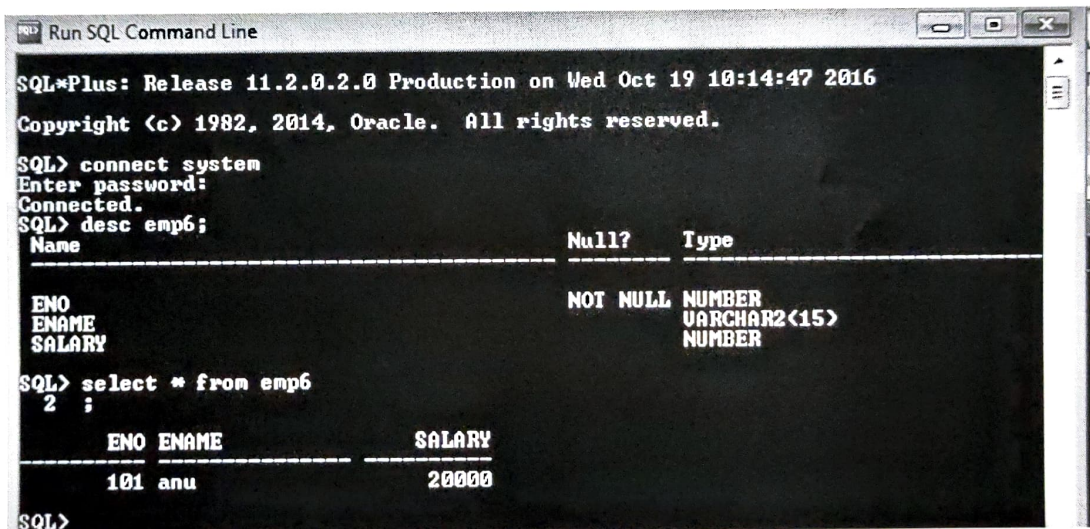STEP 2: Create the Emp1 table with its essential attributes(Emp1(Eno, Ename,salary))

STEP 3: Insert attribute values into the emp1 table using jdbc connectivity

STEP 4: Update the attribute values into the emp1 table using jdbc connectivity

STEP 5: Delete the attribute values into the emp1 table using jdbc connectivity

STEP 6: Get the information of employee using select queries from the emp1 table using jdbc connectivity

STEP 5: Stop

Insert.java

```java
package javaapplication2;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.ResultSet;

import java.sql.Statement;

import java.sql.*;

import java.util.Scanner;

class Insert{

public static void main(String args[]){

try{

    Scanner s=new Scanner(System.in);

    System.out.println("Insert the Values in Table");

    System.out.println("Enter the Employee No:");

    int eno=s.nextInt();

    System.out.println("Enter the Employee Name:");

    String name=s.next();

    System.out.println("Enter the salary:");

    int salary=s.nextInt();

//step1 load the driver class

Class.forName("oracle.jdbc.driver.OracleDriver");


//step2 create  the connection object

Connection con=DriverManager.getConnection(

"jdbc:oracle:thin:@localhost:1521:xe","system","system");
```

```
//step3 create the statement object

//Statement stmt=con.createStatement();

PreparedStatement ps;

ps=con.prepareStatement("insert into empl(eno,name,salary) values(?,?,?)");

ps.setInt(1, eno);

ps.setString(2,name);

ps.setInt(3,salary);

ps.executeUpdate();

System.out.println("Details Entered Successfully");

con.close();

catch(Exception e)

{

    System.out.println(e);      }        }        }
```

Delete.java

```java
package javaapplication2;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.*;

import java.util.Scanner;

class delete{

public static void main(String args[]){

try{

    Scanner s=new Scanner(System.in);

    System.out.println("enter the employee no");

       int eno=s.nextInt();

     //step1 load the driver class

Class.forName("oracle.jdbc.driver.OracleDriver");


//step2 create  the connection object

Connection con=DriverManager.getConnection(

"jdbc:oracle:thin:@localhost:1521:xe","system","system");


//step3 create the statement object

//Statement stmt=con.createStatement();

PreparedStatement ps;

ps=con.prepareStatement("delete from empl where eno= "+ eno + "");

ps.executeUpdate();

System.out.println("Details Entered Successfully");
```

Get.java

```java
package javaapplication2;

import java.sql.*;

class get{

public static void main(String args[]){

try{

//step1 load the driver class

Class.forName("oracle.jdbc.driver.OracleDriver");

//step2 create  the connection object

Connection con=DriverManager.getConnection(

"jdbc:oracle:thin:@localhost:1521:xe","system","system");

//step3 create the statement object

Statement stmt=con.createStatement();

//step4 execute query

ResultSet rs=stmt.executeQuery("select * from empl");

System.out.println("Eno Name    Salary");

while(rs.next())

System.out.println(+rs.getInt(1)+" "+rs.getString(2)+" "+rs.getInt(3));

// System.out.println(eno + " " + name+"  "+salary);

//step5 close the connection object

con.close();


}catch(Exception e){ System.out.println(e);}
```

```java
import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.ResultSet;

import java.sql.Statement;

import java.sql.*;

import java.util.Scanner;

public class update {


    public static void main(String args[])

    {

    try{

        Scanner s=new Scanner(System.in);

        System.out.println("Insert the Values in Table");

        System.out.println("Enter the Employee No:");

        int eno=s.nextInt();

        System.out.println("Enter the salary:");

        int salary=s.nextInt();

//step1 load the driver class

Class.forName("oracle.jdbc.driver.OracleDriver");
```

//step2 create the connection object

Connection con=DriverManager.getConnection(

"jdbc:oracle:thin:@localhost:1521:xe","it","it");

//step3 create the statement object

//Statement stmt=con.createStatement();

PreparedStatement ps;

ps=con.prepareStatement("update emp6 set salary=? where eno=?");

ps.setInt(1, salary);

ps.setInt(2,eno);

ps.executeUpdate();

System.out.println("Salary updated Successfully");

con.close();

  }

catch(Exception e)

{

   System.out.println(e);

}   }   }

```
51  ps.executeUpdate();
52  System.out.println("Salary updated successfully");
53  con.close();
54
55  }
    catch(Exception e)
57  {
58      System.out.println(e);
59  }
60  }
61  }
```

Output:

```
run:
Insert the Values in Table
Enter the Employee No:
101
Enter the salary:
40000
Salary updated Successfully
BUILD SUCCESSFUL (total time: 4 seconds)
```
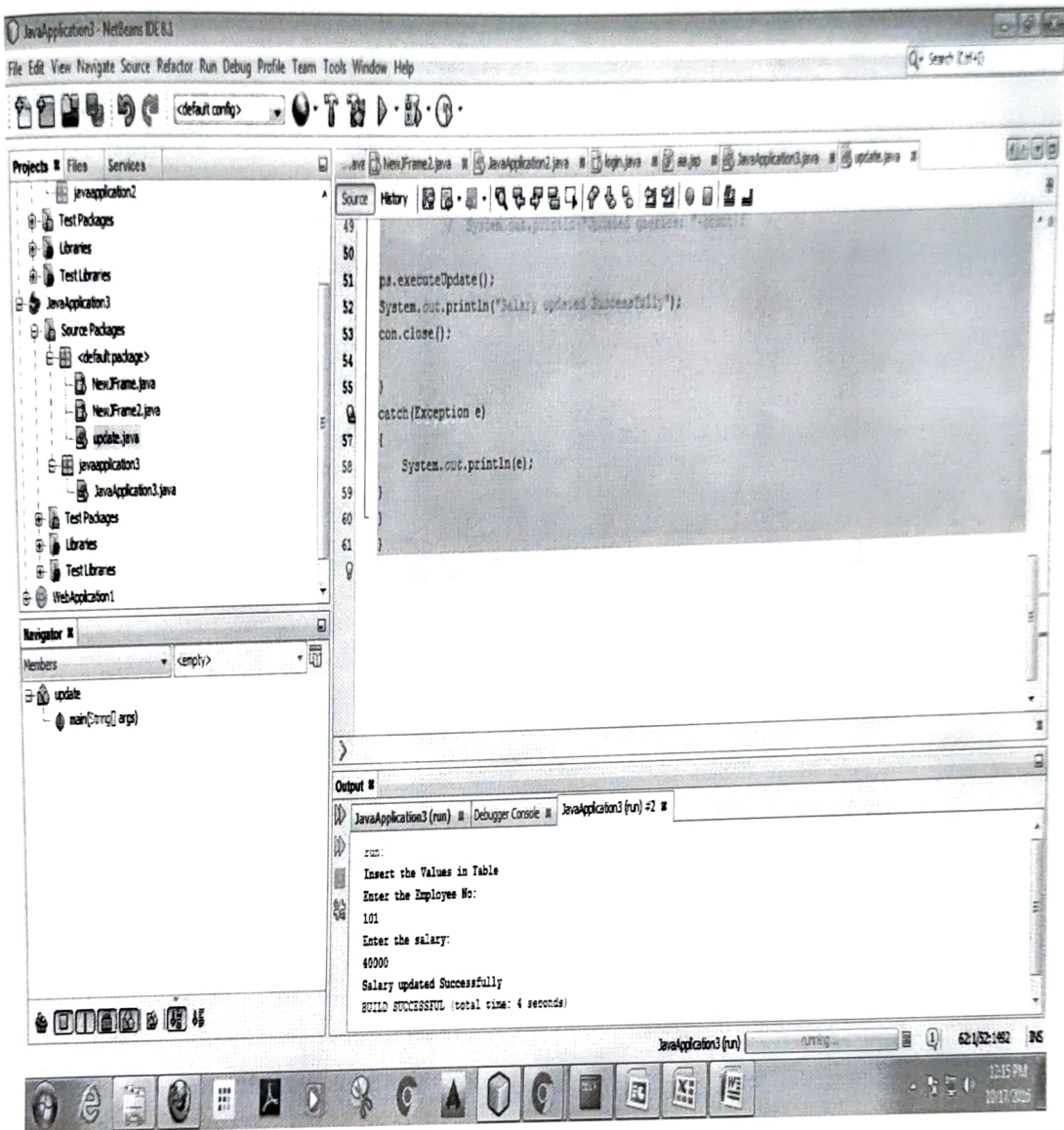
RESULT

Thus the schema diagram for Employee details was studied and the queries are executed successfully.

IT-T55 THEORY OF COMPUTATION

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T55	Theory of Computation	3	1	-

Pre-requisite:

Knowledge in mathematics, including a course in Discrete mathematics, and in programming.

Course Objectives:

Learning about automata, grammar, language, and their relationships. Further, gives an understanding of the power of Turing machine, and the decidable nature of a problem. Also, gives the idea on some new trends and applications.

Course Outcomes:

Upon completion of the course, you should be able to:

1. Explain the basic concepts of deterministic and non-deterministic finite automata, regular language, context-free language, Turing machines, computability and complexity.
2. Describe the formal relationships among machines, languages and grammars.
3. Solve the problems using formal language.
4. Develop a view on the importance of computational theory.

Unit I

Finite Automata and Regular Expressions: Deterministic and Non-Deterministic Finite Automata,
Finite Automata with ε-moves, regular expressions – equivalence of NFA and DFA, two-way finite automata, Moore and Mealy machines, minimization of finite automata- applications of finite automata.

Unit II

Regular Expressions and Context Free Grammars: Regular expression formalism- equivalence with finite automata-regular sets and closure properties- pumping lemma for regular languages- decision algorithms for regular sets- applications.
Context-Free Grammars – derivation trees, Chomsky Normal Forms and Greibach Normal Forms, ambiguous and unambiguous grammars- equivalence of regular grammar and finite automata- pumping lemma for Context free languages – applications.

Unit III

Turing machines: Elements of Turing machines(TM) – tuning machine construction – complexity of TM-Universal, multi-tape, multi-track, multi-stack Turing machines –recursive and recursive enumerable languages- functions –Church's Turing hypothesis.

Unit IV

Pushdown Automata(PDA) and Parsing Algorithms: Pushdown Automata and context-free languages; Deterministic PDA-Nondeterministic PDA- Equivalence of PDA and CFG-closure properties of CFL.

Unit V

Parsing Techniques: Top down parsing- bottom up parsing- Automatic construction of bottom up parsers – LR(0) grammar – SLR parser – LR(1) grammar – Canonical-LR parser- LALR parser.

(Total :60 Periods)

Content beyond Syllabus:

1. Models of Linear bounded automata
2. Partial recursive functions and Turing machines.

Text Books:

1. Vivek Kulkarni, "Theory of Computation", Oxford University press, 2013.
2. K.L.P. Mishra and NM.Chandrasekaran, "Theory of Computer Science-Automata Languages and Computation", third edition, PHI Learning Private Ltd, 2009.
3. John E. Hopcroft and Jeffrey D. Ullman, Introduction to Automata Theory, Languages and Computation, Narosa Publishers, 2002.

Reference Books:

1. Michael Sipser, Introduction to the Theory of Computations, Brooks/Cole Thomson Learning, 1997.
2. John c. Martin, Introduction to Languages and the Theory of Computation, Tata McGraw-Hill,2003.

Websites:

1. www.infolab.stanford.edu/~ullman/ialc.html
2. www.nptel.iitm.ac.in/courses/106106049/

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY
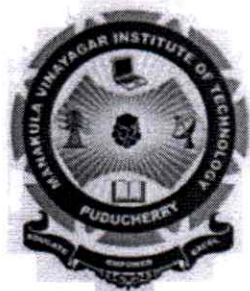
IT T55 Theory of Computation

Mini Project on Conversion of automaton to deterministic FA

Submitted by

MARIE AUGUSTIN RAJ.A

GANSEH ARAVIND. T

MOHAMMED HASVAK

MOHANAPRIYA.N(w)

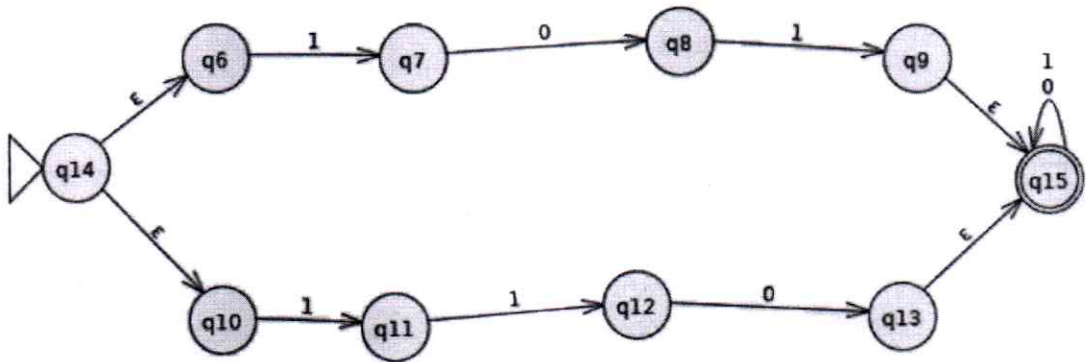NALINAKUMARI.A(w)

NANDHAKUMAR.M

NANDHINI.A(w)

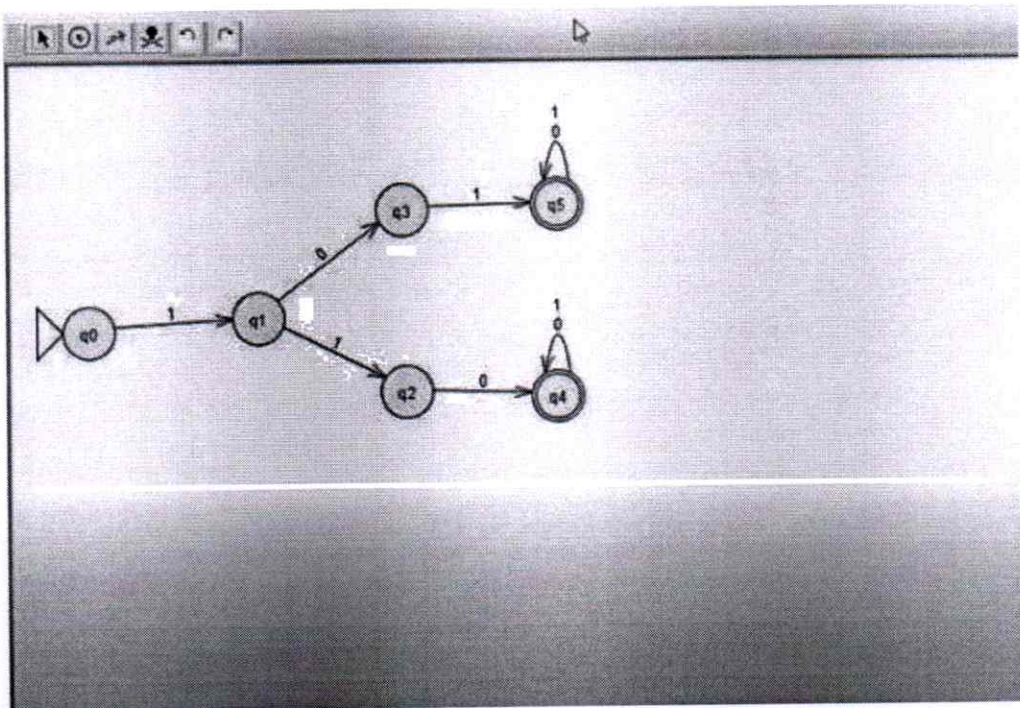NANDHINI.T(w)

III YEAR – IT

(2018-2019)

Aim:

Convert the automaton below to a deterministic FA

Solution:

Result: Thus converted the automaton below to a deterministic FA

IT-E51 COMPUTER HARDWARE AND TROUBLESHOOTING

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-E51	Computer Hardware and Troubleshooting	3	1	0

Course Objectives:

1. It provides insight to the various parts and types of computer.
2. It familiarizes the hardware types and the evolution in each of them.
3. It also gives the basics of troubleshooting.

Course Outcomes:

On successful completion of this course students will be able to:

The students will have theoretical exposure as well as hands on exposure to know about the hardware aspects of computer.

Unit I

PC Hardware Overview: Introduction–BasicPartsofPC–Functionalblockdiagram–systemboard–Microprocessor–Interrupts– DMA–SMPS–BIOS–POSTsequence-Systemconfigurationion–Memory–Massstorage–I/Ointerfacestandards.

Unit II

Bus Standards and Networking: ISA–PCI–SCSI–IDE–USB–comparative study and characteristics–Network Interface Cards–Cables and connectors-MODEM–AT command set.

Unit III

Peripheral Devices & Display Adapters: Functional descriptions of keyboard – mouse – printers – joystick – scanners – CGA – SVGA.

Unit IV

Mass Storage Devices: Floppy disk and drive – Hard disk and drive – MFM and RLL recording standards – CD Technology – DVD technology – pen drives – tape drives.

Unit V

Troubleshooting tools: In-Circuit Emulators – Logic State / Timing Analyzers – Digital Multi meters – CROs–Signature Analyzers– Troubleshooting problems of system boards, add on cards and peripherals.

Content beyond Syllabus:

1. Advanced data structures and their implementation
2. Implementation of the data structures in different language platforms

Text Books:

1. Hans Peter Messmer, Indispensable PC Hardware Book , Pearson Education, 4th edition,2003.
2. Govindarajulu, IBM PC and Clones , Tata McGraw Hill, 4th edition, 2002.

Reference Books:

1. Barry Brey, The Intel Microprocessors 8086/88, 80186/188, 80286, 80386,80486, PENTIUM and PENTIUM PRO architecture, Programming and Interfacing, 6th edition, PHI, 2002.
2. Ed Tittel, David Johnson, Networking Essentials: Study Guide, Comdex Computer Publishing,1998.
3. Scott Muller, Upgrading and Repairing PCs, 15th edition, 2002.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT – E51 COMPUTER HARDWARE AND TROUBLESHOOTING

Mini Project on Hard Disk Partitioning

Submitted by

NETHEANANDHAN.A.C

NIVEDHA.K

PARTHIBAN.M

PAVITHRA.K

PORSELVAM.I

PRAVEEN KUMAR.V

PREETHIKA.B

PRESIELA.J

III YEAR – IT

(2018-2019)

AIM:

To partition the given hard disk into four drives such as the first drive C, second drive D, third drive E and fourth drive F of capacity 5GB each.

REQUIREMENTS:

1. PC with CD-ROM
2. Bootable CD with fdisk utility
3. Hard disk of capacity 20GB

THEORY:

Disk partition is creation of logical drive upon a hard disk operating system allow users to divide a hard disk into multiple partitions. Partitioning a hard disk drive defines specific areas within the disk. A partition may constitute an entire logical drive are it may form a part of large virtual drive which could span over several partition and hard disk.

Partitioning makes it possible to create several file system (either of same type or of different) on single hard disk. Some of the commonly used file systems are

1. FAT (File Allocation Table)
2. VFAT (Virtual File Allocation Table)
3. NTFS (new Technology File System)
4. FAT 32 (32 bit File Allocation Table)

A hard disk would contain either as many as four primary partitions or one to three partitions along with a single extended partition. Each of these partitions are described by a 16-byte entry in the partition table which is loaded in the partition table which is loaded in the master boot record the type 'A' partition is identified by a byte code found in partition table entry. Most of the operating system use "fdisk" command to create hard disk partitions.

PRIMARY PARTITION:

A primary (or logical) partition contains one file system, it may be NTFS or FAT file system. The first partition (c :) must be a primary partition.

EXTENDED PARTITION:

An extended partition is secondary to the primary partition. A hard disk may contain only one extended partition, which can then be sub-divided into logical drives each of which

MANAKULA VINAYAGAR

(under dos and windows) assigned additional drive letters. Extended partition is useful if you want more than four partitions on a single physical drive.

MICROSOFT WINDOWS PARTITION SCHEME:

With Microsoft windows, the standard partitioning scheme is to create a single active primary partition, the c: drive, where the operation system user data, applications and page fill all reside. Some users how're, prefer to create multiple partition so that the operating system can be stored separately from other kind of data.

UNIX PARTITION:

For Unix-based and Unix-like operating system such as Linux and Mac os x, the creation of separate partition for lboot,lhome,ltmp,luser,lvar,swap and all remaining file under the "/" (root directory) is possible.

HARD DISK PARTITIONS:

This procedure explains how to setup a **new hard disk**. Before a new hard disk can be used it needs to be setup. This involves partitioning and formatting the hard disk. Windows 98 or ME boot disk contains the required software to perform this procedure. FDISK.EXE and FORMAT.COM are the files required in your bootable floppy disk.

Start the partition and format procedure by booting your PC using a Windows boot disk. Make sure you set the BIOS so that the boot sequence is set to detect the floppy disk first. If your system has no problems booting you will be presented with a Windows boot disk menu. This gives you the option to start the system with or without CD-ROM support. At this stage you do not need the CD-ROM support, so choose the option to boot without CD-ROM support. You should end up in the MS DOS prompt A: (A drive). From A: command prompt type **fdisk**. You will be presented with following message:

```
                    Microsoft Windows 98
                    Fixed Disk Setup Program
                (C) Copyright Microsoft Corp. 1983 - 1998

                        FDISK Options

    Current Fixed disk drive: 1

    Choose one of the following:

    1. Create DOS partition or Logical DOS Drive

    2. Set active partition
    3. Delete partition or Logical DOS Drive
    4. Display partition information
    5. Change current fixed disk drive

    Enter choice: [ 1 ]


    Press Esc to exit FDISK
```

Choose "Y" to enable large disk support. You will now be presented with the FDISK main menu as shown below:

```
    Your computer has a disk larger than 512 MB. This version of Windows
    includes improved support for large disks, resulting in more efficient
    use of disk space on large drives, and allowing disks over 2 GB to be
    formatted as a single drive.


    IMPORTANT: If you enable large disk support and create any new drives on this
    disk, you will not be able to access the new drive(s) using other operating
    systems, including some versions of Windows 95 and Windows NT, as well as
    earlier versions of Windows and MS-DOS. In addition, disk utilities that
    were not designed explicitly for the FAT32 file system will not be able
    to work with this disk. If you need to access this disk with other operating
    systems or older disk utilities, do not enable large drive support.


    Do you wish to enable large disk support (Y/N)...........? [Y]
```

From the menu, choose option 1 - Create DOS partition or Logical DOS drive. Another menu will present the following options.

```
            Create DOS Partition or Logical DOS Drive

    Current fixed disk drive: 1

    Choose one of the following:

    1.  Create Primary DOS Partition

    2.  Create Extended DOS Partition

    3.  Create Logical DOS Drive(s) in the Extended DOS Partition




    Enter choice: [1]
```
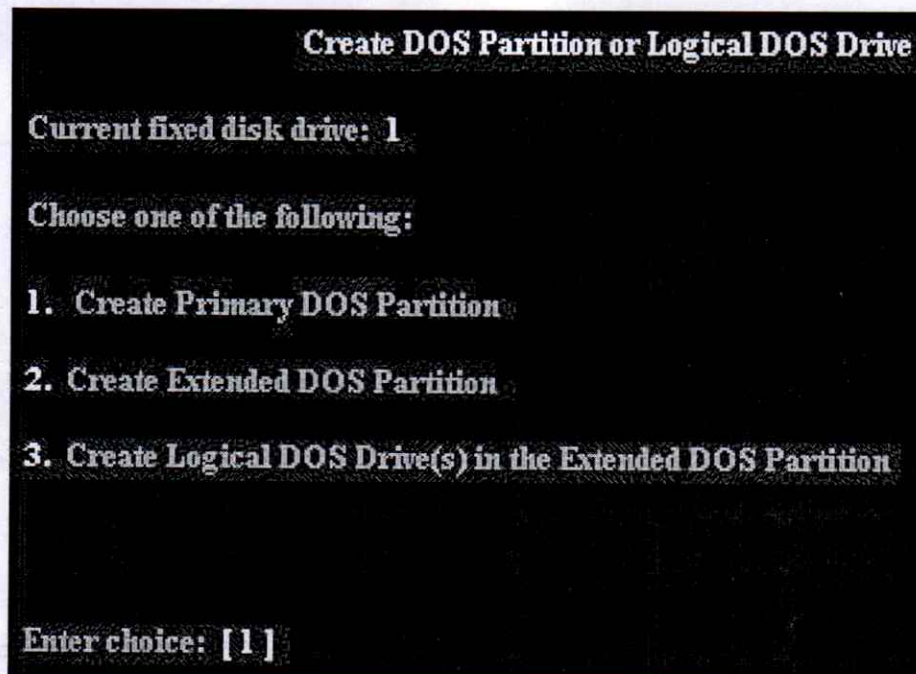
Choose option 1 - Create primary DOS Partition. FDISK verifies the integrity of your drive and will ask you if want to use the maximum available size of your hard disk to create the primary partition and set it active. To keep things simple we will create one large partition. Choose "Y" to use maximum available space.

When the partition has been created successfully you will be notified by the system. Your drive is now known as C: (C drive). Press "Esc" to return to the menu. Press "Esc" again to exit FDISK. You need to restart your system for the changes to take effect. Leave boot disk in the drive. When the system reboots, choose start without CD-ROM from the boot disk menu. While booting from floppy disk you might get error message like "Invalid media type reading drive C" this is OK for this stage as the hard disk is not formatted. If you want to create extended DOS partitions, specify the size of the partitions in the bytes for primary partition. And remaining space can be utilized to create logical drives in the extended partition.

RESULT:

The given hard disk is partitioned according to the requirements.

IT-P51 COMMUNICATION ENGINEERING LAB

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-P51	Communication Engineering Lab	0	0	3

Course Objectives:
1. To understand the working of main concepts of analogue and digital communication systems.
2. To enhance technical skills through analyzing the waveforms obtained at various stages of the experiment.
3. To verify the experimentally obtained and simulated outputs and knowing the reason for the deviation.

Course Outcomes:
On successful completion of this course students will be able to:
1. Follow rapid developments in the field of communication systems.
2. Apply problem-solving skills, Recognize and utilize latest analogue and digital communication technologies.
3. Interpret and integrate diverse information sources to form a coherent understanding of the subject.

Syllabus:
1. Amplitude modulation and demodulation
2. Frequency modulation and demodulation
3. PCM encoder and decoder
4. Generation of PAM, PWM and PPM
5. Generation of ASK, FSK and PSK
6. Simulation analysis of hand off performance in cellular mobile systems
7. Simulation of satellite link budget analysis
8. Simulation of fiber optic link budget analysis
9. Simulation of various propagation models (Outdoor and Indoor)
10. Simulation of antenna radiation pattern(Horn, Parabolic reflector)

Content beyond Syllabus:
1. Students will be motivated to visit the websites of AIR and Doordharshan and understand the practical frequency assignment, broadcast power level and coverage area of all the Indian radio and TV stations.

Websites:
1. http://drdo.gov.in/drdo/labs/LRDE/English

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

COMMUNICATION ENGINEERING LABORATORY/ IT-P51

III year IT (2018-19)

MINI PROJECT

ON

Sending SMS using GSM module and PIC microcontroller

Submitted by,

PRIYADHARSHINI .D
PRIYADHARSHINI. R
PRIYANGA.P
RAGUNAA.R
SANDOSH KUMAR.J
SANDRESH.S
SARANIDARAN.K
SERANJIVI

Mini project on sending SMS using GSM module and PIC microcontroller

Aim:

To send SMS using module and PIC Microcontroller.

Apparatus Required:

PIC Microcontroller, GSM Module,

Objective:

Send SMS using GSM module and **PIC microcontroller** : This article explains how to send using **module** and PIC microcontroller.   What is **AT commands** and their use to send and **receive** .

What are AT command?

AT commands are used to initialize whatever you want module to do for you. SIMCOM a company of sim tech have a AT command complete document for SIM900. You can easily download it from google. For each SIM900D feature there are separate AT command available. User can easily use these commands to configure whatever functionality they want to use from module available features. In this article I will discuss only AT commands use to send . But you will get an idea how to use rest of AT commands for using other features of module. AT commands you need to know for sending through module SIM900D and how to use while writing code:

For example we want to send "Welcome to microcontrollerslab.com".
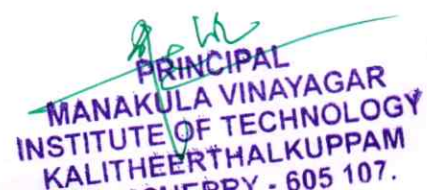
IT-P52 OPERATING SYSTEMS LAB

| Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-P52	Operating Systems Lab	0	0	3

Course Objectives:
1. To simulate the scheduling algorithms
2. To implement dining philophers, reader-writer's using synchronization mechanisms.
3. To learn the concept of memory management and file systems.

Course Outcomes:
On successful completion of this course students will be able to:
1. Learn the concepts of job scheduling in systems.
2. Learn event synchronization mechanisms.
3. Study the concept of memory management.

Syllabus:
1. Study of basic Unix/Linux commands.

2. Shell Programming.

3. Programs using the following systemcalls of Unix/Linux operating system:

   fork, exec, getpid, exit, wait, close, stat,opendir, readdir

4. ProgramsusingtheI/OsystemcallsofUNIXoperatingsystem(open,read,write,etc.).

5. Simulations of Unix/Linux commands like ls, grep, etc.

6. Simulation of scheduling algorithms (CPUandDisk).

7. Implementation of synchronization problems using Semaphore.

8. Simulation of basic memory management schemes.

9. Simulation of virtual memory management schemes.

10. Simulation of filesystems.

Content beyond Syllabus:
1. Simulation environment for deadlock situation can be created.
2. Paging and segmentation may be included.

Websites:
1. http://www.inf.ed.ac.uk/teaching/courses/os/prac/
2. http://www.scribd.com/doc/7137624/OS-Practical-File/
3. http://www.cl.cam.ac.uk/freshers/raspberrypi/tutorials/os/introduction.html/

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY
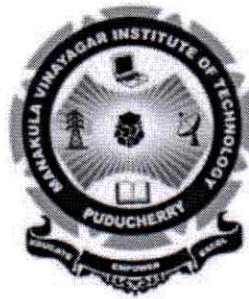
IT – P62 OPERATING SYSTEM LAB

MEMORY MANAGEMENT USING SEGMENTATION

Submitted by

SHAKILA.S
SHEEBHA.A.B
SIVAGAMI.S
SIVAGANESH.C
SIVAPAVITHRAN.V
SOPHIA NADINE.A
SRIDEVIPRIYA.G
SUSHMITHA.R

III YEAR – IT

2018-2019

Memory Management Using Segmentation

AIM:

To write a LINUX/UNIX C Program for the Implementation of Segmentation.

SOURCE CODE:

```
#include<stdio.h>
#include<conio.h>
struct list
{
int seg;
int base;
int limit;
struct list *next;
} *p;
void insert(struct list *q,int base,int limit,int seg)
{
if(p==NULL)
{
p=malloc(sizeof(Struct list));
p->limit=limit;
p->base=base;
p->seg=seg;
p->next=NULL;
}
else
{
while(q->next!=NULL)
{
Q=q->next;
Printf("yes")
}
q->next=malloc(sizeof(Struct list));
q->next ->limit=limit;
q->next ->base=base;
q->next ->seg=seg;
q->next ->next=NULL;
}}
int find(struct list *q,int seg)
{
while(q->seg!=seg)
```

```c
{
q=q->next;
}
return q->limit;
}
int search(struct list *q,int seg)
{
while(q->seg!=seg)
{
q=q->next;
}
return q->base;
}
main()
{
p=NULL;
int seg,offset,limit,base,c,s,physical;
printf("Enter segment table/n");
printf("Enter -1 as segment value for termination\n");
do
{
printf("Enter segment number");
scanf("%d",&seg);
if(seg!=-1)
{
printf("Enter base value:");
scanf("%d",&base);
printf("Enter value for limit:");
scanf("%d",&limit);
insert(p,base,lmit,seg);
}}
while(seg!=-1)
printf("Enter offset:");
scanf("%d",&offset);
printf("Enter bsegmentation number:");
scanf("%d",&seg);
c=find(p,seg);
s=search(p,seg);
if(offset<c)
{
```

IT-P53 DATABASE MANAGEMENT SYSTEMS LABORATORY

Subject Code	Subject Name	Lectures (Periods)	Tutorial (Periods)	Practical (Periods)
IT-P53	Database Management Systems Laboratory	0	0	3

Course Objectives:

To familiarize students with the database systems concepts
1. To design databases for real-time applications
2. To provide students with hands-on experience to understand and to be familiar in Oracle database, SQL, Oracle Reports and Oracle Forms.
3. To understand how to administer a database system
4. To acquire knowledge of JDBC and ODBC connectivity

Course Outcomes:
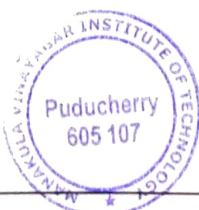1. An ability to analyze database needs and functions
2. An ability to create data models
3. An ability to create Entity-Relationship (E-R) diagrams
4. An ability to design and implement databases using database technology
5. An ability to use normalization rules and principles to create normalized databases
6. An ability to manage databases as a DBA

Experiments are to be carried out in DB2 / ORACLE and VB/ Open source DBMS package with the required front end software

1. **Study of Database Concepts:** Relational model – table – operations on tables – index – table space – view – schema – data dictionary – privilege – role – transactions.
2. **Study of SQL:** Primitive Data Types – User Defined data Types – Built-in Functions – To create, alter, drop, select, insert, delete, update, commit, rollback, save point, grant, revoke.
3. **Study of Query Types:** Queries involving Union, Intersection, Difference, Cartesian Product, Divide Operations – Sub-Queries – Join Queries – Nested Queries – Correlated Queries – Recursive Queries. .
4. **Application:** Design and develop any three of the following:
    - Library Information System
    - Logistics Management System
    - Students' Information System
    - Ticket Reservation System
    - Hotel Management System
    - Hospital Management System
    - Inventory Control
    - Retail Shop Management
    - Employee Information System
    - Payroll System
    - Any other Similar System.

Content beyond the Syllabus:
1. Conceptual designing using ERDRAW

Text Books:
1. Oracle developer handbook
2. SQL/PL/SQL for Oracle by P.S. Deshpande IIT Madras,Dream tech Press

Reference Books:
1. Elmasri, Navathe, Fundamentals of database Systems, Sixth Edition, Addison Wesley, 2010.
2. Abraham Silberschatz, Henry F. Korth and S. Sudarshan, "Database System Concepts",McGraw-Hill International Inc., 2011.

Websites:
1. www.oracle-developer.net
2. www.oracle.com/DBA

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kalitheerthalkuppam,
Puducherry - 605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT P53 Data Base Management Systems Lab

1. Installing Oracle Express Edition in Windows OS
2. Creating a new user in Oracle 11g

VIGNESH.D

B.Tech IT- III Year/ V Semester

(2018-2019)

1. Installing Oracle Express Edition in Windows OS

Aim:

To learn how to install the Oracle Express Edition in their own machines before doing Lab sessions.

Procedure:

Live Demo given to students in Lab session on step by step installation of Oracle Express Edition.

Outcome:

Students installed Oracle 11g in their machines and start working with it..

2. Creating a new user in Oracle 11g

AIM:

To learn how to use the Oracle CREATE USER statement to create a new user in the Oracle database.

Introduction to Oracle CREATE USER statement

The CREATE USER statement allows you to create a new database user which you can use to log in to the Oracle database.

The basic syntax of the CREATE USER statement is as follows:

```sql
CREATE USER username
  IDENTIFIED BY password
  [DEFAULT TABLESPACE tablespace]
  [QUOTA {size | UNLIMITED} ON tablespace]
  [PROFILE profile]
  [PASSWORD EXPIRE]
  [ACCOUNT {LOCK | UNLOCK}];
```
Code language: SQL (Structured Query Language) (sql)

In this syntax:

CREATE USER username

Specify the name of the user to be created.

IDENTIFIED BY password

Specify a password for the local user to use to log on to the database. Note that you can create an external or global user, which is not covered in this tutorial.

DEFAULT TABLESPACE

Specify the tablespace of the objects such as tables and views that the user will create.

If you skip this clause, the user's objects will be stored in the database default tablespace if available, typically it is USERS tablespace; or the SYSTEM tablespace in case there is no database default tablespace.

QUOTA

Specify the maximum of space in the tablespace that the user can use. You can have multiple QUOTA clauses, each for a tablespace.

Use UNLIMITED if you don't want to restrict the size in the tablespace that user can use.

PROFILE profile

A user profile limits the database resources or password that the user cannot exceed. You can assign a profile to a newly created user. If you skip this clause, Oracle will assign the DEFAULT profile to the user.

PASSWORD EXPIRE

Use the PASSWORD EXPIRE if you want to force the user to change the password for the first time the user logs in to the database.

ACCOUNT {LOCK | UNLOCK}

Use ACCOUNT LOCK if you want to lock user and disable access. On the other hand, specify ACCOUNT UNLOCK to unlock user and enable access.

To execute the CREATE USER statement, you must have the CREATE USER system privilege. Once you create the new user, the privilege domain of the user will be empty. Therefore, if you want to the user to be able to login to the database, you should grant the CREATE SESSION system privilege to the user.

OUTCOME:

Students created more users in their machines and started implementing grant and revoke commands.

IT-T61 COMPUTER NETWORKS

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T61	Computer Networks	3	1	-

Pre-requisite: IT–T35 Digital System and Computer Architecture

Course Objectives: Gets the idea of choosing the required functionality at each layer for a given application and trace the flow of information from one node to another node in the network. Then gives the understanding of division of network functionalities into layers, the component required to build different types of networks and identifying the solution for the functionalities in each layer.

Course Outcomes:
1. Understand the Layered Architecture of Computer Networks.
2. Understand the operation of the main components of computer networks.
3. Learn various network protocols and algorithms.
4. Acquire the required skill to design simple computer networks.

Syllabus:

Unit I

Introduction to Computer Networks: Need for Networking - Service Description –connectionless and Connection-Oriented Services – Circuit and Packet Switching – Access Networks and Physical Media – Wireless Links and Characteristics – Queuing Delay and Packet Loss – Internet Protocol stack – OSI Reference Model - Service Models – History of Computer Networking and the Internet.

Unit II

Application Layer: Principles of Network Applications – The Web and HTTP – FTP – Electronic Mail – SMTP – Mail Message Formats and MIME – DNS – Socket Programming with TCP and UDP. Multimedia Networking: Internet Telephony – RTP – RTCP – RTSP.

Unit III

Transport Layer: Transport Layer Services – Multiplexing and Demultiplexing – UDP – Reliable Data Transfer – Go-Back-N and Selective Repeat. Connection-Oriented Transport: TCP – Segment Structure – RTT estimation – Flow Control – Connection Management – Congestion Control – TCP Delay Modeling – SSL and TLS. Integrated and Differentiated Services: Intserv – Diffserv.

Unit IV

Network Layer: Circuit Switching - Packet Switching Virtual Circuit Switching – IP – ARP – DHCP – ICMP – Routing – RIP – OSPF – Sub netting – CIDR – Inter domain Routing – BGP – IPV6 Basic Features – Inter Domain Multicast – Congestion Avoidance in Network Layer.

Unit V

Data Link Layer– Layer Services– Framing - Error correction and detection – Link Level Flow Control – Medium Access – Ethernet – Token Ring –FDDI – Wireless LAN – Bridges and Switches.

(Total: 60 Periods)

Text Books:

1. James F. Kurose, Keith W. Ross, "Computer Networking, A Top-Down Approach Featuring the Internet", Third Edition, Pearson Education, 2006.
2. Larry L. Peterson, Bruce S. Davie, "Computer Networks: A Systems Approach", Fifth Edition, Morgan Kaufmann Publishers Inc., 2011.
3. William Stallings, "Data and Computer Communications", Eighth Edition, Pearson Education, 2011.

Reference Books:

1. Nader F. Mir, "Computer and Communication Networks", First Edition, PearsonEducation, 2007.
2. Ying-Dar Lin, Ren-Hung Hwang and Fred Baker, Computer Networks: An OpenSource Approach ", McGraw Hill Publisher, 2011.
3. Behrouz A. Forouzan, "Data communication and Networking", Tata McGraw-Hill,2004.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT-T61 - Computer Network

ERROR DETECTING CODE USING CRC-CCITT (16- BITS)

Submitted by

VISHNU.M	SUNDAR.S
ABARNA.M	ABINAYA .J
AISWARYA.R	AJITHA.K
AKSHAYA.M	ALEXIA.A
AMARNATH.G	

III YEAR – IT

(2018-2019)

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERT HAI KUPPAM,
PUDUCHERRY - 605 07.

ERROR DETECTING CODE USING CRC-CCITT (16- BITS).

Aim:

To write a program for error detecting code using CRC-CCITT (16- bits).

Procedure:

Background / Preparation

The cyclic redundancy check, or CRC, is a technique for detecting errors in digital data, but not for making corrections when errors are detected. It is used primarily in data transmission.

In the CRC method, a certain number of check bits, often called a checksum, are appended to the message being transmitted. The receiver can determine whether or not the check bits agree with the data, to ascertain with a certain degree of probability whether or not an error occurred in transmission.

Program:

```java
import java.io.*;
class crc_gen
{
    public static void main(String args[]) throws IOException
    {
        BufferedReader br=new BufferedReader(new InputStreamReader(System.in));
        int[] data;
        int[] div;
        int[] divisor;
        int[] rem;
        int[] crc;
        int data_bits, divisor_bits, tot_length;

        System.out.println("Enter number of data bits : ");
        data_bits=Integer.parseInt(br.readLine());
        data=new int[data_bits];

        System.out.println("Enter data bits : ");
        for(int i=0; i<data_bits; i++)
            data[i]=Integer.parseInt(br.readLine());

        System.out.println("Enter number of bits in divisor : ");
        divisor_bits=Integer.parseInt(br.readLine());
        divisor=new int[divisor_bits];
```

IT-T62 WEB TECHNOLOGY

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T62	Web Technology	3	1	0

Course Objectives:
1. To introduce the basics of Network Model.
2. To introduce the Web Development Process and Various Web Technologies.
3. To learn Networking and Security issues of Internet.

Course Outcomes:
On successful completion of this course students will be able to:
1. Use appropriate web development tools for various web application
2. Learn various Networking and Security issues of Internet to have a protected internet use.

UNIT I

Internet principles – Basic Web concepts – Client –Server model – Retrieving data from Internet -Protocols and applications. Web Design process: Web process Model-Goals and problems-design phase-Testing. Site Types and Architecture-Web site types-Dynamic Sites-site structures

UNIT II

Search and Design: Worldwide search-web searching overview-working of search engines-search engine promotion-optimization-Search interface.
Web protocols-HTTPDNS,- Web Servers-components-software, web hosting. Browsers-HTML and scripting languages-cookies- Multimedia in web design.

UNIT III

Web Technologies: Anatomy of xml document - XML markup-working with elements and attributes - creating valid documents-xml objects.
ActiveX controls: Introduction- Building a basic control - OLE and ActiveX- HTML and ActiveX-ActiveX Documents.

UNIT IV

Streaming – Networking Principles – Sockets for Clients - Sockets for Servers – Protocols handlers – Content handlers – Multicast sockets – Remote method invocation.

UNIT V

Internet Security: The Internet-Understanding Firewalls-Hackers-TCP/IP from a security view point –sockets and services-Encryption. Firewall Technology-packet filtering- Network Address Translation-application level proxies-VPN- ideal firewall.

(Total: 60 Periods)

Content beyond Syllabus:
1. Advanced data structures and their implementation.
2. Implementation of the data structures in different language platforms.

Text Books:
1. Thomas A.Powell, The Complete Reference Web design, Tata McGraw-Hill, 2000.
2. Mathew strebe, charlesperkins, Firewalls, BPB, 2000.

Reference Books:
1. Eillotte Rusty Harold, Java Network Programming, O'Reilly Publications, 1997.
2. John paulMueller,Active X from the Ground up, TataMcGraw-Hill,1997.
3. Michael Girdley, Kathryn A. Jones, et al., Web programming with JavaTM, Sams.net publishing, 1996.

Websites:
1. http://www.w3schools.com

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHAL KUPPAM,
PUDUCHERRY 605 07

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT – T62 WEB TECHNOLOGY

MINI PROJECT FOR BOOK STORE SYSTEM

Submitted by

ANANTHARAMAN.R
ANBARASAN.S
ARAVINDAKUMAR.S
BALAJI.R
BHARATH KUMAR.M
BHUVANESWAR.T
BRAINARD SAMUEL.R
DHARANI.R

III YEAR – IT
(2018-2019)

AIM:

To Create Login Form and Validate it Username and password stored in Database .Develop static pages (using only HTML) of an online Book store. The pages should resemble: www.amazon.com. The website should consist of the following pages.

☐ Home page
☐ Registration and user Login
☐ User profile page

PROCEDURE:

Home page

Main.html:

```html
<html>
<head>
<title>
Amazon</title>
</head>
<body bgcolor="cyan"> <center>
<strong><h1>Welcome to AMAZON</h1></strong>
<form method="post" action="login.html" target=_blank >
<h4>for books</h4><input type="submit" value="click here">
</form>
</center>
</body>
</html>
```

IT-T63 ARTIFICIAL INTELLIGENCE

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T63	Artificial Intelligence	3	1	0

Pre-requisite:
Knowledge in Programming, Discrete mathematics and in probability.

Course Objectives:
1. To search and discover intelligent characteristics of existing AI projects, Intelligent agents map a new problem – as search.
2. To understand different search strategies for a problem.
3. To understand different Knowledge Representation schemes for typical AI problems.
4. To design and implement a typical AI problem to be solved Using Machine Learning Techniques.
5. Implement a futuristic AI application.

Course Outcomes:

On successful completion of this course students will be able to:
1. Capability to develop intelligent systems
2. Apply heuristic concepts to design efficient algorithms that help to attain the goals in satisfactory manner
3. Design applications related to Natural Language Processing and Web applications.

Unit I
Introduction: History of AI - - problem spaces and search- Heuristic Search techniques –Best-first search- Problem reduction-Constraint satisfaction-Means Ends Analysis.
Intelligent agents: Agents and environment – structure of agents and its functions

Unit II
Knowledge Representation: Approaches and issues in knowledge representation- Propositional Logic –Predicate logic-Forward and backward reasoning - Unification- Resolution- Weak slot-filler structure – Strong slot-filler structure- Knowledge- Based Agent

Unit III
Reasoning under uncertainty: Logics of non-monotonic reasoning-Implementation- Basic probability notation - Bayes rule – Certainty factors and rule based systems-Bayesian networks – Dempster - Shafer Theory - Fuzzy Logic.

Unit IV
Planning and Learning: Planning with state space search-partial order planning-planning graphs-conditional planning-continuous planning-Multi-Agent planning. Forms of learning-inductive learning-learning decision trees-ensemble learning-Neural Net learning and Genetic learning

Unit V
Advanced Topics: Game Playing: Minimax search procedure-Adding alpha-beta cutoffs Expert System: Representation-Expert System shells-Knowledge Acquisition. Robotics: Hardware-Robotic Perception-Planning-Application domains

(Total : 60 Periods)

Content beyond Syllabus:
1. Natural language understanding and generation.
2. Speech processing system.

Text Books:
1. Elaine Rich and Kevin Knight and ShivashankarB.Nair, Artificial Intelligence, 3rd edition, Tata Mc Graw Hill, 2009.
2. Ben Coppin, "Artificial Intelligence Illuminated", Jones and Bartlett Publishers, 1st edition, 2004.
3. Stuart J.Russell and Peter Norvig, Artificial Intelligence: A Modern Approach, Pearson Education Asia, II edition, 2003.
4. N.P.Padhy, Artificial Intelligence and Intelligent Systems, Oxford University Press, 2nd edition, 2005.

Reference Books:
1. RajendraAkerkar ,Introduction to Artificial Intelligence, Prentice hall of India, 2005.
2. Patrick Henry Winston, Artificial Intelligence, 3rd edition Pearson Education, Inc., 2001.

Websites:
1. http://aima.cs.berkeley.edu/ai.html
2. www.stanford.edu/class/cs221/

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY
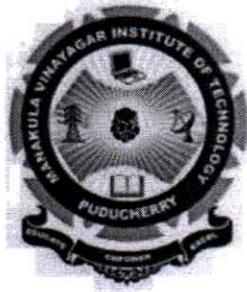
IT T63 Artificial Intelligence

Mini Project on Validate the Query using Prolog

Submitted by

GEETHA LAKSHMI.R

GIRIDHARAN.S, ILLAKIYA.S

GOWRI.D, JAYARAM.V

HARIHARAN JAUBIN.R

HARSHINI.V, JANANI A P

HEMALAKSHMI

III YEAR – IT

(2018-2019)
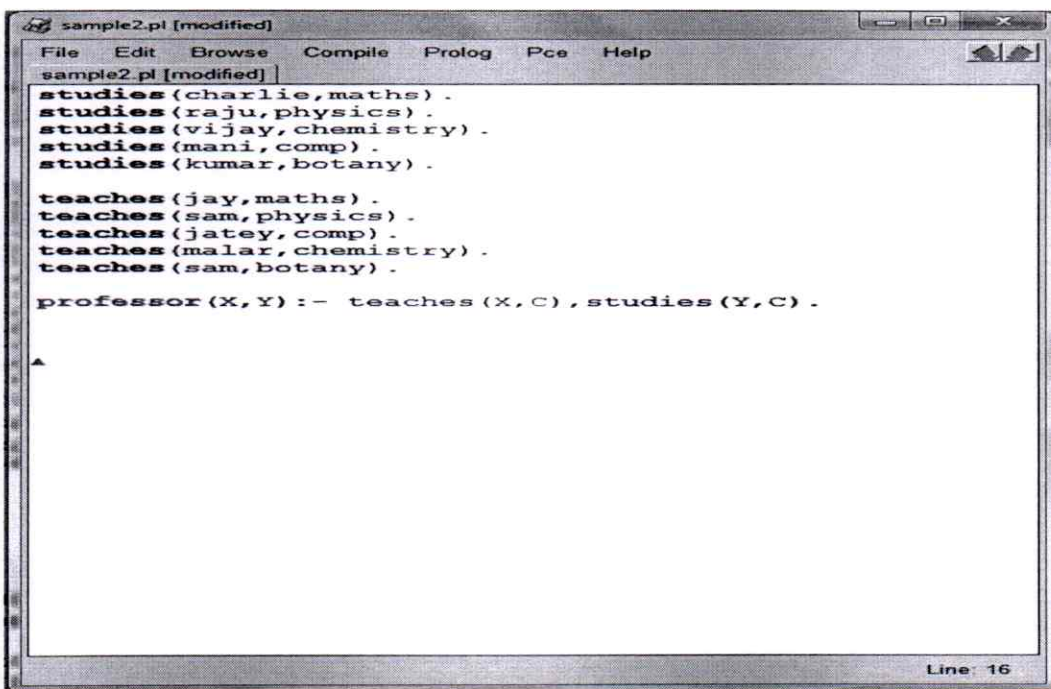
Aim:

Create the Facts the students named (Charlie, raju, vijay, mani, kumar) Studying each one individual subjects such as (Maths, physics, chemistry, comp, botany) respectively. The Professors namely (jay,sam,jatey,malar,samraj) are subject experts for the given subjects.

Frame the Rules: X is a professor of Y if X teaches C and Y studies C.

Validate the following Query

1. Who teaches maths?
2. Which subject professor malar teaches?
3. Which subject Charlie studies?
4. Check the student named Charlie studying in the class.
5. Is any professor available to teach subjects.
6. Who teaches botany?
7. Which subject professor jatey teaches?
8. Which subject mani studies?
9. Check the student named vijay studying in the class.
10. Which student studying physics?

Program Window:

```
sample2.pl [modified]
File   Edit   Browse   Compile   Prolog   Pce   Help
sample2.pl [modified]
studies(charlie,maths).
studies(raju,physics).
studies(vijay,chemistry).
studies(mani,comp).
studies(kumar,botany).

teaches(jay,maths).
teaches(sam,physics).
teaches(jatey,comp).
teaches(malar,chemistry).
teaches(sam,botany).

professor(X,Y):- teaches(X,C),studies(Y,C).



Line: 16
```
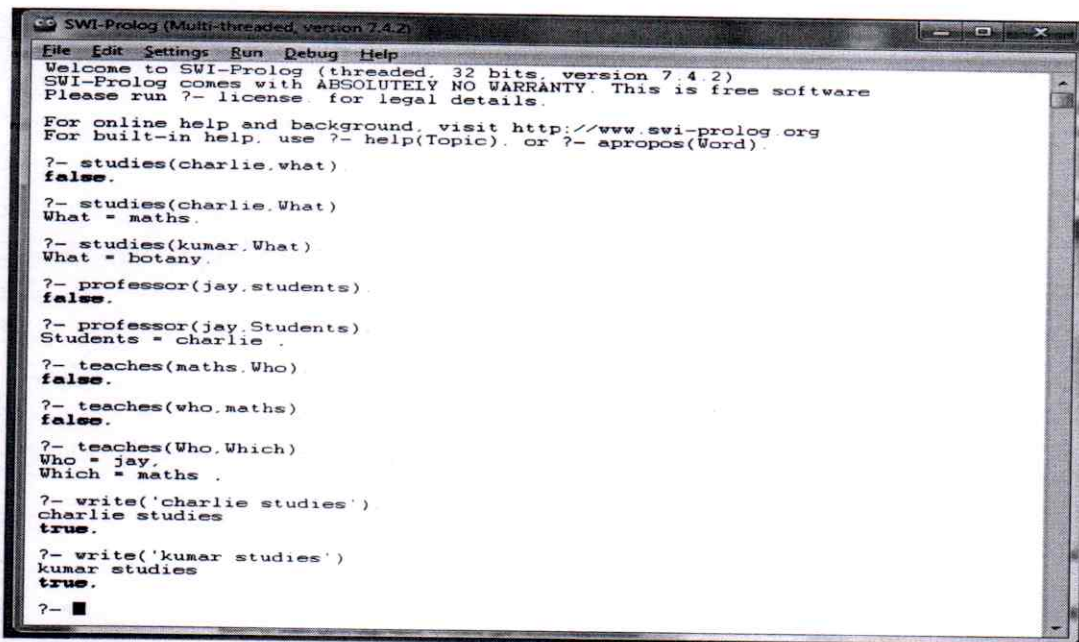
Query window

1. Who teaches maths?
   Query: teaches(Who,maths).
2. Which subject professor malar teaches?
   Query: teaches(malar,Which).
3. Which subject Charlie studies?
   Query: studies(charlie, Which).
4. Check the student named Charlie studying in the class.
   Query: write('charlie studies ').
5. Is any professor available to teach subjects.
   Query: write(' teaches ').
6. Who teaches botany?
   Query: teaches(Who,botany).
7. Which subject professor jatey teaches?
   Query: teaches(jatey,Which).
8. Which subject mani studies?
   Query: studies(mani, Which).
9. Check the student named vijay studying in the class.
   Query: write('vijay studies ').
10. Which student studying physics?
    Query: studies(Which,physics).

```
SWI-Prolog (Multi-threaded, version 7.4.2)

File  Edit  Settings  Run  Debug  Help
Welcome to SWI-Prolog (threaded, 32 bits, version 7.4.2)
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software
Please run ?- license. for legal details.

For online help and background, visit http://www.swi-prolog.org
For built-in help, use ?- help(Topic). or ?- apropos(Word).

?- studies(charlie,what)
false.

?- studies(charlie,What)
What = maths.

?- studies(kumar,What)
What = botany.

?- professor(jay,students)
false.

?- professor(jay,Students)
Students = charlie .

?- teaches(maths,Who)
false.

?- teaches(who,maths)
false.

?- teaches(Who,Which)
Who = jay,
Which = maths .

?- write('charlie studies')
charlie studies
true.

?- write('kumar studies')
kumar studies
true.

?- ■
```

Result: Thus Validated the following Query.

IT-E66 OBJECT ORIENTED ANALYSIS AND DESIGN

Pre-requisite:
Knowledge in the features of Object Oriented Programming Languages

Course Objectives:
To familiarize the students to carry out object oriented analysis and design for developing object oriented software projects

Course Outcomes:
Students acquire the skills to apply Industry recommended Unified Modeling Language Practices for OOAD and document them effectively

Unit I

Object Oriented Methodologies: Software System Life Cycle – Traditional cycle models – Object Oriented approach – Rambaugh et al Object Modeling Technique – Booch Methodology – Jacobson et al methodology –Rational Unified Process (RUP) – Unified Modeling Language (UML) – UML Models.

Unit II

UML Diagrams: Use case diagram – UML class diagram – interaction diagram – state diagram – activity diagram – Requirements for ATM banking system – case study

Unit III

Object Oriented Analysis: Use case driven Object analysis – approaches for identifying classes – identifying objects, relationships attributes, methods for ATM banking system –Object oriented design process – design axioms.

Unit IV

Object Oriented Design: Designing Classes, methods – access layer object storage and object interoperability –access layer for the ATM banking system View layer – designing interface objects – prototyping User interface – view layer for the ATM banking system

Unit V

Design Patterns: Design Patterns – Describing design patterns - catalog of design patterns – organizing the catalog – How design patterns solve design problems – How to select a design pattern – How to use a design pattern – creational pattern : Abstract factory – structural pattern : Adapter – behavioral pattern : chain of responsibility.

(Total : 60 Periods)

Content beyond Syllabus:
1. Students are encouraged to prepare the document for Mini project and Final year project applying OOAD for the system they implement.
2. Using CASE tools for performing OOAD.

Text Books:
1. Ali Bahrami, Object Oriented systems development, Tata Mcgraw Hill Education Private Ltd, 1999.
2. Carol Britton and Jill Doake, A student Gide to Object Oriented Development, Elsevier, Butterworth – Heinemann, Eighth Edition, 2007.
3. Erich Gamma, Richard Helm, Ralph Johnson and John Vlissides, Design Patterns – elements of reusable object oriented software, Addition Wesley, 1994.

Reference Books:
1. Craig Larman,"Applying UML and Patterns: An Introduction to object-oriented Analysis and Design and iterative development", Third Edition, Pearson Education, 2005
2. Mike O'Docherty "Object-Oriented Analysis & design – understanding system development with UML 2.0", John Wiley, 2005.
3. Grady Booch, James Rumbagh, IvarJacobson, "The UML user Guide", Pearson Education, 2005
4. Timothy C. Lethbridge, Robert Laganiere" Object-Oriented Software Engineering – A practical software development using UML and Java", Tata McGraw-Hill, New Delhi, March 2003.
5. David William Brown, "An Introduction to Object Oriented Analysis Objects and UML in Plain English", 2nd Edition, Wiley, 2001

Websites:
1. www.omg.org
2. http://www.ibm.com/developerworks/rational/products/rose/
3. http://www.smartdraw.com/resources/tutorials/jacobson-oose-

https://slideplayer.com/slide/12505400/

https://fdocuments.in/document/ooad-unit-4-ppt.html

https://www.scribd.com/presentation/384543963-Unit-OOAD

https://slideplayer.com/slide/12505400/

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT - E66 OBJECT ORIENTED ANALYSIS AND DESIGN

Mini Project on **Hospital Management System**

Submitted by

MOHAMMED HASVAK	**NANDHINI.A(w)**
MOHANAPRIYA	**NANDHINI.T(w)**
NALINAKUMARI	**NETHEANANDHAN.A.C**
NANDHAKUMAR.M	**NIVEDHA.K(w)**

III YEAR – IT

(2018-2019)

ACTIVITY DIAGRAM

IT-E68 USER INTERFACE DESIGN

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-E68	User Interface Design	3	1	0

Course Objectives:

1) To study the basic characteristics of graphics and web interfaces, Human Computer Interaction, multimedia interfaces for the web and the principles of evaluating interfaces.

Course Outcomes:

On successful completion of this course students will be able to:

1) The students learn concepts of user interface and used for web applications, human interfaces and for multimedia interfaces.

UNIT I

Introduction: A Taxonomy Of Software Design–Goal-Directed Design– TheThreeModels–VisualInterfaceDesign–Forms–IdiomsAndAffordances–HistoryofRectanglesontheScreen –Windows- Files– Storage and Retrieval Systems – Choosing Platforms.

UNIT II

Interface Design: BehaviorofPresentation–OrchestrationandFlow–TechniquesforInducingandMaintaining Flow–CharacteristicsofGoodUserInterface–PosturesandState–Idiocy–TheSecretWeaponofInterfaceDesign.

UNIT III

Mouse Operations: TheInteraction–MouseOperations–Selection–DirectManipulation–Manipulatinggizmos– Repositioning–Resizing and reshaping– Arrowing– Direct-Manipulation visual feedback – Drag-and-Drop.

UNIT IV

Menu Selection: The Cast– The Meaning of Menus–Menu–Dialog Boxes–DialogBox Etiquette–Toolbars–The Gizmos–Imperative and Selection Gizmos–Entry and Display Gizmos–New Gizmos.

UNIT V

Managing Exceptions & Personalization: EliminatingtheErrorMessages–ManagingExceptions–Undo–Troubles–Redo–SpecialUndo Functions– Installation–Configuration–Personalization.

(Total: 60 Periods)

Text Books:

1. Alan Cooper, The Essentials of User Interface Design,Wiley Dream techIndia (P) Ltd., 2002.
2. Ben Schneiderman, Designing theUserInterface,AddisonWesley,2000.

Reference Books:

1. AlanDix, JanetEFinlay,GregoryD.AbowdandRussellBeale, Human-ComputerInteraction,PrenticeHall,3rd Edition,2003.
2. JacobNielson, Usability Engineering, AcademicPress,1993.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT-E68 USER INTERFACE DESIGN

Mini Project on Location Sensor Application using MIT App Inventor

Submitted by

PARTHIBAN.M

PAVITHRA.K

PORSELVAM.I

PRAVEEN KUMAR.V

III YEAR – IT

(2018-19)

Location Sensor Application using MIT App Inventor

AIM: To Design and implement a program for Location Sensor Application using MIT APP Inventor.

Description / THEORETICAL DISCUSSION:

This application will give the GPS coordinates and (some of the times) address of where you are located in the world. There will be one button and three labels that you will be able to see. And the two hidden components will be LocationSensor and ActivityStarter.

Location sensor: It is a feature that communicates with the GPS of the phone. It can be used in an application by a user to learn lot of things about current location.

Design Editor Instructions:

1. Drag a button on the screen and name it Button1. This is the button you will press to start Google Maps. On the right side of the screen in the "Components" section, you can see the entity of the button. Click on it, and in the "Properties" section, set the text of the button to be "Find current location".

2. Drag three labels on to the screen, and set their texts to be "Longitude", "Latitude", and "Current Address" respectively.

3. Now go in the "Sensors" section and drag out the "Location sensor" onto the screen. This is an invisible element and will appear at the bottom of the screen.

4. From "other stuff", drag Activity Starter onto the screen. This too is an invisible component and will appear below "Location Sensor".

5. Click on "Location Sensor" and make sure it is enabled. Do the same with "Activity Starter".

6. Name them "LocationSensor1" and "ActivityStarter1" respectively.

7. Location sensor constantly receives updates from the GPS and has information inside it such as current altitude, longitude, latitude, address, accuracy, etc.

8. When you check "enabled" for Location Sensor, it becomes active and can start receiving data from GPS in the background. The way in which this transmission of data happens is part of the location sensor's built-in functionality. We do not need to do anything to facilitate this communication.

9. For the "Activity Starter", in the "Properties" section, set the "Action" field to "android.intent.action. VIEW" Activity Class"field to"com.google.android.maps.MapsActivity and "ActivityPackage" field to "com.google.android.apps.maps"

10. Here, we just specified which activity we want to start and which package the implementation of that activity is located in.
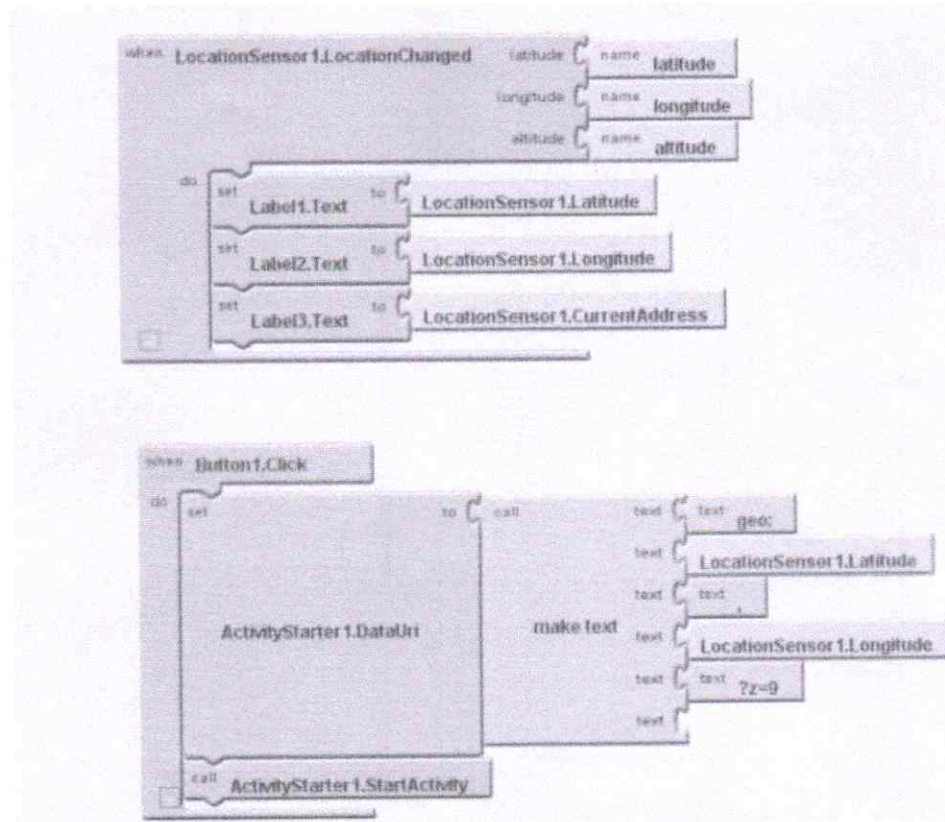
OUTPUT:
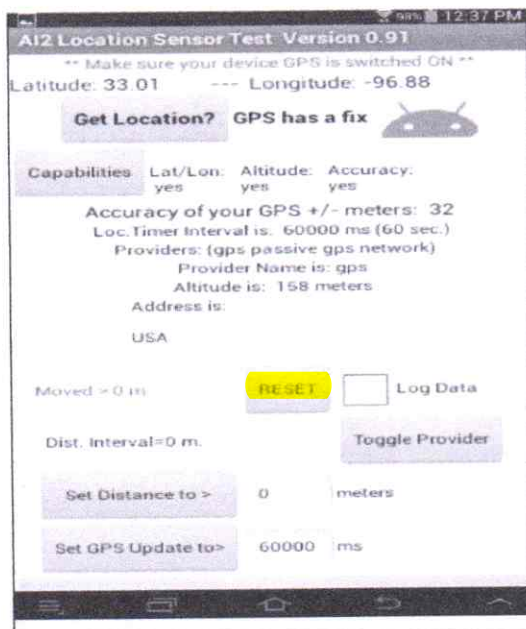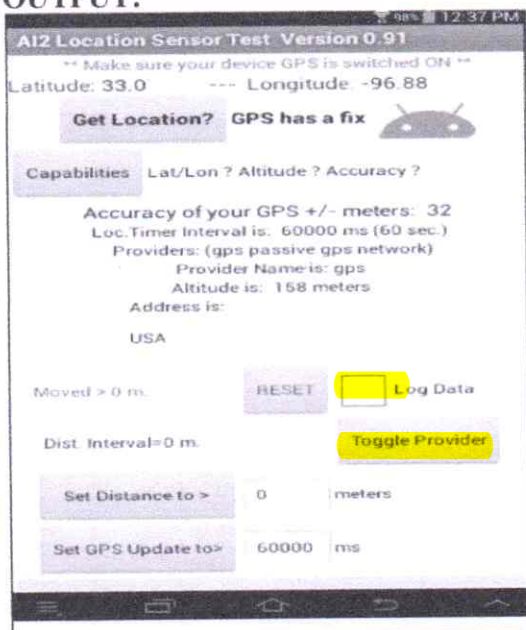
OUTCOME:

After Successful Completion of the experiment, we learnt the GPS coordinates address of where we are located in the world.

IT-P61 COMPUTER NETWORKS LAB

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-P61	Computer Networks Lab	0	0	3

Course Objectives:
1. To learn socket programming
2. To use simulation tools.
3. To analyze the performance of protocols in different layers in computer networks using simulation tools.

1. Applications using TCP Sockets like
   (i) Echo client and echo server
   ii) File transfer
   iii) date and time server & client
   iv) Chat
2. Applications using UDP Sockets like
   ii. DNS
   iii. SNMP
3. Applications using Raw Sockets like
   i) Ping
   ii) Traceroute
4. Programs using RPC
5. Experiments using simulators like OPNET:
   i. Performance comparison of MAC protocols
   ii. Performance comparison of Routing protocols like
   iii. Shortest path routing
   iv. Flooding
   v. Link State
   vi. Hierarchical
   vii. Study of TCP/UDP performance.

(Total: 45 Periods)

Text Books:
1. James F. Kurose, Keith W. Ross, "Computer Networking, A Top-Down Approach Featuring the Internet", Third Edition, Pearson Education, 2006.
2. Larry L. Peterson, Bruce S. Davie, "Computer Networks: A Systems Approach", Fifth Edition, Morgan Kaufmann Publishers Inc., 2011.
3. William Stallings, "Data and Computer Communications", Eighth Edition, Pearson Education, 2011.

Reference Books:
1. Nader F. Mir, "Computer and Communication Networks", First Edition, PearsonEducation, 2007.
2. Ying-Dar Lin, Ren-Hung Hwang and Fred Baker, Computer Networks: An OpenSource Approach ", McGraw Hill Publisher, 2011.
3. Behrouz A. Forouzan, "Data communication and Networking", Tata McGraw-Hill, 2004.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT P61 Computer Networks Lab

Mini Project on Error Detection Technique

Submitted by

PRIYANGA.P(w)

RAGUNAA.R(w)

SANDOSH KUMAR.J

SANDRESH.S, SERANJIVI

SARANIDARAN.K

SHAKILA.S(w)

SHEEBHA.A.B(w)

III YEAR – IT

(2018-2019)

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kalitheerthalkuppam,
Puducherry - 605 107.

AIM:

Write a program for error detection and <mark>error correction techniques by Hamming Method using</mark> <mark>C language.</mark>

APPARATUS REQUIERD:

- C -editor
- Standalone desktop.

PROCEDURE:

1. Start the program.
2. Open C-editor.
3. Type the C program.
4. Save the program with file name ext .c
5. Run the program.
6. If any error occurs in the program correct the error and run it again.
7. Enter the data of 4 bit size message bit.
8. Check the entered data.
9. Stop the program.

PROGRAM FOR HAMMING METHOD :

```
#include<stdio.h>
#include<conio.h>
Void main() {
int data[7],rec[7],i,c1,c2,c3,c;
printf ("this works for message of 4bits in size \n enter
message bit one by one:   ");
scanf ("%d %d %d %d",& data[0],&data[1],&data[2],&data[4]);
data[6]=data[0]^data[2]^data[4];
data[5]=data[0]^data[1]^data[4];
data[3]=data[0]^data[1]^data[2];
printf("\n the encoded bits are given below: \n");
for (i=0;i<7;i++) {
printf("%d ",data[i]);
}
printf("\n enter the received data bits one by one: ");
for (i=0;i<7;i++) {
    scanf("%d",& rec[i]);
```

```c
}
c1=rec[6]^rec[4]^rec[2]^rec[0];
c2=rec[5]^rec[4]^rec[1]^rec[0];
c3=rec[3]^rec[2]^rec[1]^rec[0];
c=c3*4+c2*2+c1 ;
if(c==0) {
    printf ("\n congratulations there is no error: ");
} else {
    printf("\n error on the position: %d\n the correct
 message is \n",c);
    if(rec[7-c]==0)
                rec[7-c]=1; else
                rec[7-c]=0;
    for (i=0;i<7;i++) {
        printf("%d ",rec[i]);

            }
            }
        getch();
            }
            }
```

MODEL OUTPUT:

```
DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip 0, Program:    TC          [_][□][x]
this works for message of 4bits in size
enter message bit one by one:  0
1
0
1

the encoded bits are given below:
0 1 0 1 1 0 1
enter the received data bits one by one: 0
1
0
1
1
0
1

congratulations there is no error: _
```

RESULT:

Thus the Error detection and correction methods were executed and verified successfully by using c – editor.

IT-P62 WEB TECHNOLOGY LAB

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-P62	Web Technology Lab	0	0	3

Course Objectives:
1) To introduce the basics of Network Model.
2) To introduce the Web Development Process and Various Web Technologies.
3) To learn Networking and Security issues of Internet.

Course Outcomes:
On successful completion of this course students will be able to:
1) Use appropriate web development tools for various web application
2) Learn various Networking and Security issues of Internet to have a protected internet use.

Implement the following problems :
1. Creation of HTML Files
2. Working with Client Side Scripting
   VBScript
   JavaScript
3. Configuration of web servers
   Apache
   Internet Information Server(IIS)
4. Working with ActiveX Controls in web documents.
5. Experiments in JAVA
   Applets
   Threads
   Sockets
6. Working with Server Side Scripting
   Active Server Pages
   Java Servelets
7. Sample web application development in the open source environment

Content beyond Syllabus:
1. Advanced data structures and their implementation
2. Implementation of the data structures in different language platforms

Text Books:
1. Thomas A.Powell , The Complete Reference Web design, TataMcGraw-Hill ,2000.
2. Mathew strebe, charlesperkins, Firewalls, BPB, 2000.

Reference Books:
1. Eillotte Rusty Harold, Java Network Programming, O'Reilly Publications, 1997.
2. John paulMueller,Active X from the Ground up, TataMcGraw-Hill,1997.
3. Michael Girdley, Kathryn A. Jones, et al., Web programming with JavaTM, Sams.net publishing, 1996.

Websites:
1. http://www.w3schools.com

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT – P62 WEB TECHNOLOGY LAB

ONLINE BOOK STORE SYSTEM

Submitted by

SIVAGAMI.S
SIVAGANESH.C
SIVAPAVITHRAN.V
SOPHIA NADINE.A
SRIDEVIPRIYA.G
SUSHMITHA.R
SWETHA.G
UDAYA KUMAR.S

III YEAR – IT

2018-2019

ONLINE BOOK STORE SYSTEM

AIM:

Develop static pages <mark>(using only HTML)</mark> of an online Book store. The pages should resemble: www.amazon.com. The website should consist the following pages.

- Home page
- Registration and user Login
- User profile page
- Books catalog
- Shopping cart
- Payment by credit card Order Conformation

PROCEDURE:

Home page

Main.html:

```
<html>
<head>
<title> Amazon</title>
</head>
<body bgcolor="cyan"> <center>
<strong><h1>Welcome to AMAZON</h1></strong>
<form method="post" action="login.html" target=_blank >
<h4>for books</h4><input type="submit" value="click here">
</form>
</center>
</body>
</html>
```

- Registration and user Login

```html
<html>
<head>
<title>
login page</title>
</head>
<body bgcolor="cyan"> <center>
<strong><h1> AMAZON </h1></strong></center>
<right>
<table align="right">

<tr>
<td><h4>user name</td>
<td><input type="text" ></td>
<td></td>
</tr>

<tr>
<td><h4>password</td>
<td><input type="password"></td>
<td></td>
</tr>

<tr>
<td>
<form method="post" action="catalog.html" >
<input type="submit" value="submit" >
</form>
</td>
<td>
<form method="post" action="userpro.html" >
<input type="submit"
value="register" >
  
<input type="reset" value="reset"></form></td>
</tr>

</table>

</body>
</html>
```

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-P63	MINI PROJECT	0	0	3

Course Objectives:

Scope of this lab is to understand the application of case tools, which focuses on the following software engineering activities:

- Software requirements analysis and specification
- Software design
- Software implementation
- Software testing and maintenance
- Communication skills and teamwork

Course Outcomes:

On successful completion of this practical's students will be able to:

- Solve any given problem by identifying appropriate Domain/Area
- Prepare SRS for projects
- Prepare SDS for projects
- Document for projects

Exercises:

Students in convenient groups of not more than three members in a group are to take up sample project development activities with the guidelines given below using some of the Computer Aided Software Engineering Tools (CASE):

- Preparing a project – brief proposal including
  - o Problem Identification
  - o Developing a model for solving the problem
  - o A statement of system / process specifications proposed to be developed (Data Flow Diagram)
  - o List of possible solutions including alternatives and constraints
  - o Cost benefit analysis
  - o Time line activities
- A report highlighting the design finalization [based on functional requirements & standards (if any)]
- A presentation including the following
  - o Implementation phase (Hardware / Software / both)
  - o Testing & Validation of the developed system
  - o Learning in the project
- Consolidated report preparation

Content beyond Syllabus:

- Real-Time projects.

Text Books:

1. Theory prescribed books

Reference Books:

1. Theory prescribed Reference

Websites:

1. http://projects.spogel.com/forum_posts.asp?TID=52
2. http://codeincodeblock.blogspot.in/2012/04/list-of-top-ten-college-mini-projects.html

PRINCIPAL
MAHAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kallitheerthalkuppam,
Puducherry - 605 107.
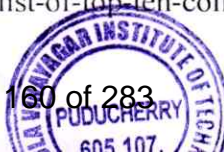
AUTOMATED TELLER MACHINE SYSTEM

MINI PROJECT REPORT

Submitted by

M. PARTHIBAN	REG. NO: 16TH1255
S. SANDRESH	REG. NO: 16TH1268
D. VIGNESH	REG. NO: 16TH1283

In partial fulfillment of the requirement for the degree of

BACHELOR OF TECHNOLOGY

in

INFORMATION TECHNOLOGY

of

PONDICHERRY UNIVERSITY

DEPARTMENT OF INFORMATION TECHNOLOGY

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY- 605 107.

APRIL- 2019

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY
DEPARTMENT OF INFORMATION TECHNOLOGY
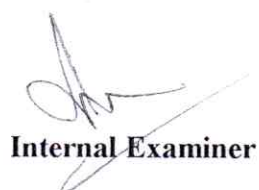
BONAFIDE CERTIFICATE
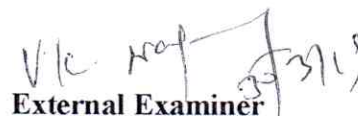
This is to certify that the Mini Project Work titled "AUTOMATED TELLER MACHINE SYSTEM" is a bonafide work done by M.PARTHIBAN [Reg. No. 16TH1255],S.SANDRESH [Reg. NO.16 TH1268],D.VIGNESH[Reg.No.16TH1283] in partial fulfillment for the award of the degree of Bachelor of Technology in Information Technology of the Pondicherry University during the academic year 2018-19.

Staff in charge

(Dr.A.MEIAPPANE)

Head of the Department

(Dr.P.SIVAKUMAR)

Submitted for the University Examination held on....30/03/2019......

Internal Examiner

External Examiner

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kalitheerthalkuppam,
Puducherry - 605 107.

MOBILE BASED ATTENDANCE MANAGEMENT

MINI PROJECT REPORT

Submitted by

GANESH ARAVIND.T   REG. NO: 16TB1219

SIVAPAVITHRAN.V   REG. NO: 16TH1276

VIJAYARAM ABISHEK.R   REG. NO: 16TH1284

In partial fulfillment of the requirement for the degree of

BACHELOR OF TECHNOLOGY

in

INFORMATION TECHNOLOGY

of

PONDICHERRY UNIVERSITY

DEPARTMENT OF INFORMATION TECHNOLOGY

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY- 605 107.

APRIL - 2019
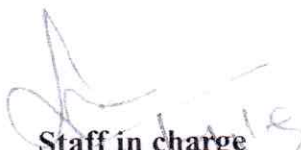
MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY
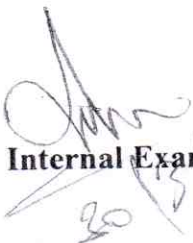
BONAFIDE CERTIFICATE
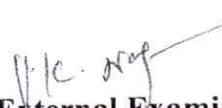
This is to certify that the Mini Project Work titled " **Mobile Based Attendance Management** " is a bonafide work done by GANESH ARAVIND.T [Reg. No. 16TB1219], SIVAPAVITHRAN.V [Reg. No. 16TH1276], and VIJAYARAM ABISHEK.R [Reg. No. 16TH1284] in partial fulfilment for the award of the degree of Bachelor of Technology in Information Technology of the Pondicherry University during the academic year 2018-2019.

Staff in charge

(Dr. A. Meiappane)

Head of the Department

(Dr . P. SIVAKUMAR)

Submitted for the University Examination held on....30./.03./.2019

Internal Examiner

External Examiner

Page 164 of 283

ONLINE JEWELLERY SHOP

MINI PROJECT REPORT

Submitted by

K.SERANJIVI   REG.NO:16TH1271

C.SIVAGANAESH   REG.NO:16TH1275

U.VIMALPRIYAN   REG.NO:16TH1285

In partial fulfillment of the requirement for the degree of

BACHELOR OF TECHNOLOGY

in

INFORMATION TECHNOLOGY

of

PONDICHERRY UNIVERSITY

DEPARTMENT OF INFORMATION TECHNOLOGY

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY- 605 107.

APRIL - 2019
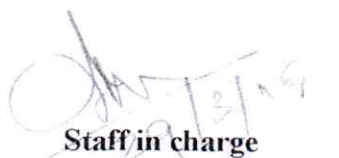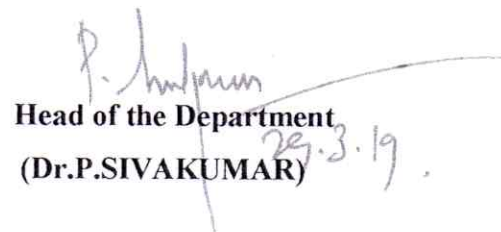
PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kalitheerthalkuppam,
Puducherry - 605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

BONAFIDE CERTIFICATE

This is to certify that the Mini Project Work titled "**ONLINE JEWELLERY SHOP**" is a bonafide work done by **K.SERANJIVI [Reg. No. 16TH1271], C.SIVAGANAESH [Reg. No.16TH1275], and U.VIMALPRIYAN [Reg. No.16TH1285]** in partial fulfillment for the award of the degree of Bachelor of Technology in Information Technology of the Pondicherry University during the academic year 2018- 19.

Staff in charge

(Dr.A.MEIAPPANE)

Head of the Department

(Dr.P.SIVAKUMAR)

Submitted for the University Examination held on 30/03/2019

Internal Examiner

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kalitheerthalkuppam,
Puducherry - 605 107.

External Examiner

IT-T71 MOBILE COMPUTING

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T71	Mobile Computing	3	1	0

Course Objectives:
1. To teach the basics of mobile computing ideas and best practices.
2. To teach the emerging wireless network standards.
3. To introduce the various models and data management concepts of mobile computing.
4. To learn the routing and secure protocols of mobile networking.

Course Outcomes:
On successful completion of the module students will be able to:
- basic knowledge in mobile computing.
- have a broader knowledge on 3G.
- the knowledge on emerging wireless network standards.

Syllabus:

Unit I
INTRODUCTION: Wireless and Mobile Computing Architecture – Limitations of wireless and mobile communication – Wireless Communication Networks: Digital cellular Systems, TDMA - CDMA – Wireless Networking Techniques – Mobile Tradeoffs – Portable Information Appliances.

Unit II
EMERGING WIRELESS NETWORK STANDARDS: 3 G Wireless Networks – State of Industry – Mobility support Software and User Client Application – Mobility Middleware –Middleware for Application Development - Adaptation and Agent Service Discovery Middleware – Finding Needed Services - Interoperability and Standardization.

Unit III
NETWORKING: Virtual IP Protocols - Loose Source Routing Protocols - Mobile IP – CDPD – GPRS – UMTS Security Issues – Quality of Service – Mobile Access to the World Wide Web.

Unit IV
DATA MANAGEMENT: Mobile Transactions - Reporting and Co Transactions – Kangaroo Transaction Model – Isolation only transaction – 2 Tier Transaction Model – Semantic based nomadic transaction processing.

Unit V
COMPUTING MODELS: Client Server model – Client/Proxy/Server Model – Disconnected Operation Model – Thin Client Model – Tools: Java, Brew, Windows CE, WAP, Sybian, and EPOC.

(Total: 60 Periods)

Content beyond the syllabus:
- data dissemination and broadcasting systems.
- synchronization in mobile computing systems.

Text Books:
- Reza B'Far and Roy T. Fielding, "Mobile Computing Principles", Cambridge University Press.
- Alan A Helal, Richard Brice, Bert Haskel, MarekRusinkiewicz, Jeffery L Caster and DarellWoelk, "Anytime, Anywhere Computing, Mobile Computing Concepts and Technology", Springer International Series in Engineering and Computer Science, 2000.

Reference Books:
- Uwe Hansmann, Frank Adelstein, Sandeep KS Gupta, Golden Richard and Loren Schwiebert, "Fundamentals of Mobile and Pervasive Computing", McGraw-Hill Professional Publishing", 2005.
- Hansmann, LotharMerk, Martin S. Nicklons and Thomas Stober, "Principles of Mobile Computing", Springer,

Web References:
- www.facebookengineers.com/threads/394-MOBILE-COMPUTING-E-book presentation-and-lecture-notes-eng-fifth-semester-syllabus
- www.di.ufpe.edu.br/~sampaio/cursos/2005.1/BancoDeDados/Artigos/BDMoveis/MobileTransactions/an-mobile-transaction.pdf

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT T71 MOBILE COMPUTING

Mini Project on

SIMPLE BLUETOOTH CHAT APPLICATION IN ANDROID

Submitted by

ANBARASAN.G

ARUN KUMAR.S

ASHOK.S

ASWINRAAJU.V

DEEPIKA .R

IV YEAR – IT

(2018-19)

SIMPLE BLUETOOTH CHAT APPLICATION IN ANDROID

Aim: To create a Simple Bluetooth Chat Application using Android to establish a connection between two are more devices.

Bluetooth is a wireless technology standard for exchanging data over short distances (using short-wavelength UHF radio waves in the ISM band from 2.4 to 2.485 GHz[4]) from fixed and mobile devices, and building personal area networks (PANs). Invented by telecom vendor Ericsson in 1994,[5] it was originally conceived as a wireless alternative to RS-232 data cables. It can connect several devices, overcoming problems of synchronization.

According to this, we can "build" a local are network (LAN) by connecting devices over Bluetooth. The Android platform includes support for the Bluetooth network stack, which allows a device to wirelessly exchange data with other Bluetooth devices. The application framework provides access to the Bluetooth functionality through the Android Bluetooth APIs. These APIs let applications wirelessly connect to other Bluetooth devices, enabling point-to-point and multipoint wireless features so we absolutely able to transferring data to other devices in the network circle.

Requesting Bluetooth permissions

In order to use Bluetooth service, please add BLUETOOTH permission to your *AndroidManifest.xml*. Moreover, because we need to discover available devices nearby later, BLUETOOTH_ADMIN permission should be required, too:

```
<uses-permission android:name="android.permission.BLUETOOTH"/>
<uses-permission android:name="android.permission.BLUETOOTH_ADMIN"/>
```

Checking if device supports Bluetooth

Now to check whether Bluetooth is supported on device or not, we use object of BluetoothAdapter class. If getDefaultAdapter() return null, your device not supports Bluetooth. This is the "check code":

```
BluetoothAdapter bluetoothAdapter = BluetoothAdapter.getDefaultAdapter();
    if (bluetoothAdapter == null) {
        Toast.makeText(this, "Bluetooth is not available!", Toast.LENGTH_SHORT).show();
        finish(); //automatic close app if Bluetooth service is not available!
    }
```

Check if Bluetooth is Enabled

The 2nd important works is check if your device is enabled Bluetooth. If not, request to turn it on:

```
if (!bluetoothAdapter.isEnabled())
```
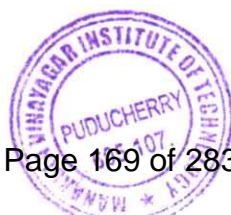
IT-T72 WEB SERVICES AND XML

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T72	Web Services and XML	3	1	---

Pre-requisite: HTML, Component Technology and Databases

Course Objectives:
1. To understand the advantages of using XML technology family.
2. To analyze the problems associated with tightly coupled distributed software architecture.
3. To learn the Web services building block.
4. To implement e-business solutions using XML based web services.

Course Outcomes:
1. Students will understand the benefits of XML, web services and SOA.
2. They will learn how to develop e-business applications using these technologies.

Unit I

XML – benefits – Advantages of XML over HTML, EDI, Databases – XML based standards – Structuring with schemas - DTD – XML Schemas – XML processing – DOM –SAX – presentation technologies – XSL – XFORMS – XHTML – Transformation – XSLT – XLINK – XPATH – XQuery.

Unit II

Roots of SOA – Characteristics of SOA - Comparing SOA to client-server and distributed internet architectures – Anatomy of SOA- How components in an SOA interrelate - Principles of service orientation.

Unit III

Business motivations for web services – B2B – B2C – Technical motivations – limitations of Component Technologies – Architecting web services – Implementation view – web services technology stack – logical view – composition of web services – deployment view – from application server to peer to peer – process view – life in the runtime.

Unit IV

SOA platform basics – SOA support in J2EE – Java API for XML-based web services (JAX-WS) - Java architecture for XML binding (JAXB) – Java API for XML Registries (JAXR) - Java API for XML based RPC (JAX-RPC)- Web Services Interoperability Technologies (WSIT) - SOA support in .NET – Common Language Runtime - ASP.NET web forms – ASP.NET web services – Web Services Enhancements (WSE).

Unit V

WS-BPEL basics – WS-Coordination overview - WS-Choreography, WS-Policy, WS-Security.

(Total : 60 Periods)

Content beyond Syllabus: Semantic web- Xlang- XDBMS

Text Books:
1. AtulKahate," XML and Related technologies", Pearson Education,2008.
2. Thomas Erl, "Service-Oriented Architecture: Concepts, Technology, and Design", Pearson Education, 2005.
3. Newcomer, Lomow, "Understanding SOA with Web Services", Pearson Education, 2005.
4. Ron Schmelzer et al. " XML and Web Services", Pearson Education, 2002.

Reference Books:
1. Keith Ballinger, ". NET Web Services Architecture and Implementation", Pearson Education, 2003.
2. David Chappell, "Understanding .NET A Tutorial and Analysis", Addison Wesley, 2002.
3. KennardScibner and Mark C.Stiver, "Understanding SOAP", SAMS publishing.
4. Sandeep Chatterjee, James Webber, "Developing Enterprise Web Services, An Architect's Guide", Pearson's Edn, 2005.

Websites:
1. http://docs.oracle.com/cd/E17802_01/webservices/webservices/docs/1.6/tutorial/doc/JavaWSTutorial.pdf
2. http://www.w3schools.com/xml/
3. WWW.SOA.COM

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT-T72 WEB SERVICE & XML

Program to implement the operation can receive request and will return a Response

Submitted by

DHAMINI.P

DHEEBHIKA. K

GOKILA DEVI.K

IV YEAR – IT

(2018-2019)

Program to implement the operation can receive request and will return a Response

Objective

To write a Program to implement the Operations that can Receive Request and will Return a Response.

The **<portType>**element is the most important WSDL element.

WSDL - The <portType> Element

The <portType> element defines **a web service**, the **operations** that can be performed, and the **messages** that are involved.

<portType> defines the connection point to a web service. It can be compared to a function library (or a module, or a class) in a traditional programming language. Each operation can be compared to a function in a traditional programming language.

Operation Types

The request-response type is the most common operation type, but WSDL defines four types:

Type	Definition
One-way	The operation can receive a message but will not return a response
Request-response	The operation can receive a request and will return a response
Solicit-response	The operation can send a request and will wait for a response
Notification	The operation can send a message but will not wait for a response

One-Way Operation

A one-way operation example:

```
<message name="newTermValues">
        <part name="term" type="xs:string"/>
        <part name="value" type="xs:string"/>
</message>

<portType name="glossaryTerms">
    <operation name="setTerm">
            <input name="newTerm" message="newTermValues"/>
    </operation>
</portType>
```

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

In the example above, the portType "glossaryTerms" defines a one-way operation called "setTerm".

The "setTerm" operation allows input of new glossary terms messages using a "newTermValues" message with the input parameters "term" and "value". However, no output is defined for the operation.

Request-Response Operation

A request-response operation example:

```
<message name="getTermRequest">
        <part name="term" type="xs:string"/>
</message>

<message name="getTermResponse">
        <part name="value" type="xs:string"/>
</message>

<portType name="glossaryTerms">
        <operation name="getTerm">
                <input message="getTermRequest"/>
                <output message="getTermResponse"/>
        </operation>
</portType>
```

In the example above, the portType "glossaryTerms" defines a request-response operation called "getTerm".

The "getTerm" operation requires an input message called "getTermRequest" with a parameter called "term", and will return an output message called "getTermResponse" with a parameter called "value".

IT-T73 CRYPTOGRAPHY AND NETWORK SECURITY

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T73	Information Security	3	1	0

Course Objectives:

To learn about wired and wireless network security with various cryptographic techniques, which include private and public keys algorithms along with attacks types.

Course Outcomes:

On successful completion of this course students will be able to:
1. Use appropriate methods in security
2. Learn various methods of implementing security

UNIT – I CLASSICAL CRYPTOSYSTEM

Security trends – Security Attacks and services – Classical Encryption Techniques — Symmetric cipher model– Basic Number theory –Pseudorandom Number Generation - Stream Ciphers - RC4.

UNIT – II BLOCK CIPHER

Simple DES – DES – Modes of operation – Triple DES – AES – RSA – Attacks – Primality test – factoring.

UNIT – III MESSAGE AUTHENTICATION

Discrete Logarithms – Computing discrete logs – Diffie-Hellman key exchange – ElGamal Public key cryptosystems – Hash functions – Secure Hash - MD5 – Digital signatures – RSA – ElGamal Digital signature scheme.

UNIT – IV NETWORK SECURITY

Key Management and Distribution: X.509, PKI – Electronic Mail security – PGP – IP security – Web Security – SSL, TLS.

UNIT – V WIRELESS NETWORK SECURITY

Wireless Network Security- IEEE 802.11 Wireless LANs - Protocol Overview and Security - Wireless Application Protocol (WAP) - Protocol Overview – Wireless Transport Layer Security (WTLS), WAP end-to-end Security

TOTAL: 60

Content beyond Syllabus:
1. Advanced techniques of security and their implementation
2. Implementation of the latest security for latest security threats

TEXT BOOKS:

1. William Stallings, "Crpyptography and Network security Principles and Practices", Pearson/PHI, 5th ed, 2006. [Unit I, Unit II, Unit IV, Unit V]

2. Wade Trappe, Lawrence C Washington, "Introduction to Cryptography with coding theory", 2nd ed, Pearson, 2007. [Unit III]

REFERENCES:

1. W. Mao, "Modern Cryptography – Theory and Practice", Pearson Education, Second Edition, 2007.

2. Charles P. Pfleeger, Shari Lawrence Pfleeger, "Security in computing", Third Edition – Prentice Hall of India, 2006.

3. Douglas R. Stinson. "Cryptography, theory and practice" , Second edition, CRS Press.

Websites:
1. http://thor.info.uaic.ro/~fltiplea/IS/ICSCourseNotes.html
2. https://www.securityforum.org/
3. eeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=4149673

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHAI KUPPAM,
PUDUCHERRY - 605 07

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

Kalitheerthalkuppam, Madagadipet, Puducherry - 605 107

DEPARTMENT OF INFORMATION TECHNOLOGY

Academic Year 2018- 19- ODD SEM

Subject Name : IT T 73 / Cryptography and Network Security

Mini Project on

RSA ALGORITHM IN CRYPTOGRAPHY

Submitted by

JAYASREE .R

KALAIYARASI.S

KARTHIKA.R

KOWSALYA .R

LAVANYA.B

IV YEAR – IT

RSA ALGORITHM

AIM: To implement a program for encrypting a plain text and decrypting a cipher text using RSA Algorithm in Cryptography using Java.

DESCRIPTION / THEORETICAL DISCUSSION: The RSA algorithm is an asymmetric cryptography algorithm; this means that it uses a public key and a private key (i.e two different, mathematically linked keys). As their names suggest, a public key is shared publicly, while a private key is secret and must not be shared with anyone. The RSA algorithm is named after those who invented it in 1978: Ron **Rivest**, Adi **Shamir**, and Leonard **Adleman**. Generating the keys. Select two large prime numbers, x and y. The prime numbers need to be large so that they will be difficult for someone to figure out. Calculate n = xn= x y. Calculate the totient function; ϕphi(n)= (x-1)(y-1) ϕ (n)=(x−1)(y−1).

Select an integer e, such that e is co prime to \phi(n)ϕ(n) and $1 < e < $ \phi(n)$1 < e < \phi(n)$. The pair of numbers (n,e)(n,e) makes up the public key.

The following illustration highlights how asymmetric cryptography works:
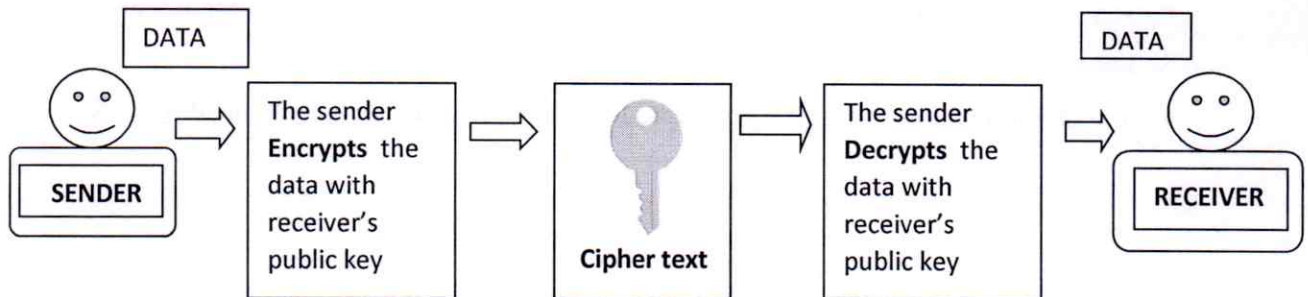
Fig 1.1 Working of Asymmetric Cryptography.

Encryption Formula:

Given a plaintext P, represented as a number, the cipher text C is calculated as:

$$C = P^e \bmod n$$

Where C is the key (cipher) applied to each. After applying this function the result is then to be translated back into the original form.

Decryption Formula:

Using the private key $(n,d)(n,d)$, the plaintext can be found using:

$$P = C^d \bmod n$$

ALGORITHM:

* Select two large prime numbers, p and **q**.
* Multiply these numbers to find **n = p x q,** where **n** is called the modulus for encryption and decryption.
* Choose a number **e** less than **n**, such that n is relatively prime to **(p - 1) x (q -1)**. It means that **e** and **(p - 1) x (q - 1)** have no common factor except 1. Choose "e" such that $1 < e < \varphi$ (n), e is prime to φ (n),

$$\gcd(e, d(n)) = 1$$

* If **n = p x q,** then the public key is \<e, n\>. A plaintext message **m** is encrypted using public key \<e, n\>. To find cipher text from the plain text following formula is used to get cipher text C.

$$C = m^e \bmod n$$

Here, **m** must be less than **n**. A larger message (>n) is treated as a concatenation of messages, each of which is encrypted separately.

* To determine the private key, we use the following formula to calculate the d such that:

$$D_e \bmod \{(p - 1) \times (q - 1)\} = 1$$

Or

$$D_e \bmod \varphi(n) = 1$$

* The private key is \<d, n\>. A cipher text message **c** is decrypted using private key \<d, n\>. To calculate plain text **m** from the cipher text c following formula is used to get plain text m.

$$m = c^d \bmod n$$

IT-E72 SOFTWARE TESTING

Subject Code	Subject Name	Lectures (Periods)	Tutorial (Periods)	Practical (Periods)
IT E72	SOFTWARE TESTING	3	1	0

Course Objectives:
1. To learn, practice and apply the software testing industry practices
2. To acquire knowledge on the various test design strategies, levels of testing and test management

Course Outcomes:
1. Ability to apply appropriate testing methods for varying requirements of the software industry
2. Understanding and executing the responsibility of the software testing personal and producing error free software

UNIT I

INTRODUCTION: Testing as an Engineering Activity – Role of Process in Software Quality – Testing as a process – Basic Definitions – Software Testing Principles – The Tester's Role in a Software Development Organization – Origins of Defects – Defect Classes – The Defect Repository and Test Design – Defect Examples – Developer/Tester Support for Developing a Defect Repository.

UNIT II

TEST CASE DESIGN: Introduction to Testing Design Strategies – The Smarter Tester – Test Case Design Strategies – Using Black Box Approach to Test Case Design Random Testing – Requirements based testing – positive and negative testing — Boundary Value Analysis – decision tables - Equivalence Class Partitioning state-based testing– cause effect graphing – error guessing - compatibility testing – user documentation testing – domain testing Using White–Box Approach to Test design – Test Adequacy Criteria – static testing vs. structural testing – code functional testing - Coverage and Control Flow Graphs – Covering Code Logic – Paths – Their Role in White–box Based Test Design – code complexity testing – Evaluating Test Adequacy Criteria.

UNIT III

LEVELS OF TESTING: The Need for Levels of Testing – Unit Test – Unit Test Planning –Designing the Unit Tests. The Test Harness – Running the Unit tests and Recording results – Integration tests – Designing Integration Tests – Integration Test Planning – scenario testing – defect bash elimination -System Testing – types of system testing - Acceptance testing – performance testing - Regression Testing – internationalization testing – ad-hoc testing - Alpha – Beta Tests – testing OO systems – usability and accessibility testing

UNIT IV

TEST MANAGEMENT: People and organizational issues in testing – organization structures for testing teams – testing services - Test Planning – Test Plan Components – Test Plan Attachments – Locating Test Items – test management – test process - Reporting Test Results – The role of three groups in Test Planning and Policy Development – Introducing the test specialist – Skills needed by a test specialist – Building a Testing Group.

UNIT V

CONTROLLING AND MONITORING: Software test automation – skills needed for automation – scope of automation – design and architecture for automation – requirements for a test tool – challenges in automation- Test metrics and measurements –project, progress and productivity metrics – Status Meetings – Reports and Control Issues – Criteria for Test Completion – SCM – Types of reviews – Developing a review program – Components of Review Plans– Reporting Review Results. – evaluating software quality – defect prevention – testing maturity model.

(Total: 45 Periods)
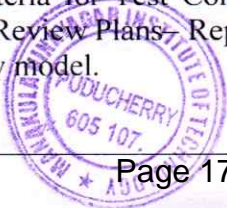
Content beyond the Syllabus:

The students can be encouraged to apply concepts learnt in this course in their programming laboratory and project

Text Books:

1) SrinivasanDesikan and Gopalaswamy Ramesh, " Software Testing – Principles and Practices", Pearson education, 2006.

2) AdityaP.Mathur, "Foundations of Software Testing", Pearson Education, 2008.

Reference Books:

1. Boris Beizer, "Software Testing Techniques", Second Edition,Dreamtech, 2003.
2. Elfriede Dustin, "Effective Software Testing", First Edition, Pearson Education, 2003.
3. RenuRajani, Pradeep Oak, "Software Testing – Effective Methods, Tools and Techniques", Tata McGraw Hill, 2004.

Websites:

1. *www.mtsu.edu/~storm*

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kalitheerthalkuppam,
Puducherry - 605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT – E72 SOFTWARE TESTING

Mini Project on how to test a program to login a specific web page.

Submitted by
LOGAVIGNESH. K
MAHALAKSHMI. M
MANGAYARKARASI. V
MAPPILLAI MEERAN. J
NANDHAKUMAR. M

III YEAR – IT

(2018 - 2019)

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kalitheerthalkuppam,
Puducherry - 605 107.

Write and test a program to login a specific web page.

```java
import com.thoughtworks.selenium.*;
import org.junit.After;
import org.junit.Before;
import org.junit.Test;
import java.util.regex.Pattern;

public class exp5 extends SeleneseTestCase {
    @Before
    public void setUp() throws Exception {
        selenium = new DefaultSelenium("localhost", 4444, "*chrome",
"http://demo.opensourcecms.com/");
        selenium.start();
    }

    @Test
    public void testExp5() throws Exception {
        selenium.open("/wordpress/wp-login.php");
        selenium.type("id=user_login", "admin");
        selenium.type("id=user_pass", "demo123");
        selenium.click("id=wp-submit");
        selenium.waitForPageToLoad("30000");
    }

    @After
    public void tearDown() throws Exception {
        selenium.stop();
    }
}
```

TestNG

TestNG is a testing framework inspired from JUnit and NUnit but introducing some new functionalities that make it more powerful and easier to use, such as:

- Annotations.
- Run your tests in arbitrarily big thread pools with various policies available (all methods in their own thread, one thread per test class, etc...).
- Test that your code is multithread safe.
- Flexible test configuration.
- Support for data-driven testing (with @DataProvider).
- Support for parameters.
- Powerful execution model (no more TestSuite).
- Supported by a variety of tools and plug-ins (Eclipse, IDEA, Maven, etc...).
- Embeds BeanShell for further flexibility.
- Default JDK functions for runtime and logging (no dependencies).
- Dependent methods for application server testing.

TestNG is designed to cover all categories of tests: unit, functional, end-to-end, integration, etc...

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kalitheerthalkuppam,
Puducherry - 605 107.

IT-E79 BIG DATABASES

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-E79	Big Databases	3	1	0

Pre-requisite: IT-T54 DBMS

Course Objectives: The students are to understand the concepts of Big Data

Course Outcomes:
1) The students can use the tools of Big Data
2) The students can be able to provide security to Big Data
3) The students can able to turn Big Data into big money

Unit I
Introduction to Big Data: Big Data – The Evolution of Big data - Basics - Big Data Analytics and its Importance – challenges- Issues- Future of Big Data.

Unit II
Basic Big Data Analytic Methods and Modeling: Introduction to "R", analyzing and exploring data with "R"-Modeling: Architecture - Hybrid Data Modeling – Data Computing Modeling.

Unit III
Technology and Tools: MapReduce/Hadoop – NoSQL: Cassandra,HBASE – Apache Mahout – Tools.

Unit IV
Big Data Security: Big Data Security, Compliance, Auditing and Protection: Pragmatic Steps to Securing Big Data, Classifying Data, Protecting Big Data Analytics, Big Data and Compliance, The Intellectual Property Challenge –Big Data in Cyber defense.

Unit V
Case Studies: MapReduce: Simplified Data Processing on Large Clusters- RDBMS to NoSQL: Reviewing Some Next-Generation Non-Relational Database's - Analytics: The real-world use of big data - New Analysis Practices for Big Data.

(Total: 60 Periods)

Content beyond Syllabus:
To understand the real-time use of Big Data

Text Books:
1. Frank.J.Ohlhorst, "Big Data Analytics : Turning Big Data into Big Money", Wiley &Sas Business Series, 2013

Reference Books:
1. Paul C. Zikopoulos, Chris Eaton, Dirk deRoos, Thomas Deutsch, George Lapis, "Understanding Big Data Analytics for Enterprise Class Hadoop and Streaming Data", The McGraw Hill, 2012.
2. "Planning for Big Data", O'Reilly Radar Team, 2012.
3. "Big Data Now Current Perspectives", O'Reilly Media, 2011.

Websites:
1. http://highlyscalable.wordpress.com/2012/03/01/nosql-data-modeling-techniques/
2. http://gigaom.com/2012/12/18/a-programmers-guide-to-big-data-12-tools-to-know/

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT – E71 BIG DATABASE

Mini Project on Installation of HADOOP

Submitted by

NIRMALA .I

PRASANNA .R

PRITHEBHA .V

PRIYADHARSHINI.G

PUPPALA SAI RAM

IV YEAR – IT

(2018-2019)

1. Installation of Hadoop:

Hadoop software can be installed in three modes of operation:

- **Stand Alone Mode:** Hadoop is a distributed software and is designed to run on a commodity of machines. However, we can install it on a single node in stand-alone mode. In this mode, Hadoop software runs as a single monolithic java process. This mode is extremely useful for debugging purpose. You can first testrun your Map-Reduce application in this mode on small data, before actually executing it on cluster with big data.

- **Pseudo Distributed Mode:** In this mode also, Hadoop software is installed on a Single Node. Various daemons of Hadoop will run on the same machine as separate java processes. Hence all the daemons namely NameNode, DataNode, SecondaryNameNode, JobTracker, TaskTracker run on single machine.

- **Fully Distributed Mode:** In Fully Distributed Mode, the daemons NameNode, JobTracker, SecondaryNameNode (Optional and can be run on a separate node) run on the Master Node. The daemons DataNode and TaskTracker runon the Slave Node.

Hadoop Installation: Ubuntu Operating System in stand-alonemode

Steps for Installation

1. sudo apt-get update

2. In this step, we will install latest version of JDK(1.8) on the machine.

The Oracle JDK is the official JDK; however, it is nolonger provided by Oracle as a default installation for Ubuntu. You can still install it using apt-get.

To install any version, first execute the followingcommands:

a. sudo apt-get install python-software-properties

b. sudo add-apt-repository ppa:webupd8team/java

c. sudo apt-get update
Then, depending on the version you want to install, execute one of the following commands:

Oracle JDK 7: `sudo apt-get install oracle-java7-installer`

Oracle JDK 8: `sudo apt-get install oracle-java8-installer`

3. Now, let us setup a new user account for Hadoop
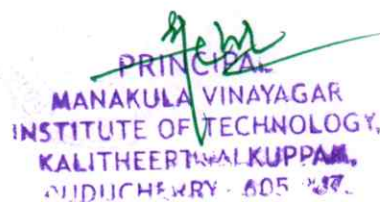
installation. This step is optional, but recommendedbecause it gives you flexibility to have a separate account for Hadoop installation by separating this installation from other software installation

a. `sudo adduser hadoop_dev` (Upon executing this command, you will prompted to enter the newpassword for this user. Please enter the passwordand enter other details. Don't forget to save the details at the end)

b. `su - hadoop_dev`(Switches the user fromcurrent user to the new user created i.e Hadoop_dev)

4. Download the latest Hadoop distribution.

a. Visit this URL and choose one of the mirror sites.You can copy the download link and also use "wget" to download it from command prompt:

Wgethttp:// apache.mirrors.lucidnetworks.net/hadoop/

```
common/hadoop-2.7.0/hadoop-2.7.0.tar.gz
```

```
tar xvzf hadoop-2.7.0.tar.gz
```

6. Rename the folder to hadoop2

```
mv hadoop-2.7.0 hadoop2
```

7. Edit configuration file /home/hadoop_dev/ hadoop2/etc/hadoop/hadoop-env.sh and setJAVA_HOME in that file.

a. vim /home/hadoop_dev/hadoop2/etc/hadoop/

```
hadoop-env.sh
```

b. uncomment JAVA_HOME and update it followingline:

export JAVA_HOME=/usr/lib/jvm/java-8- oracle (Please check for your relevant java installation and set this value accordingly. Latestversions of Hadoop require > JDK1.7)
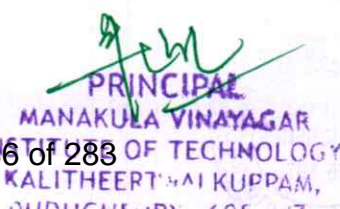
IT-P71 MOBILE COMPUTING LAB

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-P71	Mobile Computing Lab	0	0	3

Course Objectives:
1. To introduce the basics of Mobile computing.
2. To introduce the WML and J2ME Technologies.
3. To learn Bluetooth and distributed mobile computing.

Course Outcomes:
On successful completion of this course students will be able to:
1. Use appropriate mobile communication tools for various mobile application
2. Learn various issues of Mobile Computing

List of Exercises

1. Study of WML and J2ME simulators
2. Design of simple Calculator having +,,,* and / using WML
3. Design of Calendar for any given month and year using WML
4. Design of simple game using WML
5. Animate an image using WML
6. SimulationofapplicationusingJ2MESimulator
   a. Midlet and other basic UI items.
   b. Bluetooth API
   c. Implementation of Wireless Messaging
   d. MMAPI
7. Simulation of Authentication and encryption technique used in GSM
8. Simulation of applications to access web sites using Microsoft Windows Mobile .net environment.
9. Simulation of Infotainment(news, weather forecasts etc)using WAP
10. Simulation of applications using symbian OS

Course Outcomes:
On successful completion of this course students will be able to:
1. Use appropriate mobile communication tools for various mobile application
2. Learn various issues of Mobile Computing
1. Study of GSM architecture and signalling techniques.
2. Study of Cellular system and related concepts.
3. Study of GPRS services.
4. Study of WAP architecture.
5. Design a web page using WML.
6. Study of Bluetooth architecture.
7. Study of IEEE 802.11 network topology.
8. Study of Distributed mobile computing

Content beyond Syllabus:
   1) Advanced cellular systems

Text Books:
1. Reza B Fat and Roy.T. Fielding, "Mobile Computing Principles", Cambridge University Press, 2005.
2. Abdelsalam A Helal, Richard Brice, Bert Haskel, MarekRusinkiewicz, Jeffery L Caster and DarellWoelk, "Anytime, Anywhere Computing, Mobile Computing Concepts and Technology", Springer International Series in Engineering and Computer Science, 2000.

Reference Books:
1. Golden Richard, Frank Adelstein, Sandeep KS Gupta, Golden Richard and Loren Schwiebert, "Fundamentals of Mobile and Pervasive Computing", McGraw-Hill Professional Publishing", 2005.
2. UweHansmann, LotharMerk, Martin S. Nicklons and Thomas Stober, "Principles of Mobile Computing", Springer, 2003.

Websites:
1. http://www.faadooengineers.com/threads/394-MOBILE-COMPUTING-E-bookpresentation-and-lecture-notescovering-full-semester-syllabus
2. http://www.dsc.ufcg.edu.br/~sampaio/cursos/2005.1/BancoDeDados/Artigos/BDMoveis/MobileTransactions/anoverview-of-transaction.pdf

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT – P71 MOBILE COMPUTING LAB

Mini Project on

ANDROID APPLICATION DEVELOPMENT

Submitted by

RAJESWARI . S

SAKTHI KUMARAN.A

SAKTHIVEL.A

SAKTHIVEL.T

SASIDHARAN .M

IV YEAR – IT

(2018-19)

CREATION OF MULTITHREADING IN ANDROID APPLICATION

AIM: To Develop a Mobile application that implements Multi-threading concepts using Android Studio

Algorithm:

1. Using the Android Studio create a project of the type mobile application.
2. Create a simple application in the project.
3. Click on the Design tab and design the prototype of the application.
4. Click on source tab and modify the application logic of the application.
5. Save the project.
6. Right click on the project and click on deploy and undeploy.
7. Then test the android application.

DESCRIPTIONS : When an application is launched, the system creates a thread of execution for the application, called "main." This thread is very important because it is in charge of dispatching events to the appropriate user interface widgets, including drawing events.It is also the thread in which your application interacts with components from the Android UI toolkit (components from the android.widget and android.view packages). As such, the main thread is also sometimes called the UI thread. The system does not create a separate thread for each instance of a component. All components that run in the same process are instantiated in the UI thread, and system calls to each component are dispatched from that thread. When your app performs intensive work in response to user interaction, this single thread model can yield poor performance unless you implement your application properly. Specifically, if everything is happening in the UI thread, performing long operations such as network access or database queries will block the whole UI.When the thread is blocked, no events can be dispatched, including drawing events. From the user's perspective, the application appears to hang. Even worse, if the UI thread is blocked for more than a few seconds (about 5 seconds currently) the user is presented with the infamous "application not responding" (ANR) dialog. Additionally, the Andoid UI toolkit is not thread-safe. So, you must not manipulate your UI from a worker

CREATION OF SIMPLE GPS LOCATION APPLICATION

Aim : To Develop a Mobile application that retrieves the Current GPS location information using Android Studio

Algorithm:

- Using the Android Studio create a project of the type mobile application.
- Create a simple application in the project.
- Click on the Design tab and design the prototype of the application.
- Click on source tab and modify the application logic of the application.
- Save the project.
- Right click on the project and click on deploy and undeploy.
- Then test the android application.

Steps:

For this we will use:

- System location service
- LocationManager and LocationListener
- Permission to access FINE_LOCATION
    - Start a new project "GeoLocation" with an empty activity.
    - Edit the activity_main.xml to change the parent layout to LinearLayout (Verical) and to add the -GPS locating cannot be used indoors.

-If using an emulator you need to pass the location values yourself using the settings of the emulator.

-So, it is better to test it in a device outdoor.

IT-P72 WEB SERVICES AND XML LAB

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-P72	Web Services and XML Lab	0	0	3

Course Objectives:
1) The students learn how to design and develop business applications using the popular middleware technologies practiced in the industry.

Course Outcomes:

On successful completion of this course students will be able to:
1) Develop distributed applications in popular platform independent technologies for any business domain.

The students have to develop distributed applications for a given domain using the following technologies:

1. EJB

2. Web Services in Java Platform

3. Web Services with SOA client using C#.net

4. XML with presentation technologies like XSLT, CSS and storage technologies like SAX, DOM with SOAP protocol using C#.net

5. XML with presentation technologies like XSLT, CSS and storage technologies like SAX, DOM with SOAP protocol using Java

6. An interoperable application involving either language/ network protocol heterogeneity or involving any two of the above technologies.

Content beyond Syllabus: Semantic web- Xlang- XDBMS

Text Books:
1. Atul Kahate," XML and Related technologies", Pearson Education,2008.
2. Thomas Erl, "Service-Oriented Architecture: Concepts, Technology, and Design", Pearson Education, 2005.
3. Newcomer, Lomow, "Understanding SOA with Web Services", Pearson Education, 2005.
4. Ron Schmelzer et al. " XML and Web Services", Pearson Education, 2002.

Reference Books:
1. Keith Ballinger, ". NET Web Services Architecture and Implementation", Pearson Education, 2003.
2. David Chappell, "Understanding .NET A Tutorial and Analysis", Addison Wesley, 2002.
3. Kennard Scibner and Mark C.Stiver, "Understanding SOAP", SAMS publishing.
4. Sandeep Chatterjee, James Webber, "Developing Enterprise Web Services, An Architect's Guide", Pearson's Edn, 2005.

Websites:
1. http://docs.oracle.com/cd/E17802_01/webservices/webservices/docs/1.6/tutorial/doc/JavaWSTutorial.pdf
2. http://www.w3schools.com/xml/
3. WWW.SOA.COM

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHAI KUPPAM.
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT - P72 WEB SERVICE & XML LAB

Mini Project on Web Service Creation using JAX-RS

Submitted by

SELVAM.G

SHANTANU BHOWMICK.H

SHILPA.S

IV YEAR – IT

(2018-2019)

Web Service Creation using JAX-RS

Objective:

To create a ==Web Service program using JAX-RS.==

Procedure:

Step-1: Start the process.

Step-2: Select ==File-> New project -> Java web== specify the name.
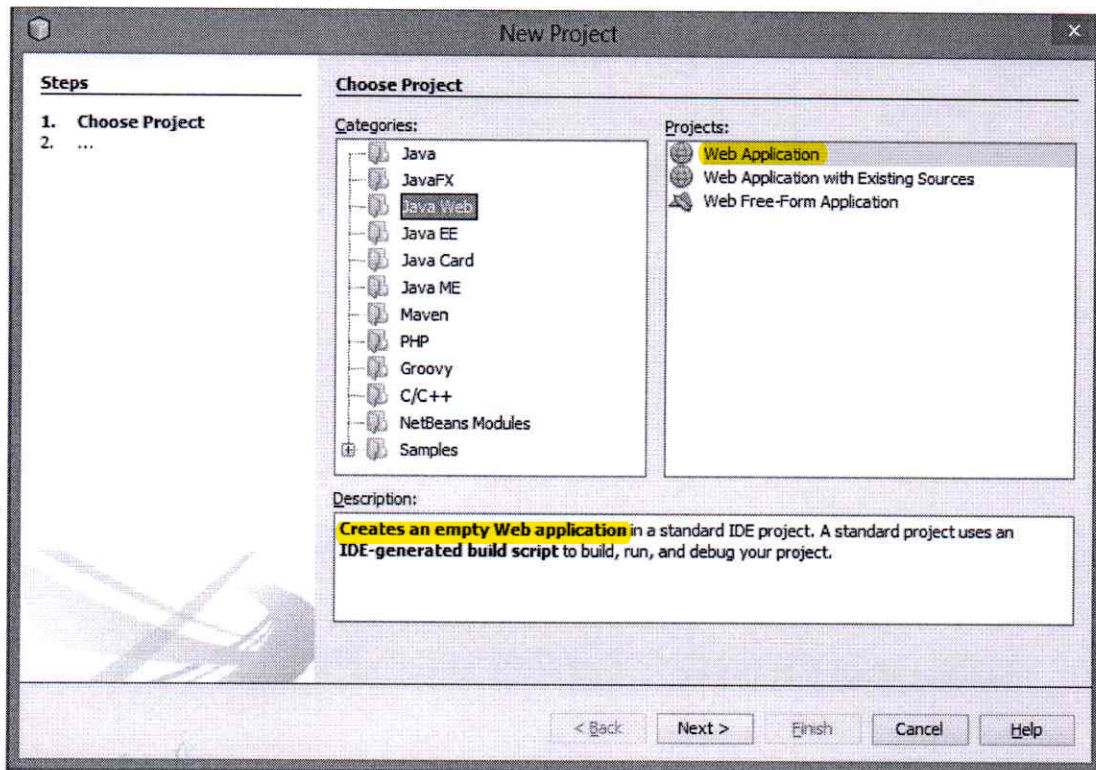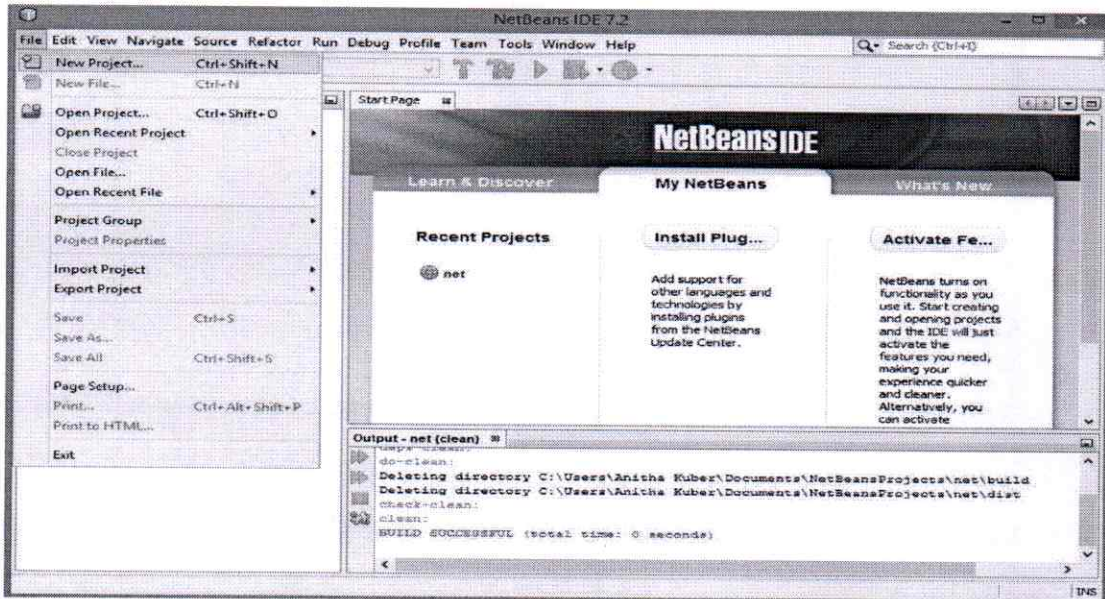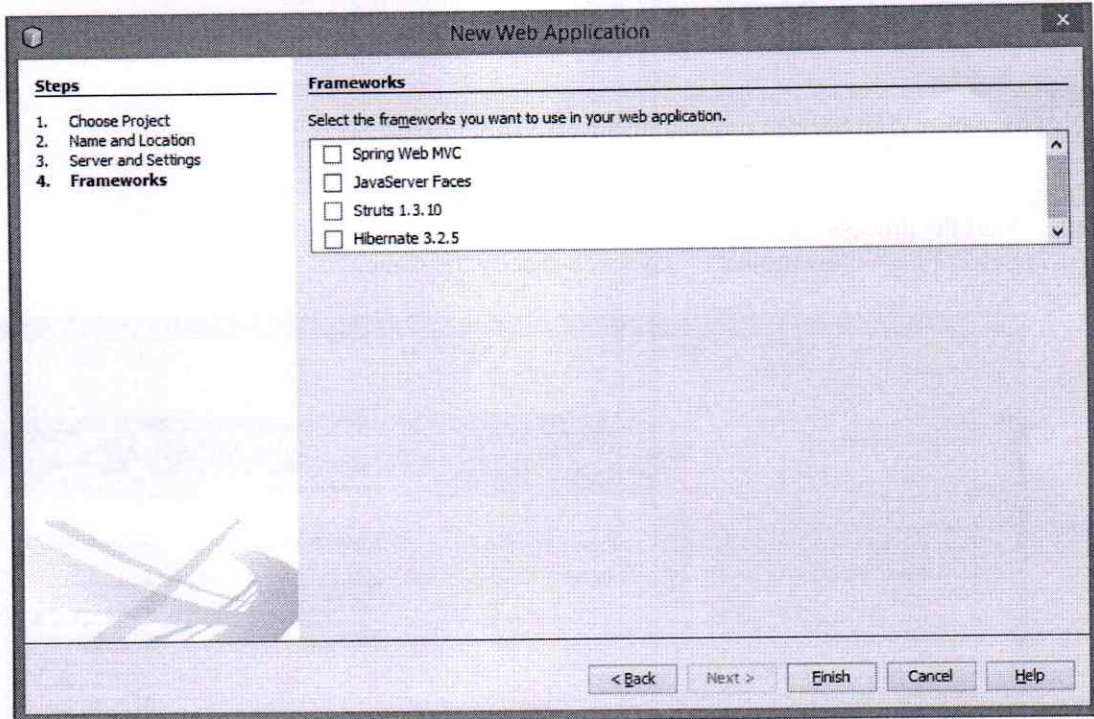
Step-3: Right Project->New->RESTFUL web service from pattern.
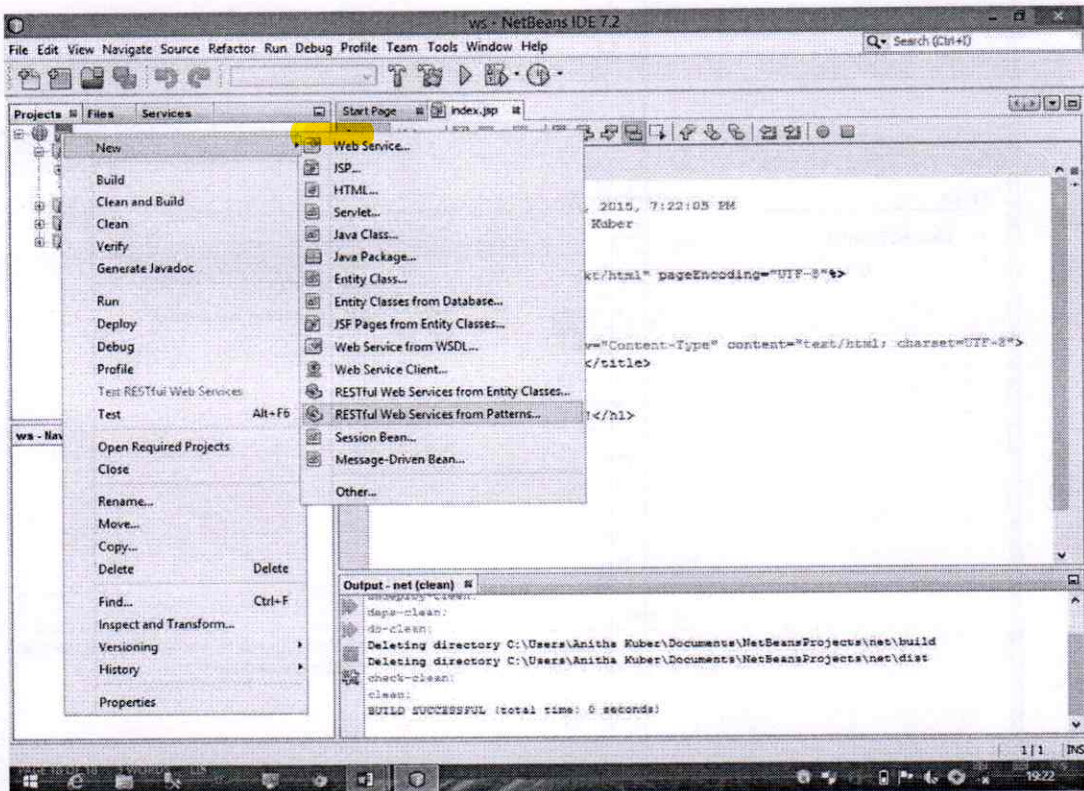
IT-P75INDUSTRIAL TRAINING / INTERNSHIP

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-P75	Industrial Training / Internship	-	-	3

Course Objectives:

In the course of study ,during 5th and6th semesters holidays, each student is expected to undertake a minimum of 4 industrial visits (leading hardware manufacturing /software development companies) a n d 2 w e e k t r a i n i n g o r undertake a minimum of one month of industry i n t e r n s h i p (in a reputed concern) . Based on the industrial internships/training/visits, the student has to submit a report at the end of sixth semester highlighting the exposure he/she gained. The report will be evaluated by the departmentalcommitteefor100marks. More weightage will be given for Internship. The proofs for having undergone visits/training are to been closed along with report as enclosures.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

Kalitheerthalkuppam, Puducherry- 605 107.

DEPARTMENT OF INFORMATION TECHNOLOGY

Academic Year: 2018-19

INDUSTRIAL VISIT CONSOLIDATED REPORT

Sl. No	Gap Identified	Name of the Company	Major Activity/ Domain	Date of the Visit	Year of the Students	Relevance to POs, PSOs	Outcome of the Industrial Visit
1	Gained Knowledge on assembling and troubleshooting of the System in large area.	Lenova Pvt.Ltd Thavalakuppam Pondicherry	Hardware Assembling	9.7.18	III year IT Students	PO1,2,3,4,5,6,7,8,9,10,11,12 PSO 1,2	Students Gained Knowledge on assembling and troubleshooting of the System in large area.
2	To have an exposure on Micro-controller based projects, and various Hardware Components.	VI, Micro System, Chennai	Microchip & Circuit Diagram	14.7.18	III year IT Students	PO1,2,3,4,5,6,7,8,9,10,11,12 PSO 1,2	Students got exposure on Micro-controller based projects, and various Hardware Components.
3	To have Broad knowledge on Recent ongoing Wikitechy.Com and its features and technology used.	Kaashiv Infotech, Chennai	Software Solutions	14.9.18	I year IT Students	PO1,2,3,4,5,6,7,8,9,10,11,12 PSO 1,2	Students got Broad knowledge on Recent ongoing Wikitechy.Com
4	To known the process involved in technology solutions, services & support to the Customer	DELL India Private Limited, Chennai	Hardware Assembling	11.1.19	II year IT Students	PO1,2,3,4,5,6,7,8,9,10,11,12 PSO 1,2	Students got Knowledge in services & support to the Customer
5	To Understand the ISRO responsible for the design and development of launch vehicle technology.	ISRO (Indian Space Research Organization), Thiruvananthapuram, Kerala	Satellite Tele Communication	15.3.19	II & III year IT Students	PO1,2,3,4,5,6,7,8,9,10,11,12 PSO 1,2	Students gained knowledge on the ISRO – vehicle launching technique.
6	To known the latest trends happening in Information Technology	M SQAURED Software and Services at Thiruvananthapuram, Kerala	Software Development	15.3.19	III year IT Students	PO1,2,3,4,5,6,7,8,9,10,11,12 PSO 1,2	Students updated knowledge on latest trends happening in Information Technology

HOD

Dr. P. SIVAKUMAR, M.E., Ph.D.,
Professor & Head
Dept. of Information Technology
Manakula Vinayagar Institute of Technology
Kalitheerthalkuppam, Puducherry - 605 107.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

Permission letter

From

    III yr - 'A' sec,

    IT department,

    MVIT,

    puducherry.

To

    The principal,

    MVIT,

    puducherry.

Respected Sir,

    As we are planning for an Industrial visit as a part of curriculum, we got the permission from Lenovo company at Thavalakuppam to visit on 09/07/18 (Monday). We assure that we will obey rules and regulations of our college. I kindly request you to grant us permission to visit there.

          Thanking You,

          yours sincerely,

          A.P. Janani

          M. Hemalakshmi

          T. kousalya

          Madhumithas

Puducherry
3/07/2018.

From

III year IT-'B' uc students.

Department of Information Technology

Manakula Vinayagar Institute of Technology

Puducherry.

TO

The Principal,

Manakula Vinayagar Institute of Technology

Puducherry.

Sir,
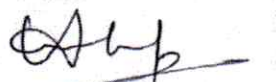
Sub: Requesting your permission for Industrial Visit - Reg.

Since we are planning to go for industrial visit at "LENEVO", Thavalakuppam, Pondycherry on 9th July 2018 as a part of our academics. We kindly request to give permission to visit that industry and I assure you that we will follow our college's rules and regulation.

Thanking you,

Yours obediently

I am suresh (Asst.Prof) from manakula Vinayagar Institute of Technology. Herewith i have attached the soft copy of official Request letter for Industrial Visit. Hence i request you to kindly give permission to visit Lenovo and i assure it will be a great benefit to our students for enriching their Knowledge in the Industrial Perspective.

As we discussed Yesterday our Information Technology department has ready to maintain a industry institute relationship with your esteemed organization.

--

WINNERS DON'T DO DIFFERENT THINGS.THEY DO THINGS DIFFERENTLY !!!!

M.SURESH ,M.Tech(Ph.D)
Assistant Professor
Department of Information Technology
Manakula Vinayagar Institute of Technology
Contact me : 9894977140

Rajasekar Kaviraj <kavirajsr@lenovo.com>　　　　　　　　　　Sat, Jun 30, 2018 at 1:18 PM
To: "sureshit@mvit.edu.in" <sureshit@mvit.edu.in>

Hi Mr. Suresh,

As discussed will postpone this to second week (9th of july) – Thanks.

BR,

SR.Kaviraj.

8940935145.

From: Rajasekar Kaviraj
Sent: Friday, June 29, 2018 12:02 PM
To: 'sureshit@mvit.edu.in' <sureshit@mvit.edu.in>
Subject: FW: [External] MVIT - INDUSTRIAL VISIT - Reg

Dear Mr. Suresh,

It's approved to visit the plant in forenoon (10AM – 2PM) thanks for your interest.

(Around 120 students & staffs)

Br,

SR.Kaviraj.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

MVIT

Suresh Muthuirusan <sureshit@mvit.edu.in>

MVIT - INDUSTRIAL VISIT - Reg

3 messages

Suresh Muthuirusan <sureshit@mvit.edu.in>   Fri, Jun 29, 2018 at 11:43 AM
To: kavirajsr@lenovo.com

Respected Sir

I am suresh (Asst.Prof) from manakula Vinayagar Institute of Technology. Herewith i have attached the soft copy of official Request letter for Industrial Visit. Hence i request you to kindly give permission to visit Lenovo and i assure it will be a great benefit to our students for enriching their Knowledge in the Industrial Perspective.

As we discussed Yesterday our Information Technology department has ready to maintain a industry institute relationship with your esteemed organization.kindly mention the list of services your provided for the benefit of students.

--

WINNERS DON'T DO DIFFERENT THINGS.THEY DO THINGS DIFFERENTLY !!!!

M.SURESH ,M.Tech(Ph.D)
Assistant Professor
Department of Information Technology
Manakula Vinayagar Institute of Technology
Contact me : 9894977140

📄 **11-06-180001.pdf**
277K

Rajasekar Kaviraj <kavirajsr@lenovo.com>   Fri, Jun 29, 2018 at 12:02 PM
To: "sureshit@mvit.edu.in" <sureshit@mvit.edu.in>

Dear Mr. Suresh,

It's approved to visit the plant in forenoon (10AM – 2PM) thanks for your interest.

(Around 120 students & staffs)

Br,

SR.Kaviraj.

8940935145.

From: Suresh Muthuirusan <sureshit@mvit.edu.in>
Sent: Friday, June 29, 2018 11:44 AM
To: Rajasekar Kaviraj <kavirajsr@lenovo.com>
Subject: [External] MVIT - INDUSTRIAL VISIT - Reg

Respected Sir

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107

MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY

(Approved by AICTE, New Delhi and Affiliated to Pondicherry University)

29.06.2018

From

Dr.P.Sivakumar
Professor and Head
Department of information Technology
Manakula Vinayagar Institute of technology
KallitherthalKuppam,Madagadipet

Respected Sir/Madam,

At the outset we are pleased to introduce that our college, Manakula Vinayagar Institute of Technology, Kalitheerthal kuppam, Puducherry – 605 107 is one of the best colleges in Puducherry which provides Technical Education for the students of our vicinity.

Our college is conducting B. Tech Degree course, with Five departments [EEE, ECE, CSE, MECH & IT] and also conducting M.Tech Degree course, with two departments [CSE & ECE] which is affiliated to Pondicherry University and recognized by the AICTE. The motto of our college is to mould the students with multifaceted personality in the field of engineering and technology.

Our information technology department is proposed to schedule an industrial visit for the students of our Department, as the industrial visit is the part of our curriculum.

So we appeal your permission and approval for the same, to bring our Students of Second year, B.Tech (54 nos) And Third year (74) with Five faculty members.

We shall be highly obliged and grateful to get your acceptance for the above appeal and please confirm any one of the date (02/07/2018, 03/07/2018, 04/07/2018) for our visit, If the mentioned date is not feasible, please suggest an alternate date for your convenience.

Waiting for your positive reply,

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

HOD/IT

Dr. P. SIVAKUMAR, M.E., Ph.D.,
Professor & Head
Dept. of Information Technology
Manakula Vinayagar Institute of Technology,
Kalitheerthalkuppam, Puducherry-605 107.

Ph: 0413-2643007, Fax: 2643008, website : www.mvit.edu.in, email : contactus@mvit.edu.in

Educate   Empower   Excel

Respected Sir, Greetings from Lenovo.

Good to know that organisation is interested in moulding the students with the perfect blend of knowledge & skill. In todays Scenario its mandatory to understand / getting exposed to the industrial requirements.

Looking forward your support in building long term Relationship between College and Company. I had a outline discussion with your staffs in this Subject. Will move forward further. Thanks.

S.R. Kavi

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

Kalitheerthalkuppam, Puducherry- 605 107.

DEPARTMENT OF INFORMATION TECHNOLOGY

Industrial Visit to Lenovo India Ltd, Thavalakuppam

Date of Visit: 09/07/2018

S.No	Student Name	Class/Branch
1	ABINAYA. M	II/IT
2	AJEETHA JENIFER MERLINE.M	II/IT
3	AMUDHA. R	II/IT
4	ANUSIYA. J	II/IT
5	DAYANARAJE.S	II/IT
6	DEVIKA.M	II/IT
7	DHANYA.T	II/IT
8	DINESHKUMAR. S	II/IT
9	DIVYABHARATHI.J	II/IT
10	FAZAR.K	II/IT
11	GAUTHAM. S	II/IT
12	GAYATHRI.R	II/IT
13	HARISH.B	II/IT
14	HARSHANAA. U. S	II/IT
15	HARSHAVARDENI .D	II/IT
16	HASHVANDHINI .K	II/IT
17	INSHANIYA BAHADUR .N	II/IT
18	JANAVICA. R	II/IT
19	JAYABALAGURU. V	II/IT
20	KAARTHIK.R	II/IT
21	KALAISELVI. R	II/IT
22	KALAISRIRAM .S	II/IT
23	KANIMOZHI. D	II/IT
24	KARTHIK.C	II/IT
25	KIRUTHIGAIPRIYA.K	II/IT
26	KIRUTHIKA.B	II/IT
27	KISHOR KUMAR .J	II/IT
28	LAVANYA.D	II/IT
29	LOGASOWMYA. V	II/IT
30	MADHAN KAVI.M	II/IT
31	MADHAVAN.G	II/IT
32	MAPPILLAIMEERAN.K	II/IT
33	MEENA.S	II/IT
34	NANDHINI.M	II/IT
35	NIVETHA.K	II/IT

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

36	PARTHIBAN .P	II/IT
37	PRAVEEN KUMAR.G	II/IT
38	RAJNIVASH.M	II/IT
39	RAM SUGUMAR. R	II/IT
40	SITHARTHAN.S	II/IT
41	SIVANESAN. R	II/IT
42	SNEHASHRI.V	II/IT
43	SUDHARSANAN. K	II/IT
44	SUNDARAVARADHAN.T	II/IT
45	SURESH. C	II/IT
46	SWARAJBAL	II/IT
47	SWATHI .B	II/IT
48	SWETHA. A	II/IT
49	UMA SANKARI .S	II/IT
50	YOGANANDHAN.M	II/IT
51	YUVARAJA .P	II/IT
52	PAKKER MOHAMED SOHEIL	II/IT
53	DHARSHINI.S	II/IT
54	VANITHA	II/IT

SR.KUMAR
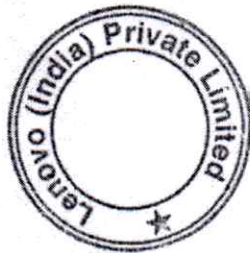
Lenovo (India) Private Limited

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY
Kalitheerthalkuppam, Puducherry- 605 107.
DEPARTMENT OF INFORMATION TECHNOLOGY

Industrial Visit to Lenovo India Ltd, Thavalakuppam

Date of Visit: 09/07/2018

S.No	Student Name	Class/Branch
1	VISHNU.M	III/IT
2	SUNDAR.S	III/IT
3	ABARNA.M	III/IT
4	ABINAYA .J	III/IT
5	AISWARYA.R	III/IT
6	AJITHA.K	III/IT
7	AKSHAYA.M	III/IT
8	ALEXIA.A	III/IT
9	AMARNATH.G	III/IT
10	ANANTHARAMAN.R	III/IT
11	ANBARASAN.S	III/IT
12	ARAVINDAKUMAR.S	III/IT
13	BALAJI.R	III/IT
14	BHARATH KUMAR.M	III/IT
15	BHUVANESWAR.T	III/IT
16	BRAINARD SAMUEL.R	III/IT
17	DHARANI.R	III/IT
18	GEETHA LAKSHMI.R	III/IT
19	GIRIDHARAN.S	III/IT
20	GOWRI.D	III/IT
21	HARIHARAN JAUBIN.R	III/IT
22	HARSHINI.V	III/IT
23	HEMALAKSHMI	III/IT
24	ILLAKIYA.S	III/IT
25	JANANI A P	III/IT
26	JAYARAM.V	III/IT
27	JAYAVARDHANI	III/IT
28	JOSEPH CHARLES.A	III/IT
29	KAVIYA.R	III/IT
30	KOKILAMBAL.S	III/IT
31	KOWSALYA .T	III/IT
32	MADHUMITHA.S	III/IT
33	MALATHY.R	III/IT
34	MANIKANDAN.K	III/IT
35	MARIE AUGUSTIN RAJ.A	III/IT
36	GANSEH ARAVIND. T	III/IT
37	MOHAMMED HASVAK	III/IT
38	MOHANAPRIYA.N	III/IT
39	NALINAKUMARI.A	III/IT
40	NANDHAKUMAR.M	III/IT
41	NANDHINI.A	III/IT

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

42	NANDHINI.T	III/IT
43	NETHEANANDHAN.A.C	III/IT
44	NIVEDHA.K	III/IT
45	PARTHIBAN.M	III/IT
46	PAVITHRA.K	III/IT
47	PORSELVAM.I	III/IT
48	PRAVEEN KUMAR.V	III/IT
49	PREETHIKA.B	III/IT
50	PRESIELA.J	III/IT
51	PRIYADHARSHINI .D	III/IT
52	PRIYADHARSHINI. R	III/IT
53	PRIYANGA.P	III/IT
54	RAGUNAA.R	III/IT
55	SANDOSH KUMAR.J	III/IT
56	SANDRESH.S	III/IT
57	SARANIDARAN.K	III/IT
58	SERANJIVI	III/IT
59	SHAKILA.S	III/IT
60	SHEEBHA.A.B	III/IT
61	SIVAGAMI.S	III/IT
62	SIVAGANESH.C	III/IT
63	SIVAPAVITHRAN.V	III/IT
64	SOPHIA NADINE.A	III/IT
65	SRIDEVIPRIYA.G	III/IT
66	SUSHMITHA.R	III/IT
67	SWETHA.G	III/IT
68	UDAYA KUMAR.S	III/IT
69	VIGNESH.D	III/IT
70	VIJAYARAM ABISHEK.R	III/IT
71	VIMALPRIYAN.U	III/IT
72	VISHALI.R	III/IT
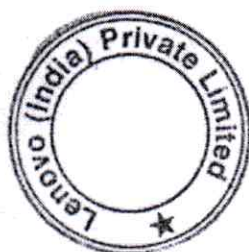
PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

From   13.07.2018

    P.Mathivanan,   Puducherry

    Assistant professor,

    Department of Information Technology,

    Manakula Vinayagar Institute of Technology,

    Kalitheerthalkuppam,

    Puducherry-605 107.

Through H.O.D Department of Information Technology

To

    The Principal,

    Manakula Vinayagar Institute of technology,

    Kalitheerthalkuppam,

    Puducherry-605 107.

Respected Sir,

Sub: Requesting permission for Industrial Visit –Reg

    As we are planned to go for Industrial Visit for III year Information Technology students (A & B Section) in **Vi Microsystems Private Limited (Chennai)** on 14.07.2018. The Objective of this industrial visit is to meet out the fulfillment of Curriculum Gap identified. So I Kindly request you to grant permission and to visit the **Vi Microsystems Private Limited (Chennai).**

        Thanking you,

                                                        Yours faithfully,

                                                        P.Mathivanan

Submitted to principal.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

Requesting for Industrial Visit - Reg

3 messages

mathi vanan <mathi64it@gmail.com>   Tue, Jun 26, 2018 at 11:13 AM
To: service@vimicrosystems.com, sundar@vimicrosystems.com

Respected Sir/Madam,

At the outset we are pleased to introduce that our college, Manakula Vinayagar Institute of Technology, Kalitheerthal kuppam, Puducherry – 605 107 is one of the best colleges in Puducherry which provides Technical Education for the students of our vicinity.

Our college is conducting B. Tech Degree course, with Five departments [EEE, ECE, CSE, MECH & IT] and also conducting M.Tech Degree course, with two departments [CSE & ECE] and MBA which is affiliated to Pondicherry University and recognized by the AICTE. The motto of our college is to mould the students with multifaceted personality in the field of engineering and technology.

Our Information Technology department is proposed to schedule an industrial visit for the students of our Department in Second week of July 2018.

So we appeal your permission and approval for the same, to bring our Students of III year, B.Tech (72 nos).

We shall be highly obliged and grateful to get your acceptance for the above appeal and please confirm the date for our Industrial Visit positively by 13.07.2018, Friday (or) 14.07.2018, Saturday.

Waiting for your positive reply,

regards,
P.Mathivanan, M.Tech.,
Assistant Professor/IT
Manakula Vinayagar Institute of Technology
Madagadipet, Puducherry - 605 107.

Ph. : 9894909566

Service <service@vimicrosystems.com>   Tue, Jun 26, 2018 at 3:54 PM
To: mathi vanan <mathi64it@gmail.com>

Dear Sir/Madam,

TO

P.Mathivanan, M.Tech.,
Assistant Professor/IT
Manakula Vinayagar Institute of Technology
Madagadipet, Puducherry - 605 107.
Ph. : 9894909566

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

Ref: Your mail dt : 26-06-2018

Sub: Industrial visit

        With reference to the above regarding Industrial visit, we are Pleased to inform you that " III Year 72 Students & 3 faculties of IT Department in your institution are permitted to visit our Factory premises On 14/07/2018 At 02:10 PM

For

Vi Microsystems pvt ltd.,

S.Varadharajan

Asst. Manager Customer Support
[Quoted text hidden]

---

mathi vanan <mathi64it@gmail.com>   Tue, Jun 26, 2018 at 4:11 PM
To: Service <service@vimicrosystems.com>

Thank you sir.. Will you provide me your contact number for further clarifications..
[Quoted text hidden]

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

Requesting for Industrial Visit - Reg

3 messages

mathi vanan <mathi64it@gmail.com>
To: service@vimicrosystems.com, sundar@vimicrosystems.com

Tue, Jun 26, 2018 at 11:13 AM

Respected Sir/Madam,

At the outset we are pleased to introduce that our college, Manakula Vinayagar Institute of Technology, Kalitheerthal kuppam, Puducherry – 605 107 is one of the best colleges in Puducherry which provides Technical Education for the students of our vicinity.

Our college is conducting B. Tech Degree course, with Five departments [EEE, ECE, CSE, MECH & IT] and also conducting M.Tech Degree course, with two departments [CSE & ECE] and MBA which is affiliated to Pondicherry University and recognized by the AICTE. The motto of our college is to mould the students with multifaceted personality in the field of engineering and technology.

Our Information Technology department is proposed to schedule an industrial visit for the students of our Department in Second week of July 2018.

So we appeal your permission and approval for the same, to bring our Students of III year, B.Tech (72 nos).

We shall be highly obliged and grateful to get your acceptance for the above appeal and please confirm the date for our Industrial Visit positively by 13.07.2018, Friday (or) 14.07.2018, Saturday.

Waiting for your positive reply,

regards,
P.Mathivanan, M.Tech.,
Assistant Professor/IT
Manakula Vinayagar Institute of Technology
Madagadipet, Puducherry - 605 107.

Ph. : 9894909566

Service <service@vimicrosystems.com>
To: mathi vanan <mathi64it@gmail.com>

Tue, Jun 26, 2018 at 3:54 PM

Dear Sir/Madam,

TO

P.Mathivanan, M.Tech.,
Assistant Professor/IT
Manakula Vinayagar Institute of Technology
Madagadipet, Puducherry - 605 107.
Ph. : 9894909566

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

Ref: Your mail dt : 26-06-2018

Sub: Industrial visit

With reference to the above regarding Industrial visit, we are Pleased to inform you that " III Year 72 Students & 3 faculties of IT Department in your institution are permitted to visit our Factory premises On 14/07/2018 At 02:10 PM.

For

Vi Microsystems pvt ltd.,

S.Varadharajan

Asst. Manager Customer Support
[Quoted text hidden]

---

mathi vanan <mathi64it@gmail.com>
To: Service <service@vimicrosystems.com>

Tue, Jun 26, 2018 at 4:11 PM

Thank you sir.. Will you provide me your contact number for further clarifications..
[Quoted text hidden]

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY

(Approved by AICTE, New Delhi and Affiliated to Pondicherry University)

Dr. S. MALARKKAN
PRINCIPAL

Date: 13.07.2018

To

S.VARADHARAJAN,
THE MANAGER,
SERVICE DEPARTMENT,
VI MICROSYSTEMS PRIVATE LTD.,
No: 75, Electronics Estate,
Perungudi, Chennai-600 096.

Dear Sir,

Sub: Industrial visit - III year Information Technology - Bonafide certificate-Reg.

I wish to acknowledge with sincere thanks the receipt of your letter granting permission to our students to visit your organization, which will be very much useful for our students.

With reference to the same, 72 students of 3rd year Information Technology of our Institution along with two staff member are visiting your esteemed organization on Saturday, the 14th July 2018 at 02.00 PM.

STAFF-IN CHARGE

1. Mr. P.Mathivanan, Asst.Professor / Dept of Information Technology.
2. Ms. A.Punitha, Asst.Professor / Dept of Information Technology.

This is for your kind information and necessary arrangement

Thanking You,

Visited our factory on 14/7/2018

S. Varadharajan

PRINCIPAL
13.7.18

Enclosed: Students Name list

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

Kalitheerthalkuppam,
Mannadipet Commune, Puducherry - 605107.
Ph: 0413-2643007, Fax: 2643008, website : www.mvit.edu.in, email : contactus@mvit.edu.in

Educate   Empower   Excel

College Name &Address: Date of Visit: 14/07/2018

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY
Kalitheerthal Kuppam, Puducherry-605107

S.No	Student Name	Year/Dept/Sec
1	VISHNU.M	III/IT/A
2	SUNDAR.S	III/IT/A
3	ABARNA.M	III/IT/A
4	ABINAYA.J	III/IT/A
5	AISWARYA.R	III/IT/A
6	AJITHA.K	III/IT/A
7	AKSHAYA.M	III/IT/A
8	ALEXIA.A	III/IT/A
9	AMARNATH.G	III/IT/A
10	ANANTHARAMAN.R	III/IT/A
11	ANBARASAN.S	III/IT/A
12	ARAVINDAKUMAR.S	III/IT/A
13	BALAJI.R	III/IT/A
14	BHARATH KUMAR.M	III/IT/A
15	BHUVANESWAR.T	III/IT/A
16	BRAINARD SAMUEL.R	III/IT/A
17	DHARANI.R	III/IT/A
18	GEETHA LAKSHMI.R	III/IT/A
19	GIRIDHARAN.S	III/IT/A
20	GOWRI.D	III/IT/A
21	HARIHARAN JAUBIN.R	III/IT/A
22	HARSHINI.V	III/IT/A
23	HEMALAKSHMI.M	III/IT/A
24	ILLAKIYA.S	III/IT/A
25	JANANI A P	III/IT/A
26	JAYARAM.V	III/IT/A
27	JAYAVARDHANI.R	III/IT/A
28	JOSEPH CHARLES.A	III/IT/A
29	KAVIYA.R	III/IT/A
30	KOKILAMBAL.S	III/IT/A
31	KOWSALYA.T	III/IT/A
32	MADHUMITHA.S	III/IT/A
33	MALATHY.R	III/IT/A
34	MANIKANDAN.K	III/IT/A
35	MARIE AUGUSTIN RAJ.A	III/IT/A
36	GANSEH ARAVIND. T	III/IT/B
37	MOHAMMED HASVAK	III/IT/B
38	MOHANAPRIYA.N	III/IT/B
39	NALINAKUMARI.A	III/IT/B
40	NANDHAKUMAR.M	III/IT/B

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHAL KUPPAM,
PUDUCHERRY - 605 107.

41	NANDHINI.A	III/IT/B
42	NANDHINI.T	III/IT/B
43	NETHEANANDHAN.A.C	III/IT/B
44	NIVEDHA.K	III/IT/B
45	PARTHIBAN.M	III/IT/B
46	PAVITHRA.K	III/IT/B
47	PORSELVAM.I	III/IT/B
48	PRAVEEN KUMAR.V	III/IT/B
49	PREETHIKA.B	III/IT/B
50	PRESIELA.J	III/IT/B
51	PRIYADHARSHINI .D	III/IT/B
52	PRIYADHARSHINI. R	III/IT/B
53	PRIYANGA.P	III/IT/B
54	RAGUNAA.R	III/IT/B
55	SANDOSH KUMAR.J	III/IT/B
56	SANDRESH.S	III/IT/B
57	SARANIDARAN.K	III/IT/B
58	SERANJIVI	III/IT/B
59	SHAKILA.S	III/IT/B
60	SHEEBHA.A.B	III/IT/B
61	SIVAGAMI.S	III/IT/B
62	SIVAGANESH.C	III/IT/B
63	SIVAPAVITHRAN.V	III/IT/B
64	SOPHIA NADINE.A	III/IT/B
65	SRIDEVIPRIYA.G	III/IT/B
66	SUSHMITHA.R	III/IT/B
67	SWETHA.G	III/IT/B
68	UDAYA KUMAR.S	III/IT/B
69	VIGNESH.D	III/IT/B
70	VIJAYARAM ABISHEK.R	III/IT/B
71	VIMALPRIYAN.U	III/IT/B
72	VISHALI.R	III/IT/B
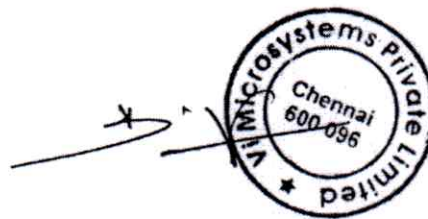
PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

Kalitheerthalkuppam, Madagadipet, Puducherry - 605 107

DEPARTMENT OF INFORMATION TECHNOLOGY

Date: 12.09.2018

From

Dr. P.SIVAKUMAR
Professor & Head
Department of Information Technology
Manakula Vinayagar Institute of Technology
Pondicherry – 605 107.

This Amount will be asked in the 1st year dvx.

12-9-18

To

THE PRINCIPAL
Manakula Vinayagar Institute of Technology
Pondicherry – 605 107.

Respected Sir,

Sub: Requesting permission for the Industrial Visit – Kaashiv Info Tech, Chennai on 14.09.18 – Reg.

****

We are glad to inform you that our department is planned to conduct one day Industrial visit on Kaashiv Info Tech, Anna Nagar, Chennai for our first Year IT Students on 14.9.2018. In this regard we are requesting permission and sanction the amount of Rs. 16,000/- for Industrial visit expenses from the department Association account.

Thanking you

Yours faithfully,

(P.Sivakumar)

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605-107.

MVIT

in:sent

Mail

Move to Inbox

COMPOSE

Inbox (292)

Starred

Important

Sent Mail

Drafts (20)

Categories

Something's not right.

We're having trouble connecting to Google. We'll keep trying...

This may be caused by network or proxy issues. Learn more. Please try accessing Hangouts directly.

INDUSTRIAL VISIT - REG

Suresh Muthuirusan <sureshit@mvit.edu.in>
to kaashiv.info

Respected Sir/Madam,

At the outset we are pleased to introduce that our college, Manakula Vir best colleges in Puducherry which provides Technical Education for the

Our college is conducting B. Tech Degree course, with Five departm departments [CSE & ECE] which is affiliated to Pondicherry Univer multifaceted personality in the field of engineering and technology.

Our information technology department is proposed to schedule an i curriculum.

So we appeal your permission and approval for the same, to bring our S

We shall be highly obliged and grateful to get your acceptance for the not feasible, please suggest an alternate date for your convenience.

Click here to Reply or Forward

Using 2.33 GB

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

1/1

◉ MVIT

Suresh Muthuirusan <sureshit@mvit.edu.in>

Industrial Visit Confirmation Letter - KaaShiv InfoTech
2 messages

priyanka kaashiv <priyanka.kaashiv@gmail.com> To: sureshit@mvit.edu.in Cc: ASHA SEKAR <asha.kaashiv@gmail.com>	Wed, Sep 12, 2018 at 11:24 AM

Dear Sir/Madam,

Thanks for considering our company for Industrial Visit to your students.

Please find the agenda of our program. (Agenda can be changed based on colleges request)

1. Awareness on the latest technologies available in the market.
2. Live US Projects demo
3. Process followed in the IT industry.

Approved Date for the IV:

S. No	Dates	Department	No. of Students	Time	Charges
1.	14TH SEPTEMBER 2018 (FRIDAY)	IT	55 Students	9 AM - 11 AM	Rs.60(Per Head)

Contact Persons: Please contact this number for any queries regarding the IV. **ASHA.S (7667662428) & (7667668009)**

Important Points:

1. Company assets should be carefully maintained.
2. Company details and company information should not be shared to anyone.

Industrial Visit Photos: More than 100 colleges have visited our company for Industrial Visit to Horne their technological skills.

http://www.kaashivinfotech.com/industrialvisit/industrialvisit.php

Our company profile for your reference,

http://kaashivinfotech.com/KaaShivCompanyProfile.pdf

Company Infrastructure:

1. Our office is located in Anna Nagar with a work space of 5000 SQ. FT.
2. Separate division for Electronics R&D, Software Development and Training.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEER VALKUPPAM,
PUDUCHERRY - 605107.

Kaashiv InfoTech

Your Gateway to IT Services, Processes and Business Solutions

X-41, Sivanantha Building, 5th Floor, 2nd Avenue, Annanagar, Chennai - 40.

www.kaashivinfotech.com

Industrial Visit Confirmation Letter

To,   Date: 12/09/2018

The Head of the Department,
Manakula Vinayagar Institute of Technology,
Pondicherry.

Respected Sir/Madam,

KaaShiv InfoTech, A Software Company run by an eminent Microsoft Most valuable Professional & Oracle Certified Expert focussing on Retail Management, Distributed apps and Marketing domain with customers from Canada, US and Australia. Our company is leading Software based Product/Project Company located in Anna Nagar, Chennai.

KaaShiv InfoTech is expertise in developing Live Projects in Microsoft Technologies using DOTNET 4.0 framework, SharePoint, WCF, WPF, DOTNET Nuke and Open Source Technologies like Drupal, OS Commerce, Linux, PHP, MYSQL and Magneto.

List of Projects from KaaShiv InfoTech:

Canadian Projects: 1. Anitaasli.com,
                          2. Sanjaykhanna.ca

Australian Projects: 1. Laptoppartshub.com.au
                          2. Iphonescreen.com.ca

US Projects: 1. JobsandDumps.com
                          2. Catch2Learn.com

Indian Projects: 1. Ishwaryam+ tally Products,
                          2. Hello Cars Product.
                          3. DotnetMiracle.com
                          4. SiddhaDoctor.com
                          5. PR Mobiles Networks.

Upcoming Projects: 1. SafewaterSystems.ca from Canada
                          2. Knowledge Networks for India
                          3. Jauharii cum OScommerce.com from India
                          4. Peer2peer.com from US
                          5. Web Intranet portal for HTMT, Bangalore.

Regd. & Corparate Office : X - 41, Shivanantha Building, 5th Floor, 2nd Avenue, Anna Nagar, Chennai - 600 040,
Tel : 91-044-4205 7542, E-Mail : kaashiv.info@gmail.com , URL : www.kaashivinfotech.com

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM.

Kaashiv InfoTech
Your Gateway to IT Services, Processes and Business Solutions
X-41, Sivanantha Building, 5th Floor, 2nd Avenue, Annanagar, Chennai - 40.
www.kaashivinfotech.com

List of Electronics Products from KaaShiv InfoTech:

Embedded System Products:
1. Hypervised PIC Monitor
2. Automated T-Sense Reactor.
3. Novice Heart Beater
4. Ani-Trapper

Gesture Recog Products:
1. Gesture Analyser
2. Virtualised Keypads with Cyclonic hand movements

We are pleased to welcome you/your students for the **Industrial Visit** to our company KaaShiv InfoTech, Anna Nagar, Chennai.

Key points:

1. A presentation on our projects for the duration of 45 min will be given.
2. Demo on our Live Project will be shown to the students for 30 min of time.
3. Career Guidance Tips from Company Director Perspective.

Important Points:

1. Company assets should be carefully maintained.
2. Company details and company information should not be shared to anyone.
3. Students will be charged Rs. 60 for providing IV participation certificate and a small interview material.

Industrial Visit details:

Industrial Visit Dates	14th September 2018
Industrial Visit Time	9. 00 AM - 11. 00 AM
No. of Students	55

Wishing you all the best!!! - KaaShiv InfoTech team

Cheers,

J. venkatesan prabu

Venkatesan Prabu .J
Head – KaaShiv Info Tech
Microsoft Developer Guidance Advisory web council team Member
Microsoft SQL Server MVP / Mind Cracker MVP
Website: http://www.kaashivinfotech.com/
Email:venkat@kaashivinfotech.com ;Kaashiv.info@gmail.com

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM

MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kalitheerthal kuppam, Puducherry – 605 107

Collage Name & Address: MANAKULA VINAYGAR INSTITUTE OF TECHNOLOGY

Kallitheerthal Kuppam.Puducherry-605107

Class /Branch:I / IT

S.No	Reg. No	Quota	Name Of The Student	Section
1	18TH0601	MANAGEMENT	ABDUL RAHIM.S	A Section
2	18TH0602	MANAGEMENT	ABDUL RAHMAN.H	A Section
3	18TH0603	MANAGEMENT	ALTHAF KHAN. J	A Section
4	18TH0604	CENTAC	AMIRTHALAKSHMI.P	A Section
5	18TH0605	CENTAC	ANJANA.V	A Section
6	18TH0607	MANAGEMENT	ARUNA.G	A Section
7	18TH0608	MANAGEMENT	ATHIFFA.M.A	A Section
8	18TH0609	CENTAC	AUROBINDH SAI.C	A Section
9	18TH0610	CENTAC	BALAMURUGAN.P	A Section
10	18TH0611	MANAGEMENT	DEEPIKA.S	A Section
11	18TH0612	MANAGEMENT	DEEPIKA.V	A Section
12	18TH0613	MANAGEMENT	DHIVAGAR.K	A Section
13	18TH0614	CENTAC	DIVYA.A	A Section
14	18TH0615	MANAGEMENT	ESHWARAMOORTHY.S A	A Section
15	18TH0616	MANAGEMENT	FAYAZ AHAMED.M.S	A Section
16	18TH0617	CENTAC	HARIDHA.S	A Section
17	18TH0618	CENTAC	HARIHARAN.G	A Section
18	18TH0619	CENTAC	HARIHARANE.V	A Section
19	18TH0620	MANAGEMENT	HARISH.P	A Section
20	18TH0621	CENTAC	HARSHA.K.C	A Section
21	18TH0622	MANAGEMENT	HEMAVATHI.T	A Section

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

22	18TH0623	MANAGEMENT	ILAKKIYA.G	A Section
23	18TH0625	CENTAC	KIRUBARAJ.I	A Section
24	18TH0626	CENTAC	KUMAAREYSH.R	A Section
25	18TH0627	CENTAC	LAVANYA.V	A Section
26	18TH0628	MANAGEMENT	MAHALAKSHMI.S	A Section
27	18TH0629	CENTAC	MAHALAKSHMI.S	A Section
28	18TH0630	CENTAC	MAHESWARI.S	A Section
29	18TH0631	MANAGEMENT	NAGARAJ	A Section
30	18TH0632	MANAGEMENT	PARTHIBAN.R	A Section
31	18TH0633	CENTAC	PRIYADARSHINI.M	A Section
32	18TH0634	MANAGEMENT	PRIYADHARSHINI.S	A Section
33	18TH0635	CENTAC	RAGHUL.T.P	A Section
34	18TH0636	MANAGEMENT	RENGARAJAN.T.R	A Section
35	18TH0637	CENTAC	RISHIKA K	A Section
36	18TH0638	CENTAC	SAMPATHKUMAR D	A Section
37	18TH0639	MANAGEMENT	SANDHIYA.V	A Section
38	18TH0640	CENTAC	SANKARI.S	A Section
39	18TH0641	MANAGEMENT	SANTHIYA.M	A Section
40	18TH0642	MANAGEMENT	SARAN.P	A Section
41	18TH0643	MANAGEMENT	SARANYA.S	A Section
42	18TH0644	CENTAC	SARANYADHEVI.S	A Section
43	18TH0645	CENTAC	SATHIYA.R	A Section
44	18TH0646	MANAGEMENT	SHEIK ABDULLAH.B	A Section
45	18TH0647	CENTAC	SIVARAJ.M	A Section
46	18TH0648	MANAGEMENT	SNEHA.K	A Section
47	18TH0649	CENTAC	SRINIVASAN.B	A Section
48	18TH0650	MANAGEMENT	SUBASHRI. R	A Section
49	18TH0651	CENTAC	SURYA P	A Section
50	18TH0652	MANAGEMENT	UMAMAHESWARI.B	A Section
51	18TH0654	MANAGEMENT	VIGNESHKUMAR.S	A Section
52	18TH0655	MANAGEMENT	VIGNESHWAR. S	A Section
53	18TH0656	CENTAC	YOGI.B	A Section
54	18TH0657	MANAGEMENT	YUGAVARMAN.N	A Section
55	18TH0658	CENTAC	YUVASRI R	A Section

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

⊚MVIT

Suresh Muthuirusan <suresh@mvit.edu.in>

Industrial Visit- Regarding
1 message

Suresh Muthuirusan <suresh@mvit.edu.in>
To: muthu_a_i@dell.com

Mon, Dec 10, 2018 at 12:31 PM

Greetings from Manakula Vinayagar Institute of Technology, Puducherry !

At the outset we are pleased to introduce that our college, Manakula Vinayagar Institute of Technology, Kalitheerthal kuppam, Puducherry - 605 107 is one of the best colleges in Puducherry which provides Technical Education for the students of our vicinity.

Our college is conducting B.Tech Degree course, with five departments [EEE, ECE, CSE, MECH & IT] and also conducting M.Tech Degree course, with two departments [CSE & ECE] which is affiliated to Pondicherry University and recognized by the AICTE. The motto of our college is to mould the students with multifaceted personality in the field of Engineering and Technology.

Our Information and Technology department Third year Students would like to visit your manufacturing plant proposed to schedule an industrial visit as the industrial visit is the part of our curriculum.

So we appeal your permission and approval for the same, to bring our Students of Second year, B.Tech (54 nos) with Two faculty members.

We shall be highly obliged and grateful to get your acceptance for the above appeal and please confirm the dates are preferably first and second week of january 2019
Your cooperation in this regard is solicited.

WINNERS DON'T DO DIFFERENT THINGS.THEY DO THINGS DIFFERENTLY !!!!

M.SURESH ,M.Tech(Ph.D)
Assistant Professor
Department of Information Technology
Manakula Vinayagar Institute of Technology
Contact me : 9894977140

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

Muthu.A.L@dell.com
to me

Hi Suresh,

We cannot accommodate ==93 people at stretch== for industrial visit.. I ==can allow 54 members only on==

==Attached the security guidelines==. Please cascade the guidelines to your team members before the

Please share the name list of the visitors for security clearance.

Regards,

Muthu Kamatchi

Specialist Business Operations, India MFG-Admin

Dell | Global Supply Chain Operations

office +91 44 4715 8000 ext. 58027, Direct +91 44 4715 8027

Muthu.a.l@Dell.com

We're building a Legacy of Good
Check our progress in our FY18 Annual Update >

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kalitheerthal kuppam, Puducherry – 605 107

<mark>DELL INDIA PRIVATE LIMITED , CHENNAI</mark>

<mark>Date of visit:11.1.19</mark>

Collage Name & Address: MANAKULA VINAYGAR INSTITUTE OF TECHNOLOGY

Kallitheerthal Kuppam.Puducherry-605107

SL. NO	REG.NO	NAME OF THE STUDENT	Class /Branch
1	16TH1254	PAKKER MOHAMED SOHEIL	II / IT
2	17TC1206	VANITHA	II / IT
3	17TE1205	DHARSHINI.S	II / IT
4	17TH1201	ABINAYA. M	II / IT
5	17TH1202	AJEETHA JENIFER MERLINE.M	II / IT
6	17TH1203	AMUDHA. R	II / IT
7	17TH1204	ANUSIYA. J	II / IT
8	17TH1205	DAYANARAJE.S	II / IT
9	17TH1206	DEVIKA.M	II / IT
10	17TH1207	DHANYA.T	II / IT
11	17TH1208	DINESHKUMAR. S	II / IT
12	17TH1209	DIVYABHARATHI.J	II / IT
13	17TH1210	FAZAR.K	II / IT
14	17TH1211	GAUTHAM. S	II / IT
15	17TH1212	GAYATHRI.R	II / IT
16	17TH1213	HARISH.B	II / IT
17	17TH1214	HARSHANAA. U. S	II / IT
18	17TH1215	HARSHAVARDENI .D	II / IT
19	17TH1216	HASHVANDHINI .K	II / IT
20	17TH1217	INSHANIYA BAHADUR .N	II / IT
21	17TH1218	JANAVICA. R	II / IT
22	17TH1219	JAYABALAGURU. V	II / IT
23	17TH1220	KAARTHIK.R	II / IT
24	17TH1221	KALAISELVI. R	II / IT
25	17TH1222	KALAISRIRAM .S	II / IT
26	17TH1223	KANIMOZHI. D	II / IT
27	17TH1226	KIRUTHIGAIPRIYA.K	II / IT
28	17TH1227	KIRUTHIKA.B	II / IT
29	17TH1228	KISHOR KUMAR .J	II / IT
30	17TH1229	LAVANYA.D	II / IT

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY – 605 107.

31	17TH1230	LOGASOWMYA. V	II / IT
32	17TH1231	MADHAN KAVI.M	II / IT
33	17TH1232	MADHAVAN.G	II / IT
34	17TH1233	MAPPILLAIMEERAN.K	II / IT
35	17TH1234	MEENA.S	II / IT
36	17TH1235	NANDHINI.M	II / IT
37	17TH1236	NIVETHA.K	II / IT
38	17TH1237	PARTHIBAN .P	II / IT
39	17TH1238	PRAVEEN KUMAR.G	II / IT
40	17TH1239	RAJNIVASH.M	II / IT
41	17TH1240	RAM SUGUMAR. R	II / IT
42	17TH1242	SITHARTHAN.S	II / IT
43	17TH1243	SIVANESAN. R	II / IT
44	17TH1244	SNEHASHRI.V	II / IT
45	17TH1247	SUDHARSANAN. K	II / IT
46	17TH1248	SUNDARAVARADHAN.T	II / IT
47	17TH1249	SURESH. C	II / IT
48	17TH1250	SWARAJBAL	II / IT
49	17TH1251	SWATHI .B	II / IT
50	17TH1252	SWETHA. A	II / IT
51	17TH1253	UMA SANKARI .S	II / IT
52	17TH1254	YOGANANDHAN.M	II / IT
53	17TH1255	YUVARAJA .P	II / IT
TOTAL NO. OF STUDENTS ATTENDED			

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

From

    M.Suresh
    Assistant Professor & Class Advisor (IV) Yr
    Department of Information Technology
    Manakula Vinayagar Institute of Technology
    Kallitheerthal, Madagadipet
    Pondicherry

Date : 05.03.2019

To

    The Principal
    Manakula Vinayagar Institute of Technology
    Kallitheerthal, Madagadipet
    Pondicherry

Respected Sir

Sub: Requesting Permission for Industrial Visit to ISRO, kerala – Reg

We have got permission from Visiting Vikram Sarabhai Space Centre (VSSC), Thiruvananthapuram, Kerala for industrial visit on 15.03.2019. Since Industrial Visit is a Part of our curriculum. I request you to kindly give permission for visiting Vikram Sarabhai Space Centre (VSSC). I assure our department final year students strictly follow the rules and regulation of college. Herewith I have attached the Industrial Visit Request and Acceptance letter for your kind notice.

Thanking you sir

Yours Faithfully

(M.Suresh) 5/8/19

Submitted to principal

5/3/19 .

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

From

A.PUNITHA
Assistant Professor & Class Advisor (III) Yr
Department of Information Technology
Manakula Vinayagar Institute of Technology
Madagadipet
Pondicherry

Date : 05.03.2019

To

The Principal
Manakula Vinayagar Institute of Technology
Pondicherry

Respected Sir

Sub: Requesting Permission for Industrial visit on 15.3.2019 – Reg
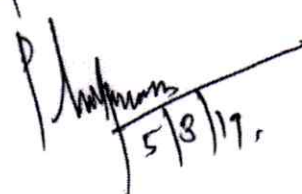
As we have got permission from Visiting ISRO- Vikram Sarabhai Space Centre (VSSC) & M Squared Software & Services (P) Ltd, Thiruvananthapuram, Kerala (software and mobile app Development Company) for industrial visit on 15.03.2019. Since Industrial Visit is a Part of our curriculum. I kindly request you to grand permission for Industrial visit. I assure our department third year students strictly follow the rules and regulation of college. Herewith I have attached the Industrial Visit Request and Acceptance letter for your kind notice.

Thanking you sir

Yours Faithfully

Pu'

(A.PUNITHA)

Submitted to Principal

5/8/19.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERJ HALKUPPAM,
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY

(Approved by AICTE, New Delhi and Affiliated to Pondicherry University)

From

Date : 15.02.2019

Dr.P.Sivakumar
Professor & Head
Department of Information Technology
Manakula Vinayagar Institute of Technology
Pondicherry,India

To

Shri S. Somanath
Director
Vikram Sarabhai Space Centre
Trivandrum-695022
Kerala.India

Sub :   **Persmission to Visit Vikram Sarabhai Space Center-Reg**
****

Greetings from Manakula Vinayagar Institute of Technology,Puducherry !

At the outset we are pleased to introduce that our college, Manakula Vinayagar Institute of Technology, Kalitheerthal kuppam, Puducherry - 605 107 is one of the best colleges in Puducherry which provides Technical Education for the students of our vicinity.

Our college is conducting B.Tech Degree course, with five departments [EEE, ECE, CSE, MECH & IT] and also conducting M.Tech Degree course, with two departments [CSE & ECE] which is affiliated to Pondicherry University and recognized by the AICTE. The motto of our college is to mould the students with multifaceted personality in the field of Engineering and Technology.
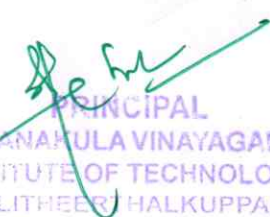
Our Information Technology Department Final year Students would like to visit your esteemed organization to schedule an industrial visit as the industrial visit is the part of our curriculum.

So we appeal your permission and approval for the same, to bring our Students Final year, B.Tech (43 nos) with Two faculty members.

We shall be highly obliged and grateful to get your acceptance for the above appeal and please confirm the date from 07.03.2019 to 09.03.2019 for our visit, If the mentioned date is not feasible, please suggest an alternate date for your convenience.

Thanking you

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY

Yours faithfully

Dr. P. SIVAKUMAR M.E., Ph.D.
Professor & Head
Dept. of Information Technology
Manakula Vinayagar Institute of Technology
Kalitheerthalkuppam, Puducherry - 605 107.

Ph: 0413-2643007, Fax: 2643008, website : www.mvit.edu.in

MVIT   Suresh Muthulrusan <sureshit@mvit.edu.in>

VSSC Space Museum visit - Confirmation
1 message

no-reply@vssc.gov.in <no-reply@vssc.gov.in>   Sat, Mar 2, 2019 at 10:39 AM
To: sureshit@mvit.edu.in

Dear Suresh,

Your request to visit space museum has been APPROVED.

Visit ID: 19036
Date of visit :15-03-2019 9:30 AM
Nos. of Visitors :111

Guidelines

- Printed entry pass can be obtained either from the Public Relations Office, VSSC near Veli Church or from the security gate at Canal gate, near Stationkadavu at the northern boundary of the VSSC campus . For this purpose the group leader should furnish the details of the assigned request ID along with the registered proof of identity at the above identified points. On verification, the pass will be printed and issued. The pass will be valid only for the date of issue.

- Limited number of vehicles will be allowed up to Space Museum. Group leader should provide the details of the vehicle while seeking entry pass.

- Entry will be allowed only from the Canal gate.

- Mobile phone, camera, CD, USB drive, floppy or other electronic gadgets are strictly prohibited inside the campus.

- A visit to the space museum will take more than an hour. There will be regular film shows on all days. Special shows will be arranged for groups with not less than 40 visitors,on request.

- Sounding rockets are generally launched from TERLS on every third Wednesday at 11:45 hours (subject to change for technical reasons) for scientific purposes. Those who wish to witness the launch should be present at space museum before 10:30 hrs.

- VSSC will not be responsible for any accident to the visitors or for any loss/damage to their belongings during their visit to VSSC or to any of its facilities, or while launching rockets.

For any further queries, please contact public Relations : 0471-2564292, 2565649

Regards,
Public Relations Officer, VSSC

**** PLEASE DON'T REPLY TO THIS MAIL***

⦿MVIT

Suresh Muthuirusan <sureshit@mvit.edu.in>

Permission to visit Vikram Sarabhai Space Centre (VSSC)-Reg
1 message

Suresh Muthuirusan <sureshit@mvit.edu.in>   Fri, Feb 15, 2019 at 4:45 PM
To: director@vssc.gov.in

Dear Sir,

Greetings from Manakula Vinayagar Institute of Technology

Manakula Vinayagar Institute of Technology located at Kalitheerthal kuppam, Puducherry – 605 107 would like to visit Space Museum and the other facilities at Vikram Sarabhai Space Centre for an educational tour. I believe that visiting a facility like VSSC would inspire them in science and the experience will stay with them through their life. We would like to visit on tentatively 07.03.19 to 09.03.19 If this date is not feasible, please suggest an alternate date in the next week. Herewith I have attached the college Bonafide certificate and waiting for your favorable reply

Your cooperation in this regard is solicited.

With Regards,

--

WINNERS DON'T DO DIFFERENT THINGS.THEY DO THINGS DIFFERENTLY !!!!

M.SURESH ,M.Tech(Ph.D)
Assistant Professor
Department of Information Technology
Manakula Vinayagar Institute of Technology
Contact me : 9894977140

scan0003.pdf
674K

Space Museum
Vikram Sarabhai Space Centre

Government of India, Department of Space
Indian Space Research Organisation

✓ Your request has been successfully registered.

Request ID: 19036

ℹ   *Your request is under processing. On approval, intimation will be given by email and SMS.*
Use this Request ID to check the status of your request online.
For any further queries, please contact Public Relations : 0471-2564292, 2565649

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

(Stamp: MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY PUDUCHERRY 605 107.)

http://spacemuseum.vssc.gov.in/MuseumVisit/register.htm?_flowExecutionKey=_c9EE1EA13-6787-6296-1156-BF6CFD4727A7_kD5A30091-B716-64...   1/1

MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kalitheerthal kuppam, Puducherry – 605 107

DETAILS OF INDUSTRIAL VISIT TO ISRO, KERALA

Students List   **Date of visit:15.3.19**

SL. NO	REG.NO	NAME OF THE STUDENT	Class / Branch
1	15TH1201	ANBARASAN.G	IV / IT
2	15TH1202	ARUN KUMAR.S	IV / IT
3	15TH1203	ASHOK.S	IV / IT
4	15TH1204	ASWINRAAJU.V	IV / IT
5	15TH1205	DEEPIKA .R (W)	IV / IT
6	15TH1206	DHAMINI.P (W)	IV / IT
7	15TH1207	DHEEBHIKA. K (W)	IV / IT
8	15TH1208	GOKILA DEVI.K (W)	IV / IT
9	15TH1209	JAMUNA.B (W)	IV / IT
10	15TH1211	JAYARAJ.R	IV / IT
11	15TH1212	JAYASREE .R (W)	IV / IT
12	15TH1213	KALAIYARASI.S (W)	IV / IT
13	15TH1214	KARTHIKA.R (W)	IV / IT
14	15TH1215	KOWSALYA .R (W)	IV / IT
15	15TH1216	LAVANYA.B (W)	IV / IT
16	15TH1217	LOGAVIGNESH .K	IV / IT
17	15TH1218	MAHALAKSHMI .M (W)	IV / IT
18	15TH1219	MANGAYARKARASI.V (W)	IV / IT
19	15TH1220	MAPPILLAI MEERAN.J	IV / IT
20	15TH1222	NANDHAKUMAR.M	IV / IT
21	15TH1223	NIRMALA .I (W)	IV / IT
22	15TH1224	PRASANNA .R	IV / IT
23	15TH1226	PRITHEBHA .V (W)	IV / IT
24	15TH1227	PRIYADHARSHINI.G (W)	IV / IT
25	15TH1228	PUPPALA SAI RAM	IV / IT
26	15TH1229	RAJESWARI . S (W)	IV / IT
27	15TH1230	SAKTHI KUMARAN.A	IV / IT
28	15TH1231	SAKTHIVEL.A	IV / IT
29	15TH1232	SAKTHIVEL.T	IV / IT
30	15TH1233	SASIDHARAN .M	IV / IT
31	15TH1234	SELVAM.G	IV / IT
32	15TH1235	SHANTANU BHOWMICK.H	IV / IT
33	15TH1236	SHILPA.S (W)	IV / IT
34	15TH1238	SHIVANI.C (W)	IV / IT
35	15TH1237	SHIVA SHANKAR.P	IV / IT
36	15TH1240	SHRUTHEE.G (W)	IV / IT
37	15TH1241	SOFIA CAROLINE.S (W)	IV / IT
38	15TH1242	SOWMIYA.P (W)	IV / IT
39	15TH1243	SOWMIYA.S (W)	IV / IT
40	15TH1247	SWAGATHA.V (W)	IV / IT
41	15TH1248	SWETHA.D (W)	IV / IT
42	15TH1250	VASANTHRAJ.V	IV / IT
43	15TH1251	VINODHA. S (W)	IV / IT
	TOTAL NO. OF STUDENTS ATTENDED		

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEER THALKUPPAM,
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kalitheerthal kuppam, Puducherry – 605 107

Date of visit: 15.3.19

Collage Name & Address: MANAKULA VINAYGAR INSTITUTE OF TECHNOLOGY

Kallitheerthal Kuppam.Puducherry-605107

SL. NO	REG.NO	NAME OF THE STUDENT	Class / Branch/ sec
1	16TB1287	VISHNU.M	III / IT / A
2	16TC1214	SUNDAR.S	III / IT / A
3	16TH1201	ABARNA.M	III / IT / A
4	16TH1202	ABINAYA .J	III / IT / A
5	16TH1203	AISWARYA.R	III / IT / A
6	16TH1205	AJITHA.K	III / IT / A
7	16TH1206	AKSHAYA.M	III / IT / A
8	16TH1207	ALEXIA.A	III / IT / A
9	16TH1208	AMARNATH.G	III / IT / A
10	16TH1209	ANANTHARAMAN.R	III / IT / A
11	16TH1210	ANBARASAN.S	III / IT / A
12	16TH1211	ARAVINDAKUMAR.S	III / IT / A
13	16TH1213	BALAJI.R	III / IT / A
14	16TH1216	BHARATH KUMAR.M	III / IT / A
15	16TH1217	BHUVANESWAR.T	III / IT / A
16	16TH1218	BRAINARD SAMUEL.R	III / IT / A
17	16TH1219	DHARANI.R	III / IT / A
18	16TH1222	GEETHA LAKSHMI.R	III / IT / A
19	16TH1223	GIRIDHARAN.S	III / IT / A
20	16TH1224	GOWRI.D	III / IT / A
21	16TH1225	HARIHARAN JAUBIN.R	III / IT / A
22	16TH1226	HARSHINI.V	III / IT / A
23	16TH1227	HEMALAKSHMI.M	III / IT / A
24	16TH1228	ILLAKIYA.S	III / IT / A
25	16TH1230	JANANI A P	III / IT / A
26	16TH1231	JAYARAM.V	III / IT / A
27	16TH1232	JAYAVARDHANI	III / IT / A
28	16TH1233	JOSEPH CHARLES.A	III / IT / A
29	16TH1235	KAVIYA.R	III / IT / A
30	16TH1236	KOKILAMBAL.S	III / IT / A
31	16TH1238	KOWSALYA .T	III / IT / A
32	16TH1239	MADHUMITHA.S	III / IT / A
33	16TH1240	MALATHY.R	III / IT / A
34	16TH1241	MANIKANDAN.K	III / IT / A
35	16TH1242	MARIE AUGUSTIN RAJ.A	III / IT / A
		TOTAL NO. OF STUDENTS ATTENDED	

Class Advisor

HOD

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHAL KUPPAM,
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
Kalitheerthal kuppam, Puducherry – 605 107

Date of visit: 15.3.19

College Name & Address: MANAKULA VINAYGAR INSTITUTE OF TECHNOLOGY

Kallitheerthal Kuppam.Puducherry-605107

SL. NO	REG.NO	NAME OF THE STUDENT	Class / Branch / Sec
1	16TB1219	GANSEH ARAVIND. T	III / IT / B
2	16TH1243	MOHAMMED HASVAK	III / IT / B
3	16TH1246	MOHANAPRIYA.N	III / IT / B
4	16TH1248	NALINAKUMARI.A	III / IT / B
5	16TH1249	NANDHAKUMAR.M	III / IT / B
6	16TH1250	NANDHINI.A	III / IT / B
7	16TH1251	NANDHINI.T	III / IT / B
8	16TH1252	NETHEANANDHAN.A.C	III / IT / B
9	16TH1253	NIVEDHA.K	III / IT / B
10	16TH1255	PARTHIBAN.M	III / IT / B
11	16TH1256	PAVITHRA.K	III / IT / B
12	16TH1257	PORSELVAM.I	III / IT / B
13	16TH1258	PRAVEEN KUMAR.V	III / IT / B
14	16TH1259	PREETHIKA.B	III / IT / B
15	16TH1260	PRESIELA.J	III / IT / B
16	16TH1261	PRIYADHARSHINI .D	III / IT / B
17	16TH1262	PRIYADHARSHINI. R	III / IT / B
18	16TH1263	PRIYANGA.P	III / IT / B
19	16TH1264	RAGUNAA.R	III / IT / B
20	16TH1267	SANDOSH KUMAR.J	III / IT / B
21	16TH1268	SANDRESH.S	III / IT / B
22	16TH1269	SARANIDARAN.K	III / IT / B
23	16TH1271	SERANJIVI	III / IT / B
24	16TH1272	SHAKILA.S	III / IT / B
25	16TH1273	SHEEBHA.A.B	III / IT / B
26	16TH1274	SIVAGAMI.S	III / IT / B
27	16TH1275	SIVAGANESH.C	III / IT / B
28	16TH1276	SIVAPAVITHRAN.V	III / IT / B
29	16TH1277	SOPHIA NADINE.A	III / IT / B
30	16TH1278	SRIDEVIPRIYA.G	III / IT / B
31	16TH1279	SUSHMITHA.R	III / IT / B
32	16TH1280	SWETHA.G	III / IT / B
33	16TH1282	UDAYA KUMAR.S	III / IT / B
34	16TH1283	VIGNESH.D	III / IT / B
35	16TH1284	VIJAYARAM ABISHEK.R	III / IT / B
36	16TH1285	VIMALPRIYAN.U	III / IT / B
37	16TH1286	VISHALI.R	III / IT / B
TOTAL NO. OF STUDENTS ATTENDED			

Class Advisor

HOD

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHAL KUPPAM,

MVIT

Suresh Muthuirusan <sureshit@mvit.edu.in>

M-SQUARED SOFTWARE & SERVICE PVT LTD.

INDUSTRIAL VISIT -Reg

2 messages

Suresh Muthuirusan <sureshit@mvit.edu.in>
To: Soji J <soji.j@m2comsys.com>

Mon, Mar 4, 2019 at 12:50 PM

Happy Morning Mam,
   I extend my sincere thanks for considering our Industrial Visit request, At the time of my request i have mentioned as 08.03.2019 for permission. Now our plan has slightly postponed due to UNIVERSITY INSPECTION, So we appeal for permission on 15.03.2019.
I have contacted this number many 04714084000 but not getting proper connection.
So kindly send me the acceptance mail with your formalities so that i can proceed further.
My contact number is mentioned below. Kindly share your contact number for further communication.

Thanking you

--

WINNERS DON'T DO DIFFERENT THINGS.THEY DO THiNGS DIFFERENTLY !!!!

M.SURESH ,M.Tech(Ph.D)

Assistant Professor
Department of Information Technology
Manakula Vinayagar Institute of Technology
Contact me : 9894977140

Soji J <soji.j@m2comsys.com>
To: sureshit <sureshit@mvit.edu.in>
Cc: Vidya <vidyas@m2comsys.com>, "Bijumon Janardhanan. O" <bmjo@m2comsys.us>

Tue, Mar 5, 2019 at 10:16 AM

Dear Suresh,
We are pleased that you have chosen to make an official industrial visit to Msquared Software and solutions,Thiruvanathapuram on 15/03/2019 .I think you talked with our BD about the requirements of the industrial visit

We are looking forward to seeing you, and if you have any question related to this matter, don't hesitate to contact us. Again, thanks for your interest.

My Contact Number :8086019825

BusinessDevelopment(Mr.Jose):7034813685

Regards,
Soji John

From: "sureshit" <sureshit@mvit.edu.in>
To: "Soji J" <soji.j@m2comsys.com>
Sent: Monday, March 4, 2019 12:50:07 PM
Subject: INDUSTRIAL VISIT -Reg

[Quoted text hidden]

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,

Address

ITBM (Squared Building (http://m2india.com/sites/))
Technopark Campus
Thiruvananthapuram
PIN-695 581

Training (http://m2india.com/training/)

Companies (http://m2india.com/companies/)

Contact

Phone & Fax
(http://m2india.com/pages/contact/)
Phone : +91 471 4084000

Fax : +91 471 3042581

Email

m2info@m2comsys.com (mailto:m2info@m2comsys.com)

M SQUARED
Software And Services

M-Squared Building
Technopark Campus
Thiruvananthapuram - 695 581
Kerala, India

Phone +91 - 471 - 4084000
m2info@m2comsys.com

WE ADD VALUE

Our Products

T-CAS: Complete EHR Solution (http://m2india.com/products/clinic-automation-complete-ehr-software/)

VoiceSys: Transcription Management Suite (http://m2india.com/products/transcription-management-suite/)

ScanGard: Access Control and Attendance Management System (http://m2india.com/products/access-control-attendance-management-system/)

INDUSTRIAL VISIT -Reg   Inbox ×

Suresh Muthuirusan

Happy Morning Mam, I extend my sincere thanks for considering our Industrial Visit request, At the time of my reques

Soji J

to Vidya, Bijumon, me

Dear Suresh,

We are pleased that you have chosen to make an official industrial visit to <mark>Msquared Softwa</mark>
think you talked with our BD about the requirements of the industrial visit

We are looking forward to seeing you, and if you have any question related to this matter, d interest.

My Contact Number :8086019825

BusinessDevelopment(Mr.Jose):7034813685

Regards,
Soji John

From: "sureshit" <sureshit@mvit.edu.in>
To: "Soji J" <soji.j@m2comsys.com>
Sent: Monday, March 4, 2019 12:50:07 PM
Subject: INDUSTRIAL VISIT -Reg

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY
Kalitheerthalkuppam, Puducherry- 605 107.
DEPARTMENT OF INFORMATION TECHNOLOGY
Academic Year: 2018-19(EVEN)

INDUSTRIAL VISIT NAME LIST

CLASS: III –IT/VI/A & B   BATCH: 2016-2020

The following students are visited M-Square Software Solution and services, Technopark campus Trivandrum, Kerala on 15.03.2019

SL. NO	REG.NO	NAME OF THE STUDENT	SL. NO	REG.NO	NAME OF THE STUDENT
1	16TB1287	VISHNU.M	30	16TH1246	MOHANAPRIYA.N
2	16TC1214	SUNDAR.S	31	16TH1248	NALINAKUMARI.A
3	16TH1201	ABARNA.M	32	16TH1250	NANDHINI.A
4	16TH1202	ABINAYA .J	33	16TH1251	NANDHINI.T
5	16TH1203	AISWARYA.R	34	16TH1252	NETHEANANDHAN.A.C
6	16TH1205	AJITHA.K	35	16TH1253	NIVEDHA.K
7	16TH1206	AKSHAYA.M	36	16TH1256	PAVITHRA.K
8	16TH1207	ALEXIA.A	37	16TH1259	PREETHIKA.B
9	16TH1208	AMARNATH.G	38	16TH1260	PRESIELA.J
10	16TH1209	ANANTHARAMAN.R	39	16TH1261	PRIYADHARSHINI .D
11	16TH1210	ANBARASAN.S	40	16TH1262	PRIYADHARSHINI. R
12	16TH1211	ARAVINDAKUMAR.S	41	16TH1263	PRIYANGA.P
13	16TH1213	BALAJI.R	42	16TH1264	RAGUNAA.R
14	16TH1219	DHARANI.R	43	16TH1271	SERANJIVI
15	16TH1222	GEETHA LAKSHMI.R	44	16TH1272	SHAKILA.S
16	16TH1223	GIRIDHARAN.S	45	16TH1273	SHEEBHA.A.B
17	16TH1224	GOWRI.D	46	16TH1274	SIVAGAMI.S
18	16TH1225	HARIHARAN JAUBIN.R	47	16TH1276	SIVAPAVITHRAN.V
19	16TH1226	HARSHINI.V	48	16TH1277	SOPHIA NADINE.A
20	16TH1227	HEMALAKSHMI.M	49	16TH1278	SRIDEVIPRIYA.G
21	16TH1228	ILLAKIYA.S	50	16TH1279	SUSHMITHA.R
22	16TH1230	JANANI A P	51	16TH1280	SWETHA.G
23	16TH1232	JAYAVARDHANI	52	16TH1286	VISHALI.R
24	16TH1233	JOSEPH CHARLES.A			
25	16TH1235	KAVIYA.R			
26	16TH1238	KOWSALYA .T			
27	16TH1239	MADHUMITHA.S			
28	16TH1240	MALATHY.R			
29	16TH1241	MANIKANDAN.K			

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

M-SQUARED
Software & Services

Thiruvananthapuram | Cochin | Bangalore

M Squared Software & Services (P) Ltd.
M Squared Building, Technopark Campus,
Thiruvananthapuram - 695 581, Kerala, India
Ph: 91- 471- 4084000 Fax: 91- 471-3042581
Web: www.m2india.com

ISOQAR   UKAS
0026

Certificate No: 11756
ISO 27001

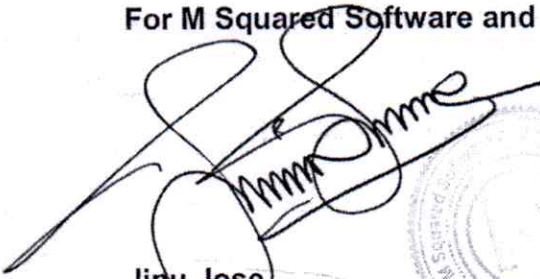M2IV201915/01   March 15, 2019

To

The Head of the Department,
Manakula Vinayagar Institute of Technology,
Puducherry.

This is to certify students of 3rd year **B.Tech** (Information Technology) 2016-2020 batch from **Manakula Vinayagar Institute of Technology,** Puducherry, has visited our company on **15th March, 2019** for the completion of the **Industrial Visit** as per the curriculum. They were briefed on the company structure, function and business verticals with stress on software. The following number of students were actively participated in this visit.

Number of Students   : 52
Number of Faculty   : 2

For M Squared Software and Services (P) Ltd

Jinu Jose

Director – HR

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

SOFTWARE DEVELOPMENT | MEDICAL SERVICES | ENGINEERING SERVICES

CIN:U72200KL1997PTC011101

Manakula Vinayagar Institute of Technology, Kalitheerthalkuppam, Puducherry – 605 107

<mark>Report on Internship</mark>

Name of the Student	SAKTHIVEL . A
Register Number	15TH1231
Year / Department / Section	iv / IT
Duration	6 days
Name of the Organization	LENOVO Pvt Ltd
Objective	To Acquire knowledge about the manufacturing process of laptop and PC's.
Tasks and Responsibilities	I was Assigned In checking the Quality of Hard disk and other parts of Computer
Courses relevant to work carried out during Internship	Computer hardware and troubleshooting

Brief report about Internship:

I got an opportunity to do internship In the domain of computer hardware and troubleshooting. I participated in troubleshooting and software Quality checking.

Benefit and Knowledge Gained:

Acquired knowledge about various manufacturing process and product of laptop and PC's

Date: 30.1.2019.

Signature of the Student

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHALKUPPAM,

Date: 05.02.2019

CERTIFICATE OF INTERNSHIP

This is to certify that **Mr. SAKTHIVEL A** pursuing at **MANAKULA VINAYAGAR INSTITUE OF TECHNOLOGY** has successfully completed his internship in our organization from 22.01.2019 to 27.01.2019.
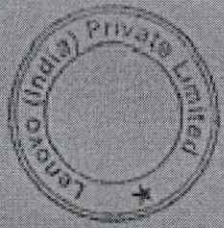
His conduct during the internship period was found to be GOOD.

We wish his all success in his future endeavors.

For Lenovo India (Pvt) Ltd

Authorized Signatory

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALI... AM,
PUDUCHERRY - 605 107.

IT-T81 PROFESSIONAL ETHICS

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T81	Professional Ethics	3	0	0

Course Objectives:

1. To introduce the basics of Moral Ethics, Engineering Ethics.
2. To introduce the professional Ethics and Case Studies

Course Outcomes:

On successful completion of this course students will be able to:

1. Understand the Values of Moral, Engineering and Professional Ethics

The course should cover the following topics by way of Seminars, Expert Lectures and Assignments:

1. Engineering Ethics – Moral issues, Ethical theories and their uses

2. Engineering as Experimentation – Code of Ethics

3. Engineer's responsibility for safety

4. Responsibilities and rights

5. Global issues of engineering ethics

Content beyond Syllabus:

Case studies on Moral, Engineering and Professional Ethics

Text Books:

1. Charles D.Fleddermann, Engineering Ethics, Prentice Hall, New Mexico, 1999.

Reference Books:

1. Mike W. Martin, Roland Schinzinger, Ethics in Engineering, Tata McGraw Hill, New Delhi, 2005.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

Kalitheerthalkuppam, Madagadipet, Puducherry - 605 107

DEPARTMENT OF INFORMATION TECHNOLOGY

IT-T81 PROFESSIONAL ETHICS

Professional Ethics seminar on "CAUSES OF AN ACCIDENT"

Submitted by

JAYASREE .R [15TH1212]

KALAIYARASI.S [15TH1213]

KARTHIKA.R [15TH1214]

KOWSALYA .R [15TH1215]

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY.

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY
KALITHEERTHAL KUPPAM, PUDUCHERRY-605107
DEPARTMENT OF INFORMATION TECHNOLOGY
PROFESSIONAL ETHICS: CAUSES OF AN ACCIDENT

SAFETY

According to William W Lowrance, Safety was defined as "A thing is safe if its risks are judged to be acceptable."

ENGINEERS AND SAFETY

- Design follow legal standards
- Alternate designs that are potentially safer should be explored.
- All possible misuse by the consumer should be identified, and that is to be avoided
- Designed product should be tested using prototypes

RISK

- Risk Definition in dictionary " possibility of suffering harm or loss"
- Risk in technology could include dangers of bodily harm, economic loss, environmental degradation. Engineers risk affects mostly the physical and economical well being.

DESIGNING FOR SAFETY

- Define the problem (issues of safety in the product design)
- Generate alternate design solutions
- Analyze each design solutions
- Test the solutions
- Select the best ones
- Implement the chosen solution

ESTIMATION OF RISK

- No estimation of Risk
- Over-Estimation of Risk
- Under-Estimate Risk

FACTORS INFLUENCING RISK

- ✓ Voluntary vs Involuntary Risk
- ✓ Short term vs Long term consequences
- ✓ Delayed vs Immediate Risk
- ✓ Expected Probability
- ✓ Reversible Effects
- ✓ Threshold Levels of Risks

SAFETY AND RISK

The terms of safety and risk are inter-related. It is amazing to know that what may be safe enough for one person may not be for someone else. It is because of either different perceptions about what is safe or different predispositions to harm.

3

ENGINEERS AND SAFETY

- ➢ Design follow legal standards
- ➢ Alternate designs that are potentially safer should be explored.
- ➢ All possible misuse by the consumer should be identified, and that is to be avoided
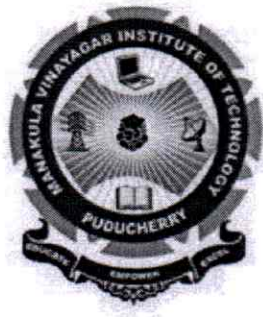- ➢ Designed product should be tested using prototypes

7

IT-E83 DATA MINING

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-E83	Data Mining	3	1	0

Course Objectives: This course has been designed
1. To introduce the concept of data mining with in detail coverage of basic tasks, metrics, issues, and implication. Core topics like classification, clustering and association rules are exhaustively dealt with.
2. To introduce the concept of data warehousing with special emphasis on architecture and design.

Course Outcomes: On successful completion of this course students will be able to deals with evolving multidimensional intelligent model from a typical system, representation of multi dimensional data for a data warehouse, discovering the knowledge imbibed in the high dimensional system, finding the hidden interesting patterns in data, and gives the idea to evaluate various mining techniques on complex data objects.

Unit I

Introduction: Definition of data mining - data mining vs query tools – machine learning – taxonomy of data mining tasks – steps in data mining process – overview of data mining techniques.

Unit II

Data Warehousing: Definition – Multidimensional Data Model – Data Cube – Dimension Modelling– OLAP Operations – Warehouse Schema – Data Warehouse Architecture – Data Mart – Meta Data – Types of Meta Data – Data Warehouse Backend Process – Development Life Cycle.

Unit III

Data Pre-Processing And Characterization: Data Cleaning – Data Integration and Transformation – Data Reduction – Discretization and Concept Hierarchy Generation – Primitives – Data Mining Query Language – Generalization – Summarization – Analytical Characterization and Comparison - Association Rule – Mining Multi Dimensional data from Transactional Database and Relational Database.

Unit IV

Classification: Classification – Decision Tree Induction – Bayesian Classification – Prediction – Back Propagation – Cluster Analysis – Hierarchical Method – Density Based Method – Grid Based Method – Outlier Analysis.

Unit V

Cluster analysis: Types of data – Clustering Methods – Partitioning methods – Model based clustering methods – outlier analysis. Advanced topics: Web Mining – Web Content Mining – Structure and Usage Mining – Spatial Mining – Time Series and Sequence Mining – Graph Mining

Applications: Case studies in Data Mining applications

(Total : 60 Periods)

Content beyond Syllabus:
1. Handling large data with Grid Computing
2. Creating cloud to handle terabytes of data
3. Hands on demo with recent tools

Text Books:
1. PaulrajPonnaiah, Data Warehousing Fundamentals, Wiley Publishers, Reprint 2011.
2. Jiawei Han, MichelineKamber, Data Mining: Concepts and Techniques, Morgan Kaufman Publishers, 2009.

Reference Books:
1. UsamaM.Fayyad, Gregory Piatetsky Shapiro, Padhrai Smyth, RamasamyUthurusamy, Advances in Knowledge Discover and Data Mining, The M.I.T. Press, 2007.
2. Ralph Kimball, Margy Ross, The Data Warehouse Toolkit, John Wiley and Sons Inc., 2002.
3. Alex Berson, Stephen Smith, Kurt Thearling, Building Data Mining Applications for CRM, Tata McGraw Hill, 2000.
4. Margaret Dunham, Data Mining: Introductory and Advanced Topics, Prentice Hall, 2002.
6. Daniel T. Larose John Wiley & Sons, Hoboken, Discovering Knowledge in Data: An Introduction to Data Mining, New Jersey, 2004.
7. Hand, Mannila and Smyth, Principles of Data Mining, Prentice Hall of India, New Delhi, 2004.
8. Dunham , Data Mining- Introductory and Advanced Topics, Pearson Education, New Delhi, 2003.
9. Arun K Pujari, Data Mining Techniques, Universities press India Pvt Ltd, New Delhi, 2002.
10. Trevor Hastie, Robert Tibshirani, Jerome Friedma, The Elements of Statistical Learning: Data Mining, Inference and Prediction, Prentice Hall, New Delhi, 2002.

Websites:
1. http://dssresources.com/papers/features/langseth/langseth02082004.html
2. http://www-01.ibm.com/software/data/infosphere/data-warehousing/

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY

DEPARTMENT OF INFORMATION TECHNOLOGY

IT – E83 DATAMINING

Mini Project on APRIORI ALGORITHM

(ASSOCIATION RULE & K-MEANS CLUSTERING)

Submitted by

PRITHEBHA .V	SAKTHIVEL.A
PRIYADHARSHINI.G	SAKTHIVEL.T
PUPPALA SAI RAM	SASIDHARAN .M
RAJESWARI . S	SELVAM.G
SAKTHI KUMARAN.A	SHANTANU BHOWMICK.H

IV YEAR – IT

(2018-2019)

APRIORI ALGORITHM – ASSOCIATION RULE

AIM: To illustrate some of the basic elements of association rule mining using WEKA and The sample dataset used for this example is ==apriori.arff.==

INTRODUCTION

Developed by Agrawal and Srikant 1994

Innovative way to find association rules on large scale, allowing implication outcomes that consist of more than one item

Based on minimum support threshold

Three versions:

1. Apriori (basic version) faster in first iterations

2. AprioriTid faster in later iteratons

3. AprioriHybrid can change from Apriori to AprioriTid after first iterations

LIMITATIONS OF APRIORI ALGORITHM

Needs several iterations of the data

Uses a minimum support threshold

Difficulties to find rarely occuring events

Alternative methods (other than appriori) can address this by using a minimum support thresold

Some competing alternative approaches focus on partition and sampling.

PHASES OF KNOWLEDGE DISCOVERY

Data selection

Data cleansing

Data enrichment (integration with additional resources)

Data transformation or encoding

Data mining

Reporting and display (visualization) of the discovered knowledge

APPLICATION OF DATA MINING

• Data mining can typically be used with transactional databases (for ex. in shopping cart analysis)

• Aim can be to build association rules about the shopping events

• Based on **item sets,** such as {milk, cocoa powder} 2-itemset , {milk, corn flakes, bread} 3-itemset

==ASSOCIATION RULES==

• Items that occur often together can be associated to each other

• These together occuring items form a **frequent itemset**

K- MEANS CLUSTERING

AIM:

This experiment illustrates the use of simple k-mean clustering with Weka explorer. The sample data set used for this example is based on the vote.arffdata set. This document assumes that appropriate pre-processing has been performed.

WHAT IS CLUSTERING?

- Organizing data into classes such that there is

    high intra-class similarity

    low inter-class similarity

- Finding the class labels and the number of classes directly from the data (in contrast to classification).

- More informally, finding natural groupings among objects.

K-MEANS CLUSTERING

K-Means is simplest unsupervised learning algorithms that solve the well-known clustering problem. The procedure follows a simple and easy way to classify a given data set through a certain number of clusters (assume k clusters) fixed apriori. The main idea is to define k centers, one for each cluster. These centers should be placed in a cunning way because of different location causes different result. So, the better choice is to place them as much as possible far away from each other. The next step is to take each point belonging to a given data set and associate it to the nearest center. When no point is pending, the first step is completed and an early group age is done.

- ✓ The **k-means algorithm** is an algorithm to cluster n objects based on attributes into $k$partitions, where $k<n$.
- ✓ It is similar to the expectation-maximization algorithm for mixtures of Gaussians in that they both attempt to find the centers of natural clusters in the data.
- ✓ It assumes that the object attributes form a vector space.
- ✓ Simply speaking k-means clustering is an algorithm to classify or to group the objects based on attributes/features into K number of group.
- ✓ K is positive integer number.
- ✓ The grouping is done by minimizing the sum of squares of distances between data and the corresponding cluster centroid.
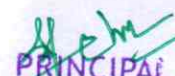
IT-E51 COMPUTER HARDWARE AND TROUBLESHOOTING

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-E51	Computer Hardware and Troubleshooting	3	1	0

Course Objectives:

1. It provides insight to the various parts and types of computer.
2. It familiarizes the hardware types and the evolution in each of them.
3. It also gives the basics of troubleshooting.

Course Outcomes:

On successful completion of this course students will be able to:

- The students will have theoretical exposure as well as hands on exposure to know about the hardware aspects of computer.

Unit I

PC Hardware Overview: Introduction–BasicPartsofPC–Functionalblockdiagram–systemboard–Microprocessor– Interrupts– DMA–SMPS–BIOS–POSTsequence-Systemconfigurationion–Memory–Massstorage–I/Ointerfacestandards.

Unit II

Bus Standards and Networking: ISA–PCI–SCSI–IDE–USB–comparativestudyandcharacteristics–NetworkInterface Cards– Cables and connectors-MODEM–AT command set.

Unit III

Peripheral Devices & Display Adapters: Functional descriptions of keyboard – mouse – printers – joystick -- scanners – CGA – SVGA.

Unit IV

Mass Storage Devices: Floppy disk and drive – Hard disk and drive – MFM and RLL recording standards – CD technology – DVD technology – pen drives – tape drives.

Unit V

Troubleshooting tools: In-CircuitEmulators–LogicState/TimingAnalyzers–DigitalMultimeters–CROs–Signature Analyzers– Troubleshooting problems of system boards ,add oncards and peripherals.

(Total: 60 Periods)

Content beyond Syllabus:

1. Advanced data structures and their implementation
2. Implementation of the data structures in different language platforms

Text Books:

1. Hans Peter Messmer, Indispensable PC Hardware Book , Pearson Education, 4th edition,2003.
2. Govindarajulu, IBM PC and Clones , Tata McGraw Hill, 4th edition, 2002.

Reference Books:

1. Barry Brey, The Intel Microprocessors 8086/88, 80186/188, 80286, 80386,80486, PENTIUM and PENTIUM PRO architecture, Programming and Interfacing, 6th edition, PHI, 2002.
2. Ed Tittel, David Johnson, Networking Essentials: Study Guide, Comdex Computer Publishing,1998.
3. Scott Muller, Upgrading and Repairing PCs, 15th edition, 2002.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

IT-T45 JAVA PROGRAMMING

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T45	Java Programming	3	1	---

Pre-requisite: Object Oriented Programming

Course Objectives:
1. To understand the basics of Java
2. To learn the features of Java
3. To learn the advanced concepts in Java.

Course Outcomes: Students will understand the benefits and capabilities of Java.

Unit: I

Creation of Java, importance of Java to internet, byte code, Java buzzwords, data types, declaring variables, dynamic initialization, scope and life time of variables, arrays, operators, control statements, type conversion and casting, compiling and running of simple Java program. Concepts of classes and objects, class fundamentals Declaring objects, assigning object reference variables, introducing methods, constructors, usage of static with data and methods, usage of final with data, access control, this key word, garbage collection, overloading methods and constructors, parameter passing - call by value, recursion, nested classes and inner classes, exploring the String class.

Unit: II

Basic concepts, member access rules, usage of super key word, forms of inheritance, method overriding, abstract classes, dynamic method dispatch, using final with inheritance, the Object class. Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages, differences between classes and interfaces, defining an interface, implementing interface, applying interfaces, variables in interface and extending interfaces.

Unit: III

Concepts of Exception handling, types of exceptions, usage of try, catch, throw, throws and finally keywords, Built-in exceptions, creating own exception sub classes, Concepts of Multithreading, differences between process and thread, thread life cycle, creating multiple threads using Thread class, Runnable interface, Synchronization, thread priorities, inter thread communication, daemon threads, deadlocks, thread groups.

Unit: IV

Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes.
AWT : Concepts of components, container, panel, window, frame, canvas, Font class, Color class and Graphics.
Applets - Concepts of Applets, differences between applets and applications, life cycle of an applet, types of applets, creating applets, passing parameters to applets.

Unit: V

RMI- JDBC- Developing Java Program for RMI and JDBC.

(Total : 60 Periods)

Content beyond Syllabus:
Java's support in graphics, networking, web technology etc.

Text Books:
1. The Complete Reference Java J2SE 5th Edition, Herbert Schildt, TMH Publishing Company Ltd, NewDelhi.
2. Big Java 2nd Edition, Cay Horstmann, John Wiley and Sons.

Reference Books:
1. Java How to Program, Sixth Edition, H.M.Dietel and P.J.Dietel, Pearson Education/PHI
2. Core Java 2, Vol 1, Fundamentals, Cay.S.Horstmann and Gary Cornell, Seventh Edition, Pearson Education.
3. Core Java 2, Vol 2, Advanced Features, Cay.S.Horstmann and Gary Cornell, Seventh Edition, Pearson Education.

Websites:
1. http://www.ibm.com/developerworks/java/
2. http://docs.oracle.com/javase/tutorial/rmi/.
3. IBM's tutorials on Swings, AWT controls and JDBC.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHAL KUPPAM,
PUDUCHERRY - 605 107.

IT-E66 OBJECT ORIENTED ANALYSIS AND DESIGN

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-E66	Object Oriented Analysis and Design	3	1	-

Pre-requisite:

Knowledge in the features of Object Oriented Programming Languages

Course Objectives:

To familiarize the students to carry out object oriented analysis and design for developing object oriented software projects

Course Outcomes:

Students acquire the skills to apply Industry recommended Unified Modeling Language Practices for OOAD and document them effectively

Syllabus:

Unit I

Object Oriented Methodologies: Software System Life Cycle – Traditional cycle models – Object Oriented approach – Rambaugh et al Object Modeling Technique – Booch Methodology – Jacobsonet al methodology –Rational Unified Process (RUP) – Unified Modeling Language (UML) – UML Models.

Unit II

UML Diagrams: Use case diagram – UML class diagram – interaction diagram – state diagram – activity diagram – Requirements for ATM banking system – case study.

Unit III

Object Oriented Analysis: Use case driven Object analysis – approaches for identifying classes – identifying objects, relationships attributes, methods for ATM banking system –Object oriented design process – design axioms.

Unit IV

Object Oriented Design: Designing Classes, methods – access layer object storage and object interoperability –access layer for the ATM banking system View layer – designing interface objects – prototyping User interface – view layer for the ATM banking system.

Unit V

Design Patterns: Design Patterns – Describing design patterns - catalog of design patterns – organizing the catalog – How design patterns solve design problems – How to select a design pattern – How to use a design pattern – creational pattern : Abstract factory – structural pattern : Adapter – behavioral pattern : chain of responsibility.

(Total : 45 Periods)

Content beyond Syllabus:

1. Students are encouraged to prepare the document for Mini project and Final year project applying OOAD for the system they implement.
2. Using CASE tools for performing OOAD.

Text Books:

1. Ali Bahrami, Object Oriented systems development, Tata Mcgraw Hill Education Private Ltd, 1999.
2. Carol Britton and Jill Doake, A student Gide to Object Oriented Development, Elsevier, Butterworth – Heinemann, Eighth Edition, 2007.
3. Erich Gamma, Richard Helm, Ralph Johnson and John Vlissides, Design Patterns – elements of reusable object oriented software, Addition Wesley, 1994.

Reference Books:

1. Craig Larman,"Applying UML and Patterns: An Introduction to object-oriented Analysis and Design and iterative development", Third Edition, Pearson Education, 2005
2. Mike O'Docherty "Object-Oriented Analysis & design – understanding system development with UML 2.0", John Wiley, 2005.
3. Grady Booch, James Rumbagh, IvarJacobson, "The UML user Guide", Pearson Education, 2005
4. Timothy C. Lethbridge, Robert Laganiere" Object-Oriented Software Engineering – A practical software development using UML and Java", Tata McGraw-Hill, New Delhi, March 2003.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KURPAM.

IT-E68 USER INTERFACE DESIGN

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-E68	User Interface Design	3	1	0

Course Objectives:
1) To study the basic characteristics of graphics and web interfaces, Human Computer Interaction, multimedia interfaces for the web and the principles of evaluating interfaces.

Course Outcomes:

On successful completion of this course students will be able to:
1) The students learn concepts of user interface and used for web applications, human interfaces and for multimedia interfaces.

UNIT I

Introduction: A Taxonomy Of Software Design–Goal-Directed Design– TheThreeModels–VisualInterfaceDesign–Forms–IdiomsAndAffordances–HistoryofRectanglesontheScreen –Windows- Files– Storage and Retrieval Systems – Choosing Platforms.

UNIT II

Interface Design: BehaviorofPresentation–OrchestrationandFlow–TechniquesforInducingandMaintaining Flow–CharacteristicsofGoodUserInterface–PosturesandState–Idiocy–TheSecretWeaponofInterfaceDesign.

UNIT III

Mouse Operations: TheInteraction–MouseOperations–Selection–DirectManipulation–Manipulatinggizmos– Repositioning–Resizing and reshaping– Arrowing– Direct-Manipulation visual feedback – Drag-and-Drop.

UNIT IV

Menu Selection: The Cast– The Meaning of Menus–Menu–Dialog Boxes–DialogBox Etiquette–Toolbars–The Gizmos–Imperative and Selection Gizmos–Entry and Display Gizmos–New Gizmos.

UNIT V

Managing Exceptions & Personalization: EliminatingtheErrorMessages–ManagingExceptions–Undo–Troubles–Redo–SpecialUndo Functions– Installation–Configuration–Personalization.

(Total: 60 Periods)

Text Books:
1. Alan Cooper, The Essentials of User Interface Design,Wiley Dream techIndia (P) Ltd., 2002.
2. Ben Schneiderman, Designing theUserInterface,AddisonWesley,2000.

Reference Books:

1. AlanDix, JanetEFinlay,GregoryD.AbowdandRussellBeale, Human-ComputerInteraction,PrenticeHall,3[rd]Edition,2003.
2. JacobNielson, Usability Engineering, AcademicPress,1993.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHAL KUPPAM,
PUDUCHERRY - 605 107.

D'WORLD:BLOOD DONATION APP USING ANDROID

PROJECT REPORT

PHASE-I

Submitted by

K.LOGA VIGNESH   REGISTER NO:15TH1217
R.PRASANNA   REGISTER NO:15TH1224
T.SAKTHIVEL   REGISTER NO:15TH1232

Under the Guidance by

Mrs.L.SANKARI,M.Tech.,

Assistant Professor

in partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

in

DEPARTMENT OF INFORMATION TECHNOLOGY

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY- 605 107

PONDICHERRY UNIVERSITY

INDIA

x

Portability

This software will be designed to run on any Android operating system version 2.3 or higher. The software will be forward compatible for all currently released Android operating system versions (up to 4.2).

3.2 SOFTWARE REQUIREMENTS

- **IDE** : Android Studio
- **Language** : Java, XML
- **Database** : Firebase

3.3 ABOUT THE SOFTWARE

Android Tool 1: Eclipse w/ADT

Although Eclipse is not the only Java development environment that can be used to develop Android applications, it is by far the most popular. This is partially due to its cost free but mostly due the strong integration of the Android tools with Eclipse.
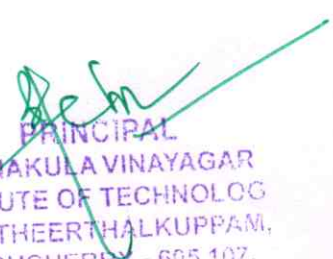
Android Tool 2: The SDK and AVD Manager

This tool serves a number of important functions. It manages the different versions of the Android SDKs (build targets) that you can develop for as well as third-party add-ons, tools, devices drivers, and documentation. Its second function is to manage the Android Virtual Device configurations (AVDs) you use to configure emulator instances.

Android Tool 3: Android Debug Bridge

The Android Debug Bridge (ADB) connects other tools with the emulator and devices. Besides being critical for the other tools (most especially the Eclipse ADT plug-in) to function, you can use it yourself from the command line to upload and download files, install and uninstall packages, and access many other features via the shell on the device or emulator.

In the Figure 6.2, the data flow diagram of the proposed system which clearly explains about the each module's performance metrics. All the data contents which will stored and connects to the Cloud database where the list outs and searching mechanism in terms of needy terms of conditions. It lists the each data contents and explains about the processing flow of each modules. If the particular donor refuses to donate on a certain time. It searches out for the another donor in the listed view of the output result screen.

6.3 USE CASE DIAGRAM

Figure 6.3 : Use Case Diagram for Seeker

In Figure 6.3, Use diagram of the Seeker views about the process of seeker's modules in the application. In this module, he can enter the blood group and certain locality, when he fill the details and clicks for the searching process. It directly connects to firebase and lists out the various donor details in the particular location with filter of last data donation constraints, then the

31

7.1.6 Donor Search Module

> Donor search/result module, where the needy who have previously have registered can login with their unique password and usernames.
> The needy can enter their constrains of blood group and the locality specifications with help of a GPS.

7.1.7 Result Screen Module

> Donors can be listed out who are in the particular radius of that current location.
> The Needy can select the operations/services, what he/she willing to do, whether messaging services/call service/current GPS location info.
> The result screen gives the output for the search module and from that the recipient can select the nearest donor so that the blood recipient could be saved.
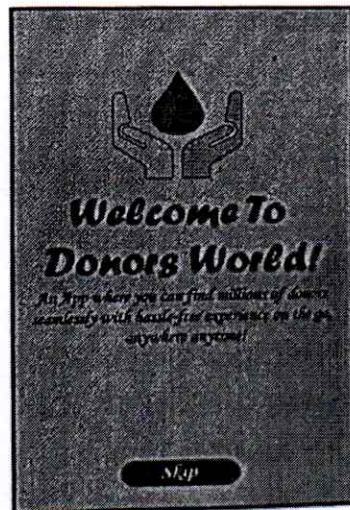
7.2 SNAPSHOTS

Figure 7.1 : Splash Screen 01

IT-T73 CRYPTOGRAPHY AND NETWORK SECURITY

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T73	Information Security	3	1	0

Course Objectives:

To learn about wired and wireless network security with various cryptographic techniques, which include private and public keys algorithms along with attacks types.

Course Outcomes:

On successful completion of this course students will be able to:
1. Use appropriate methods in security
2. Learn various methods of implementing security

UNIT – I CLASSICAL CRYPTOSYSTEM   9

Security trends – Security Attacks and services – Classical Encryption Techniques — Symmetric cipher model– Basic Number theory – Pseudorandom Number Generation - Stream Ciphers - RC4.

UNIT – II BLOCK CIPHER   9

Simple DES – DES – Modes of operation – Triple DES – AES – RSA – Attacks – Primality test – factoring.

UNIT – III MESSAGE AUTHENTICATION   9

Discrete Logarithms – Computing discrete logs – Diffie-Hellman key exchange – ElGamal Public key cryptosystems – Hash functions – Secure Hash - MD5 – Digital signatures – RSA – ElGamal Digital signature scheme.

UNIT – IV NETWORK SECURITY   9

Key Management and Distribution: X.509, PKI – Electronic Mail security – PGP – IP security – Web Security – SSL, TLS.

UNIT – V WIRELESS NETWORK SECURITY   9

Wireless Network Security- IEEE 802.11 Wireless LANs - Protocol Overview and Security - Wireless Application Protocol (WAP) - Protocol Overview – Wireless Transport Layer Security (WTLS), WAP end-to-end Security

                                                                                          TOTAL: 45

Content beyond Syllabus:
1. Advanced techniques of security and their implementation
2. Implementation of the latest security for latest security threats

TEXT BOOKS:

1. William Stallings, "Crpyptography and Network security Principles and Practices", Pearson/PHI, 5th ed, 2006. [Unit I, Unit II, Unit IV, Unit V]
2. Wade Trappe, Lawrence C Washington, "Introduction to Cryptography with coding theory", 2nd ed, Pearson, 2007. [Unit III]

REFERENCES:

1. W. Mao, "Modern Cryptography – Theory and Practice", Pearson Education, Second Edition, 2007.
2. Charles P. Pfleeger, Shari Lawrence Pfleeger, "Security in computing", Third Edition – Prentice Hall of India, 2006.
3. Douglas R. Stinson. "Cryptography, theory and practice" , Second edition, CRS Press.

Websites:
1. http://thor.info.uaic.ro/~fltiplea/IS/ICSCourseNotes.html
2. https://www.securityforum.org/
3. eeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=4149673

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHAL KUPPAM,
PUDUCHERRY - 605 107.

IT-T43 DESIGN AND ANALYSIS OF ALGORITHMS

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T43	Design and Analysis of Algorithms	3	1	0

Course Objectives:

1. To introduce the fundamental strategies of different algorithm design techniques.
2. Solving various problems using techniques introduced in this course.
3. Analyze the algorithm's / program's efficiency in terms of time and space complexity.

Course Outcomes:

On successful completion of this course students will be able to:
1. Analyze / compare the given algorithm.
2. Compute the time complexity/space complexity of any recursive/non recursive algorithms.
3. Solve any given problem using the fundamental design techniques.

Unit: I (12 Periods)

Introduction: what is an Algorithm – contradiction- mathematical induction -Efficiency of algorithms – average and worst-case – the order of - asymptotic notation.

Analysis Of Algorithms: Analyzing control structures – solving recurrences – homogeneous recurrences – inhomogeneous recurrences.

Unit: II (11 Periods)

Divide And Conquer Method: General method - Binary search – finding maximum and minimum - merge sort – quick sort – strassen's matrix multiplication.

Greedy Method: General method - Knapsack problem – job sequencing with deadlines - Prim's algorithm – Kruskal's algorithm – optimal storage on tapes – optimal merge patterns - Dijkstra's algorithm.

Unit: III (10 Periods)

Dynamic Programming: General method –Principle of optimality – multi stage graph - all pairs shortest paths - Warshall's and Floyd's algorithms – optimal binary search tree – 0 / 1 knapsack problem – traveling salesman problem

Unit: IV (9 Periods)

Tree traversals: Depth first search – articulation points – breadth first search

Backtracking: General method - n queen's problem – sum of subsets – graph coloring – Hamiltonian cycle – knapsack problem

Unit: V (10 Periods)

Branch And Bound: Least Cost search – 15 puzzle – control abstractions for LC search – bounding – FIFO Branch and bound – LC branch and Bound - Knapsack problem: LC branch and bound – FIFO branch and bound solutions – Traveling salesman problem – assignment problem

(Total : 52 Periods)

Content beyond Syllabus:
1. Algebraic problems
2. NP Hard and NP complete problems
3. Approximation Algorithms

Text Books:
1. Gilles Brassard and Paul Brately, Fundamentals of Algorithmics, Prentice Hall of India, 1997.
2. AnanyLevitin, Introduction to Design and Analysis of Algorithms, Pearson Education Inc., 2005.
3. Ellis Horowitz, SartajSahni and S. Rajasekaran, Fundamentals of Computer Algorithms , Galgotia Publications, 2nd Edition, New Delhi, 2003.

Reference Books:
1. Aho.A.V, Hopcroft.J.E and Ullman.J.D, Design and analysis of Algorithms, Pearson education, 3rd edition, 2000.
2. Thomas.H.Cormen, Charles E. Leiserson, Ronald L.Rivest, Introduction to Algorithms, Prentice Hall of India Pvt. Ltd, 1998.

Websites:

PRINCIPAL
MANAKULA VINAYAGAR

DATA SECURITY IN CLOUD COMPUTING USING AES UNDER HEROKU CLOUD

PROJECT REPORT

(PHASE – II)

Submitted by

R.JAYARAJ	REG.NO:15TH1211
M.NANDHAKUMAR	REG.NO:15TH1222
A.SAKTHI KUMARAN	REG.NO:15TH1230

Under the Guidance of

Dr.P.SIVAKUMAR, M.E., Ph.D
Professor and Head

in partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

in

DEPARTMENT OF INFORMATION TECHNOLOGY

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY-605 107.

PONDICHERRY UNIVERSITY

INDIA

APRIL - 2019

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

but also simultaneously achieves fast data error localization, i.e., the identification of misbehaving server. Considering the cloud data are dynamic in nature, the proposed design further supports secure and efficient dynamic operations on outsourced data, including block modification, deletion, and append. Analysis shows the proposed scheme is highly efficient and resilient against Byzantine failure, malicious data modification attack, and even server colluding attacks [7].

2.1.6 Enabling Public Audit ability And Data Dynamics For Storage Security In Cloud Computing

Cloud Computing has been envisioned as the next-generation architecture of IT Enterprise. It moves the application software and databases to the centralized large data centers, where the management of the data and services may not be fully trustworthy. This unique paradigm brings about many new security challenges, which have not been well understood. This work studies the problem of ensuring the integrity of data storage in Cloud Computing. In particular, we consider the task of allowing a third party auditor (TPA), on behalf of the cloud client, to verify the integrity of the dynamic data stored in the cloud. The introduction of TPA eliminates the involvement of the client through the auditing of whether his data stored in the cloud are indeed intact, which can be important in achieving economies of scale for Cloud Computing. The support for data dynamics via the most general forms of data operation, such as block modification, insertion, and deletion, is also a significant step toward practicality, since services in Cloud Computing are not limited to archive or backup data only. While prior works on ensuring remote data integrity often lacks the support of either public auditability or dynamic data operations, this paper achieves both. We first identify the difficulties and potential security problems of direct extensions with fully dynamic data updates from prior works and then show how to construct an elegant verification scheme for the seamless integration of these two salient features in our protocol design. In particular, to achieve efficient data dynamics, we improve the existing proof of storage models by manipulating the classic Merkle Hash Tree construction for block tag authentication. To support efficient handling of multiple auditing tasks, we further explore the technique of bilinear aggregate signature to extend our main result into a multiuser setting, where TPA can perform multiple auditing tasks simultaneously. Extensive security and performance analysis show that the proposed schemes are highly efficient and provably secure [5].

One design goal of Java is portability, which means that programs written for the Java platform must run similarly on any combination of hardware and operating system with adequate runtime support. This is achieved by compiling the Java language code to an intermediate representation called Java byte code, instead of directly to architecture-specific machine code.

Java is –

- **Object Oriented** – In Java, everything is an Object. Java can be easily extended since it is based on the Object model.

- **Platform Independent** – Unlike many other programming languages including C and C++, when Java is compiled, it is not compiled into platform specific machine, rather into platform independent byte code. This byte code is distributed over the web and interpreted by the Virtual Machine (JVM) on whichever platform it is being run on.

- **Simple** – Java is designed to be easy to learn. If you understand the basic concept of OOP Java, it would be easy to master.

- **Secure** – With Java's secure feature it enables to develop virus-free, tamper-free systems. Authentication techniques are based on public-key encryption.

- **Architecture-neutral** – Java compiler generates an architecture-neutral object file format, which makes the compiled code executable on many processors, with the presence of Java runtime system.

- **Portable** – Being architecture-neutral and having no implementation dependent aspects of the specification makes Java portable. Compiler in Java is written in ANSI C with a clean portability boundary, which is a POSIX subset.

- **Robust** – Java makes an effort to eliminate error prone situations by emphasizing mainly on compile time error checking and runtime checking.

- **Multithreaded** – With Java's multithreaded feature it is possible to write programs that can perform many tasks simultaneously. This design feature allows the developers to construct interactive applications that can run smoothly.

- **Interpreted** – Java byte code is translated on the fly to native machine instructions and is not stored anywhere. The development process is more rapid and analytical since the linking is an incremental and light-weight process.

20

- Write Bug Free Code
- Support for Multiple Languages
- Cross Platform Support
- Rich Set of Community Provided Plugins

3.3.3 Apache Tomcat

Apache Tomcat, often referred to as Tomcat, is an open-source Java Servlet Container developed by the Apache Software Foundation (ASF). Tomcat implements several Java EE specifications including Java Servlet, Java Server Pages (JSP), Java EL and Web Socket, and provides a "pure Java" HTTP web server environment in which Java code can run.

Tomcat is developed and maintained by an open community of developers under the auspices of the Apache Software Foundation, released under the Apache License 2.0 license, and is open-source software.

• COMPONENTS

Tomcat 4.x was released with Catalina (a servlet container), Coyote (an HTTP connector) and Jasper (a JSP engine).

Catalina: Catalina is Tomcat's servlet container. Catalina implements Sun Microsystems's specifications for servlet and Java Server Pages (JSP). In Tomcat, a Realm element represents a "database" of usernames, passwords, and roles assigned to those users. Different implementations of Realm allow Catalina to be integrated into environments where such authentication information is already being created and maintained, and then use that information to implement Container Managed Security as described in the Servlet Specification.

Coyote: Coyote is a Connector component for Tomcat that supports the HTTP 1.1 protocol as a web server. This allows Catalina, nominally a Java Servlet or JSP container, to also act as a plain web server that serves local files as HTTP documents.

22

IT-E51 COMPUTER HARDWARE AND TROUBLESHOOTING

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-E51	Computer Hardware and Troubleshooting	3	1	0

Course Objectives:

1. It provides insight to the various parts and types of computer.
2. It familiarizes the hardware types and the evolution in each of them.
3. It also gives the basics of troubleshooting.

Course Outcomes:

On successful completion of this course students will be able to:

- The students will have theoretical exposure as well as hands on exposure to know about the hardware aspects of computer.

Unit I

PC Hardware Overview: Introduction–BasicPartsofPC–Functionalblockdiagram–systemboard–Microprocessor– Interrupts– DMA–SMPS–BIOS–POSTsequence-Systemconfigurationion–Memory–Massstorage–I/Ointerfacestandards.

Unit II

Bus Standards and Networking: ISA–PCI–SCSI–IDE–USB–comparativestudyandcharacteristics–NetworkInterface Cards– Cables and connectors-MODEM–AT command set.

Unit III

Peripheral Devices & Display Adapters: Functional descriptions of keyboard – mouse – printers – joystick -- scanners – CGA – SVGA.

Unit IV

Mass Storage Devices: Floppy disk and drive – Hard disk and drive – MFM and RLL recording standards – CD technology – DVD technology – pen drives – tape drives.

Unit V

Troubleshooting tools: In-CircuitEmulators–LogicState/TimingAnalyzers–DigitalMultimeters–CROs–Signature Analyzers– Troubleshooting problems of system boards ,add oncards and peripherals.

(Total: 60 Periods)

Content beyond Syllabus:

1. Advanced data structures and their implementation
2. Implementation of the data structures in different language platforms

Text Books:

1. Hans Peter Messmer, Indispensable PC Hardware Book , Pearson Education, 4th edition,2003.
2. Govindarajulu, IBM PC and Clones , Tata McGraw Hill, 4th edition, 2002.

Reference Books:

1. Barry Brey, The Intel Microprocessors 8086/88, 80186/188, 80286, 80386,80486, PENTIUM and PENTIUM PRO architecture, Programming and Interfacing, 6th edition, PHI, 2002.
2. Ed Tittel, David Johnson, Networking Essentials: Study Guide, Comdex Computer Publishing,1998.
3. Scott Muller, Upgrading and Repairing PCs, 15th edition, 2002.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

IT-T45 JAVA PROGRAMMING

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T45	Java Programming	3	1	---

Pre-requisite: Object Oriented Programming

Course Objectives:
1. To understand the basics of Java
2. To learn the features of Java
3. To learn the advanced concepts in Java.

Course Outcomes: Students will understand the benefits and capabilities of Java.

Unit: I

Creation of Java, importance of Java to internet, byte code, Java buzzwords, data types, declaring variables, dynamic initialization, scope and life time of variables, arrays, operators, control statements, type conversion and casting, compiling and running of simple Java program. Concepts of classes and objects, class fundamentals Declaring objects, assigning object reference variables, introducing methods, constructors, usage of static with data and methods, usage of final with data, access control, this key word, garbage collection, overloading methods and constructors, parameter passing - call by value, recursion, nested classes and inner classes, exploring the String class.

Unit: II

Basic concepts, member access rules, usage of super key word, forms of inheritance, method overriding, abstract classes, dynamic method dispatch, using final with inheritance, the Object class. Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages, differences between classes and interfaces, defining an interface, implementing interface, applying interfaces, variables in interface and extending interfaces.

Unit: III

Concepts of Exception handling, types of exceptions, usage of try, catch, throw, throws and finally keywords, Built-in exceptions, creating own exception sub classes, Concepts of Multithreading, differences between process and thread, thread life cycle, creating multiple threads using Thread class, Runnable interface, Synchronization, thread priorities, inter thread communication, daemon threads, deadlocks, thread groups.

Unit: IV

Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes.
AWT : Concepts of components, container, panel, window, frame, canvas, Font class, Color class and Graphics.
Applets - Concepts of Applets, differences between applets and applications, life cycle of an applet, types of applets, creating applets, passing parameters to applets.

Unit: V

RMI- JDBC- Developing Java Program for RMI and JDBC.

(Total : 60 Periods)

Content beyond Syllabus:
 Java's support in graphics, networking, web technology etc.

Text Books:
1. The Complete Reference Java J2SE 5th Edition, Herbert Schildt, TMH Publishing Company Ltd, NewDelhi.
2. Big Java 2nd Edition, Cay Horstmann, John Wiley and Sons.

Reference Books:
1. Java How to Program, Sixth Edition, H.M.Dietel and P.J.Dietel, Pearson Education/PHI
2. Core Java 2, Vol 1, Fundamentals, Cay.S.Horstmann and Gary Cornell, Seventh Edition, Pearson Education.
3. Core Java 2, Vol 2, Advanced Features, Cay.S.Horstmann and Gary Cornell, Seventh Edition, Pearson Education.

Websites:
1. http://www.ibm.com/developerworks/java/
2. http://docs.oracle.com/javase/tutorial/rmi/.
3. IBM's tutorials on Swings, AWT controls and JDBC.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHAL KUPPAM,
PUDUCHERRY - 605 107.

IT-E66 OBJECT ORIENTED ANALYSIS AND DESIGN

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-E66	Object Oriented Analysis and Design	3	1	-

Pre-requisite:
Knowledge in the features of Object Oriented Programming Languages

Course Objectives:
To familiarize the students to carry out object oriented analysis and design for developing object oriented software projects

Course Outcomes:
Students acquire the skills to apply Industry recommended Unified Modeling Language Practices for OOAD and document them effectively

Syllabus:

Unit I
Object Oriented Methodologies: Software System Life Cycle – Traditional cycle models – Object Oriented approach – Rambaugh et al Object Modeling Technique – Booch Methodology – Jacobsonet al methodology –Rational Unified Process (RUP) – Unified Modeling Language (UML) – UML Models.

Unit II
UML Diagrams: Use case diagram – UML class diagram – interaction diagram – state diagram – activity diagram – Requirements for ATM banking system – case study.

Unit III
Object Oriented Analysis: Use case driven Object analysis – approaches for identifying classes – identifying objects, relationships attributes, methods for ATM banking system –Object oriented design process – design axioms.

Unit IV
Object Oriented Design: Designing Classes, methods – access layer object storage and object interoperability –access layer for the ATM banking system View layer – designing interface objects – prototyping User interface – view layer for the ATM banking system.

Unit V
Design Patterns: Design Patterns – Describing design patterns - catalog of design patterns – organizing the catalog – How design patterns solve design problems – How to select a design pattern – How to use a design pattern – creational pattern : Abstract factory – structural pattern : Adapter – behavioral pattern : chain of responsibility.

(Total : 45 Periods)

Content beyond Syllabus:
1. Students are encouraged to prepare the document for Mini project and Final year project applying OOAD for the system they implement.
2. Using CASE tools for performing OOAD.

Text Books:
1. Ali Bahrami, Object Oriented systems development, Tata Mcgraw Hill Education Private Ltd, 1999.
2. Carol Britton and Jill Doake, A student Gide to Object Oriented Development, Elsevier, Butterworth – Heinemann, Eighth Edition, 2007.
3. Erich Gamma, Richard Helm, Ralph Johnson and John Vlissides, Design Patterns – elements of reusable object oriented software, Addition Wesley, 1994.

Reference Books:
1. Craig Larman,"Applying UML and Patterns: An Introduction to object-oriented Analysis and Design and iterative development", Third Edition, Pearson Education, 2005
2. Mike O'Docherty "Object-Oriented Analysis & design – understanding system development with UML 2.0", John Wiley, 2005.
3. Grady Booch, James Rumbagh, IvarJacobson, "The UML user Guide", Pearson Education, 2005
4. Timothy C. Lethbridge, Robert Laganiere" Object-Oriented Software Engineering – A practical software development using UML and Java", Tata McGraw-Hill, New Delhi, March 2003.

IT-E68 USER INTERFACE DESIGN

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-E68	User Interface Design	3	1	0

Course Objectives:
1) To study the basic characteristics of graphics and web interfaces, Human Computer Interaction, multimedia interfaces for the web and the principles of evaluating interfaces.

Course Outcomes:

On successful completion of this course students will be able to:
1) The students learn concepts of user interface and used for web applications, human interfaces and for multimedia interfaces.

UNIT I

Introduction: A Taxonomy Of Software Design–Goal-Directed Design– TheThreeModels–VisualInterfaceDesign–Forms–IdiomsAndAffordances–HistoryofRectanglesontheScreen –Windows- Files– Storage and Retrieval Systems – Choosing Platforms.

UNIT II

Interface Design: BehaviorofPresentation–OrchestrationandFlow–TechniquesforInducingandMaintaining Flow–CharacteristicsofGoodUserInterface–PosturesandState–Idiocy–TheSecretWeaponofInterfaceDesign.

UNIT III

Mouse Operations: TheInteraction–MouseOperations–Selection–DirectManipulation–Manipulatinggizmos– Repositioning–Resizing and reshaping– Arrowing– Direct-Manipulation visual feedback – Drag-and-Drop.

UNIT IV

Menu Selection: The Cast– The Meaning of Menus–Menu–Dialog Boxes–DialogBox Etiquette–Toolbars–The Gizmos–Imperative and Selection Gizmos–Entry and Display Gizmos–New Gizmos.

UNIT V

Managing Exceptions & Personalization: EliminatingtheErrorMessages–ManagingExceptions–Undo–Troubles–Redo–SpecialUndo Functions– Installation–Configuration–Personalization.

(Total: 60 Periods)

Text Books:
1. Alan Cooper, The Essentials of User Interface Design, Wiley Dream techIndia (P) Ltd., 2002.
2. Ben Schneiderman, Designing theUserInterface, AddisonWesley, 2000.

Reference Books:

1. AlanDix, JanetEFinlay, GregoryD.AbowdandRussellBeale, Human-ComputerInteraction, PrenticeHall, 3rd Edition, 2003.
2. JacobNielson, Usability Engineering, AcademicPress, 1993.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHAI KUPPAM,
PUDUCHERRY - 605 007.

D'WORLD:BLOOD DONATION APP USING ANDROID

PROJECT REPORT

PHASE-II

Submitted by

K.LOGA VIGNESH   **REGISTER NO:15TH1217**
R.PRASANNA   **REGISTER NO:15TH1224**
T.SAKTHIVEL   **REGISTER NO:15TH1232**

Under the Guidance by

Mrs.L.SANKARI,M.Tech.,

Assistant Professor

in partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

in

DEPARTMENT OF INFORMATION TECHNOLOGY

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY- 605 107

PONDICHERRY UNIVERSITY

INDIA

APRIL-2019

x

Portability

This software will be designed to run on any Android operating system version 2.3 or higher. The software will be forward compatible for all currently released Android operating system versions (up to 4.2).

3.2 SOFTWARE REQUIREMENTS

- **IDE**   : Android Studio
- **Language**   : Java, XML
- **Database**   : Firebase

3.3 ABOUT THE SOFTWARE

Android Tool 1: Eclipse w/ADT

Although Eclipse is not the only Java development environment that can be used to develop Android applications, it is by far the most popular. This is partially due to its cost free but mostly due the strong integration of the Android tools with Eclipse.

Android Tool 2: The SDK and AVD Manager

This tool serves a number of important functions. It manages the different versions of the Android SDKs (build targets) that you can develop for as well as third-party add-ons, tools, devices drivers, and documentation. Its second function is to manage the Android Virtual Device configurations (AVDs) you use to configure emulator instances.

Android Tool 3: Android Debug Bridge

The Android Debug Bridge (ADB) connects other tools with the emulator and devices. Besides being critical for the other tools (most especially the Eclipse ADT plug-in) to function, you can use it yourself from the command line to upload and download files, install and uninstall packages, and access many other features via the shell on the device or emulator.

20

In the Figure 6.2,the data flow diagram of the proposed system which clearly explains about the each module's performance metrics. All the data contents which will stored and connects to the Cloud database where the list outs and searching mechanism in terms of needy terms of conditions. It lists the each data contents and explains about the processing flow of each modules. If the particular donor refuses to donate on a certain time. It searches out for the another donor in the listed view of the output result screen.
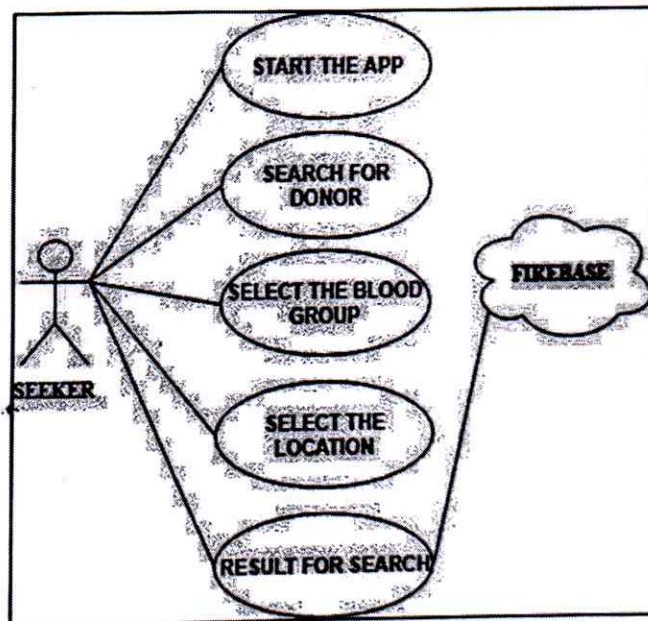
6.3 USE CASE DIAGRAM

Figure 6.3 : Use Case Diagram for Seeker

In Figure 6.3, Use diagram of the Seeker views about the process of seeker's modules in the application. In this module, he can enter the blood group and certain locality, when he fill the details and clicks for the searching process. It directly connects to firebase and lists out the various donor details in the particular location with filter of last data donation constraints, then the

31

7.1.6 Donor Search Module

> Donor search/result module, where the needy who have previously have registered can login with their unique password and usernames.

> The needy can enter their constrains of blood group and the locality specifications with help of a GPS.

7.1.7 Result Screen Module

> Donors can be listed out who are in the particular radius of that current location.

> The Needy can select the operations/services, what he/she willing to do, whether messaging services/call service/current GPS location info.

> The result screen gives the output for the search module and from that the recipient can select the nearest donor so that the blood recipient could be saved.
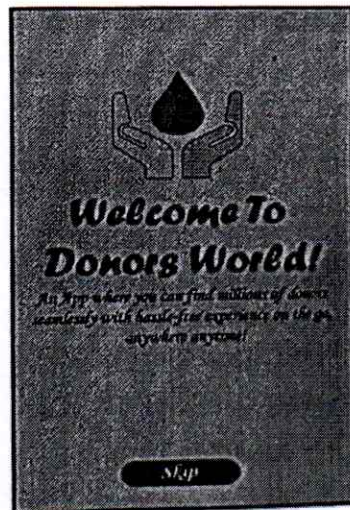
7.2 SNAPSHOTS

Figure 7.1 : Splash Screen 01

35

IT-E79 BIG DATABASES

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-E79	Big Databases	3	1	0

Pre-requisite: IT-T54 DBMS

Course Objectives: The students are to understand the concepts of Big Data

Course Outcomes:
1) The students can use the tools of Big Data
2) The students can be able to provide security to Big Data
3) The students can able to turn Big Data into big money

Unit I
Introduction to Big Data: Big Data – The Evolution of Big data - Basics - Big Data Analytics and its Importance – challenges- Issues- Future of Big Data.

Unit II
Basic Big Data Analytic Methods and Modeling: Introduction to "R", analyzing and exploring data with "R"-Modeling: Architecture - Hybrid Data Modeling – Data Computing Modeling.

Unit III
Technology and Tools: MapReduce/Hadoop – NoSQL: Cassandra,HBASE – Apache Mahout – Tools.

Unit IV
Big Data Security: Big Data Security, Compliance, Auditing and Protection: Pragmatic Steps to Securing Big Data, Classifying Data, Protecting Big Data Analytics, Big Data and Compliance, The Intellectual Property Challenge –Big Data in Cyber defense.

Unit V
Case Studies: MapReduce: Simplified Data Processing on Large Clusters- RDBMS to NoSQL: Reviewing Some Next-Generation Non-Relational Database's - Analytics: The real-world use of big data - New Analysis Practices for Big Data.

(Total: 45 Periods)

Content beyond Syllabus:
    To understand the real-time use of Big Data

Text Books:
1. Frank.J.Ohlhorst, "Big Data Analytics : Turning Big Data into Big Money", Wiley & Sas Business Series, 2013

Reference Books:
1. Paul C. Zikopoulos, Chris Eaton, Dirk deRoos, Thomas Deutsch, George Lapis, "Understanding Big Data Analytics for Enterprise Class Hadoop and Streaming Data", The McGraw Hill, 2012.
2. "Planning for Big Data", O'Reilly Radar Team, 2012.
3. "Big Data Now Current Perspectives", O'Reilly Media, 2011.

Websites:
1. http://highlyscalable.wordpress.com/2012/03/01/nosql-data-modeling-techniques/
2. http://gigaom.com/2012/12/18/a-programmers-guide-to-big-data-12-tools-to-know/

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY
KALITHEERTHAL KUPPAM,
PUDUCHERRY - 605 107

IT-T54 DATABASE MANAGEMENT SYSTEMS

Subject Code	Subject Name	Lectures (Periods)	Tutorials (Periods)	Practical (Periods)
IT-T54	Data Base Management Systems	3	1	0

Pre-requisite:
1. Knowledge about Memory Management
2. Programming Skills

Course Objectives:

To introduce the fundamental concepts of Database Management System to the students and to make them understand the usage of Database Management System in the current industry scenario.

Course Outcomes:

The students can be able to understand the concepts of Database Management System and to choose and design the database for the specific requirement of the project.

Unit I

Introduction: Introduction to Database Systems: Overview – Data Models – Database System Architecture – History of Database Systems. Entity-Relationship Model: Basic Concepts – Constraints – Keys – Design Issues – Entity Relationship Diagram – Weak Entity Sets – Extended E-R Features – Design of an E-R Database Schema.

Unit II

Relational Model: Structure of Relational Databases – Relational Algebra – Extended - Relational Algebra Operations – Modification of Database – Views – Tuple Relational - Calculus – Domain Relational Calculus. SQL: Background – Basic Structure – Set - Operations – Aggregate Functions – Null Values – Nested Sub-queries – Views – Complex Queries – Modification of the database –Joined Relations – Data-Definition Language.

Unit III

Integrity and Security: Domain Constraints – Referential Integrity – Assertions –Triggers – Security and Authorization – Authorization in SQL .Relational-Database Design: Normalization -First Normal Form, Second Normal Form, Third Normal Form, Boyce-Codd Normal Form.

Unit IV

Storage and File Structures: Overview of Physical Storage Media – Magnetic Disks – RAID – Tertiary Storage – Storage Access – File Organization. Indexing and Hashing: Basic Concepts –Static Hashing – Dynamic Hashing.

Unit V

Transactions: Transaction concept – Transaction State – Implementation of Atomicity and Durability – Concurrent Executions – Serializability – Testing for Serializability. Concurrency Control: Lock-Based Protocols – Timestamp-Based Protocols. Recovery System: Failure Classification – Storage Structure – Recovery and Atomicity – Log-Based Recovery – Shadow Paging.

(Total : 45 Periods)

Content beyond Syllabus: The recent developments of the Database Management System and the current standards of the IT organizations have to be introduced to the students.

Text Books:
1. Silberschatz, Korth, Sudarshan, *Database System Concepts*, 6th Edition – McGraw-Hill Higher Education, International Edition, 2011.

Reference Books:
1. Fred R McFadden, Jeffery A Hoffer, Mary B. Prescott, Modern Database Management, Seventh Edition, Addison Wesley, 2004.
2. Elmasri, Navathe, Fundamentals of database Systems, Sixth Edition, Addison Wesley, 2010.
3. JefreyD.Ulman, Jenifer Widom, A First Course in Database Systems, Pearson Education Asia, 2001.
4. Bipin C Desai, An Introduction to Database Systems, Galgotia Publications Pvt Limited, 2003.

Websites:
1. http://www.database.com/
2. www.infoworld.com/t/dbms

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHAL KUPPAM,
PUDUCHERRY

TO IMPROVE THE ACCURACY OF VARIOUS CLASSIFIERS USING STANDARDIZATION IN BIG DATA

PROJECT REPORT

[PHASE – II]

Submitted by

R.KOWSALYA	**REGISTER No: 15 TH1215**
V.PRITHEBHA	**REGISTER No: 15TH1226**
S.RAJESWARI	**REGISTER No: 15 TH1229**
G.SHRUTHEE	**REGISTER No: 15TH1240**

Under the Guidance of

Mr. K. VIJIYAKUMAR, M.Tech., [Ph.D.]

Assistant Professor

in partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

in

DEPARTMENT OF INFORMATION TECHNOLOGY

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY- 605 107

PONDICHERRY UNIVERSITY

INDIA

APRIL - 2019

i

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

CHAPTER 1

INTRODUCTION

1.1 OVERVIEW

Big Data is a collection of massive and complex data sets and data volume that include the huge quantities of data, data management capabilities, social media analytics and real-time data. Big Data analytics is the process of examining large amounts of data. There exist large amounts of heterogeneous digital data. Big Data is about data volume and large data set's measured in terms of terabytes or petabytes. This phenomenon is called Big Data.

The challenges include capturing, analysis, storage, searching, sharing, visualization, transferring and privacy violations. It can neither be worked upon by using traditional SQL queries nor can the Relational Database Management System (RDBMS) be used for storage. Though, a wide variety of scalable database tools and techniques has evolved.

The need of Big Data comes from the Big companies like Google and Facebook. For the purpose of analysis of big amount of data which is in unstructured form. Such type of data is very difficult to process that contains the billions record of million people information that includes the web social media, images, audio and so on.

1.2 TECHNOLOGY

Big Data is a collection of massive and complex data sets and data volume that include the huge quantities of data, data management capabilities, social media analytics and real-time data. Big Data analytics is the process of examining large amounts of data. There exist large amounts of heterogeneous digital data. Big Data is about data volume and large data set's measured in terms of terabytes or petabytes. This phenomenon is called Big Data.

The challenges include capturing, analysis, storage, searching, sharing, visualization, transferring and privacy violations. It can neither be worked upon by using traditional SQL queries nor can the Relational Database Management System (RDBMS) be used for storage. Though, a wide variety of scalable database tools and techniques has evolved.

The need of Big Data comes from the big companies like Google and Facebook. For the purpose of analysis of big amount of data which is in unstructured form. Such type of data is very

1

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

Manufacturing

Improvements in supply planning and product quality provide the greatest benefit of Big Data for manufacturing. Big Data provides an infrastructure for transparency in manufacturing industry, which is the ability to unravel uncertainties such as inconsistent component performance and availability. Predictive manufacturing as an applicable approach toward near-zero downtime and transparency requires vast amount of data and advanced classification tools for a systematic process of data into useful information.

Healthcare

Big Data analytics has helped healthcare improve by providing personalized medicine and prescriptive analytics, clinical risk intervention and predictive analytics, waste and care variability reduction, automated external and internal reporting of patient data, standardized medical terms and patient registries and fragmented point solutions. Some areas of improvement are more aspirational than actually implemented. The level of data generated within healthcare systems is not trivial. With the added adoption of mHealth, eHealth and wearable technologies the volume of data will continue to increase. This includes electronic health record data, imaging data, patient generated data, sensor data, and other forms of difficult to process data

Insurance

Health insurance providers are collecting data on social "determinants of health" such as food and TV consumption, marital status, clothing size and purchasing habits, from which they make classifications on health costs, in order to spot health issues in their clients. It is controversial whether these classifications are currently being used for pricing.

Information Technology

Especially since 2015, Big Data has come to prominence within Business Operations as a tool to help employees work more efficiently and streamline the collection and distribution of Information Technology. The use of Big Data to resolve IT and data collection issues within an enterprise is called IT Operations Analytics.

1.2.5 Big Data Analytics

Big Data analytics examines large amounts of data to uncover hidden patterns, correlations and other insights. With today's technology, it's possible to analyze your data and get answers from

5

2.1.3 Decision Tree

As the computer technology and computer network technology are developing, the amount of data in information industry is getting higher and higher. It is necessary to analyze this large amount of data and extract useful knowledge from it. Process of extracting the useful knowledge from huge set of incomplete, noisy, fuzzy and random data is called data mining. Decision Tree classification technique is one of the most popular data mining techniques. In Decision Tree divide and conquer technique is used as basic learning strategy. A Decision Tree is a structure that includes a root node, branches, and leaf nodes. Each internal node denotes a test on an attribute, each branch denotes the outcome of a test, and each leaf node holds a class label. The topmost node in the tree is the root node. This paper focus on the various algorithms of Decision Tree, their characteristic, challenges, advantage and disadvantage.

2.1.4 Naive Bayes

Naive Bayes is among the simplest probabilistic classifiers. It often performs surprisingly well in many real world applications, despite the strong assumption that all features are conditionally independent given the class. In the learning process of this classifier with the known structure, class probabilities and conditional probabilities are calculated using training data, and then values of these probabilities are used to classify new observations. In this paper, we introduce three novel optimization models for the Naive Bayes classifier where both class probabilities and conditional probabilities are considered as variables. The values of these variables are found by solving the corresponding optimization problems. Numerical experiments are conducted on several real world binary classification data sets, where continuous features are discretized by applying three different methods. The performances of these models are compared with the Naive Bayes classifier, tree augmented Naive Bayes, the SVM, C4.5 and the K- Nearest Neighbor classifier. The obtained results demonstrate that the proposed models can significantly improve the performance of the Naive Bayes classifier, yet at the same time maintain its simple structure.

2.1.5 Support Vector Machine

Support Vector Machine (SVM) is one of the most important machine learning algorithms that has been implemented mostly in pattern recognition problem, for e.g. classifying the network traffic and also in image processing for recognition. Lots of research is going on in this technique for the improvement of QOS (Quality Of Service) and in security perspective. The latest works in this field have proved that SVM performs better than other network traffic classifier in terms of

IT-T52 SOFTWARE ENGINEERING

Subject Code	Subject Name	Lectures (Periods)	Tutorial (Periods)	Practical (Periods)
IT-T52	Software Engineering	3	1	0

Course Objectives:
1. To learn, practice and apply the software engineering industry practices.
2. To acquire knowledge on the various techniques, tools and models for each of the phases of software development.

Course Outcomes:
1. Ability to apply basic knowledge and understanding of the analysis, synthesis and design of complex systems
2. Develop, maintain and evaluate large-scale software systems
3. Produce efficient, reliable, robust and cost-effective software solutions

Syllabus:

UNIT I

Introduction to Software Engineering: The Software Engineering Discipline – Evolution and Impact – Software Development projects – Emergence of Software Engineering – Computer System Engineering Software Life Cycle Models: classic Waterfall model – Iterative Lifecycle model – prototyping model – Evolutionary model – spiral model – Comparison of Life cycle models.

UNIT II

Software Project Management: Responsibilities of a Software Project Manager – Project Planning – Metrics for Project Size Estimation – Empirical Estimation Techniques – COCOMO – Halstead's Software Science – Staffing Level Estimation – Scheduling – Organization and Team structures – Staffing – Risk Management – Software Configuration Management

Requirements Analysis and Specification: Requirements Gathering and Analysis – Software Requirements specification – Formal System Specification – Axiomatic Specification - Algebraic Specification – 4GL.

UNIT III

Software Design: Outcome of a Design Process – Characteristiscs of a Good Software Design – Coupling and Cohesion – Approaches to Software Design – Object Oriented Vs Function Oriented Software Design approaches

Function Oriented Software Design: Structured Analysis – Data Flow Diagrams – Applying DFD to Real time systems – Structured and Detailed Design.

UNIT IV

Coding and Testing: Coding – Software Documentation – Testing – Unit Testing – Black Box testing – White Box testing – Debugging – Program Analysis tools – Integration testing – Testing Object Oriented programs – System Testing – Issues.

UNIT V

Software Reliability and Quality : - Software Reliability – Software Quality – ISO 9000 – SEI CMM – Six Sigma.

CASE and Software Maintenance: - CASE environment – CASE support in Software Life cycle – Characteristics of CASE tools – characteristics of software maintenance – software reverse engineering – software maintenance process models.

(Total: 60 Periods)

Content beyond the Syllabus:
The students can be encouraged to apply concepts learnt in this course for the development / documentation of their mini project and final year project

Text Books:
1. Rajib Mall, " Fundamentals of Software Engineering", PHI Learning, Third Edition, 2013.

PROTOTYPE DESIGN FOR ENERGY CONSUMPTION IN SMART HOME USING IOT

PROJECT REPORT

PHASE-II

Submitted by

K.GOKILA DEVI   **REGISTER NO:15TH1208**

B.JAMUNA   **REGISTER NO:15TH1209**

G.PRIYADHARSHINI   **REGISTER NO:15TH1227**

Under the Guidance by

Mrs.J.PRABHAVADHI,M.Tech.,

Assistant Professor

in partial fulfillment for the award of the degree

of

BACHELOR OF TECHNOLOGY

in

DEPARTMENT OF INFORMATION TECHNOLOGY

MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

KALITHEERTHALKUPPAM, PUDUCHERRY- 605 107

PONDICHERRY UNIVERSITY

INDIA

APRIL– 2019

iv

Five key IoT issue areas are examined to explore some of the most pressing challenges and questions related to the technology. These include

- Security,
- Privacy,
- Interoperability and standards,
- Legal, regulatory, rights,
- Emerging economies and development.

1.1.2 Security

While security considerations are not new in the context of information technology, the attributes of many IoT implementations present new and unique security challenges. Addressing these challenges and ensuring security in IoT products and services must be a fundamental priority. Users need to trust that IoT devices and related data services are secure from vulnerabilities, especially as this technology become more pervasive and integrated into our daily lives. Poorly secured IoT devices and services can serve as potential entry points for cyber-attack and expose user data to theft by leaving data streams inadequately protected.

The interconnected nature of IoT devices means that every poorly secured device that is connected online potentially affects the security and resilience of the Internet globally. This challenge is amplified by other considerations like the mass-scale deployment of homogenous IoT devices, the ability of some devices to automatically connect to other devices, and the likelihood of fielding these devices in unsecure environments.

As a matter of principle, developers and users of IoT devices and systems have a collective obligation to ensure they do not expose users and the Internet itself to potential harm. Accordingly, a collaborative approach to security will be needed to develop effective and appropriate solutions to IoT security challenges that are well suited to the scale and complexity of the issues.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

3.3.3 RELAY

Relay originally was an electro-mechanical device, but presently a semiconductor version is also available as a switching mechanism. Both types functions as automatic switch or as a switching mechanism in a circuit. The electro-mechanical version in its simplest form is similar to a spring loaded SPST switch. A mechanical switch that is held in a particular manner or condition by a mechanical spring.

To enable the mechanical relay, an electromagnet has to be energized which in turn will pull the contacts to change its mechanical position. Upon applying power, the relay contacts will either switch to close or open state depending on the original resting or non-energized state…to To close or make contact if it is a normally open or it will open up if it is a normally closed.

The solid state relay as they are known operates pretty much in the same mode but without using magnetism to trigger its operation.
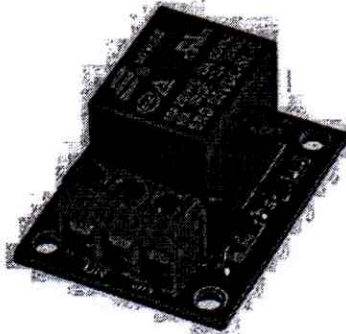
Fig 3.3 Relay

15

3.3.4 GSM Module

GSM/GPRS module is used to establish communication between a computer and a GSMGPRS system. Global System for Mobile communication (GSM) is an architecture used for mobile communication in most of the countries. Global Packet Radio Service (GPRS) is an extension of GSM that enables higher data transmission rate. GSM/GPRS module consists of a GSM/GPRS modem assembled together with power supply circuit and communication interfaces (like RS-232, USB, etc) for computer. GSM/GPRS MODEM is a class of wireless MODEM devices that are designed for communication of a computer with the GSM and GPRS network. It requires a SIM (Subscriber Identity Module) card just like mobile phones to activate communication with the network. Also they have IMEI (International Mobile Equipment Identity) number similar to mobile phones for their identification. A GSM/GPRS MODEM can perform the following operations:

- Receive, send or delete SMS messages in a SIM.
- Read, add, search phonebook entries of the SIM.
- Make, Receive, or reject a voice call.

The MODEM needs AT commands, for interacting with processor or controller, which are communicated through serial communication. These commands are sent by the controller/processor. The MODEM sends back a result after it receives a command. Different AT commands supported by the MODEM can be sent by the processor/controller/computer to interact with the GSM and GPRS cellular network.

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.

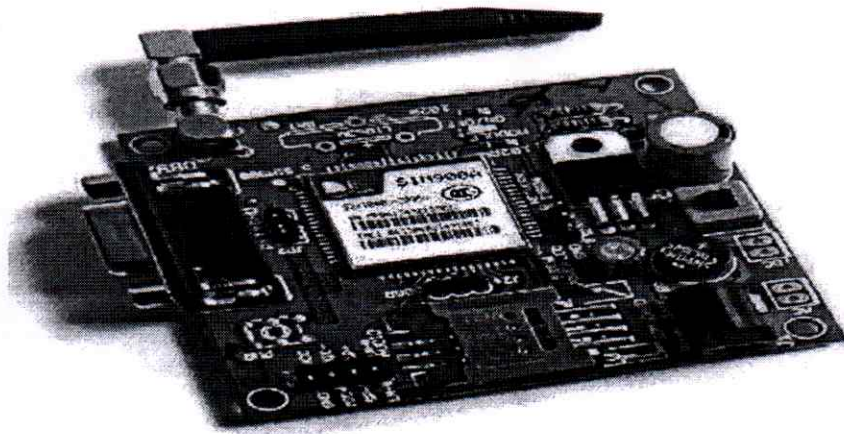**Fig 3.4 GSM module**

3.3.5 ANDROID MOBILE

Android is a mobile operating system developed by Google. It is used by several Smartphone and tablets. Examples include the Sony Xperia, the Samsung Galaxy, and the Google Nexus One.

The Android operating system (OS) is based on the Linux kernel. Unlike Apple's iOS Android is open source, meaning developers can modify and customize the OS for each phone. Therefore, different Android-based phones often have different graphical user interfaces GUI seven though they use the same OS.

Android phones typically come with several built-in application sand also support third-party programs. Developers can create programs for Android using the free Android software developer kit (SDK). Android programs are written in Java and run through a Java virtual machine JVM that is optimized for mobile devices. The "Dalvik" JVM was used through Android 4.4 and was replaced by Android Runtime or "ART" in Android 5.0. Users can download and install Android apps from Google Play and other locations.

17

PRINCIPAL
MANAKULA VINAYAGAR
INSTITUTE OF TECHNOLOGY,
KALITHEERTHALKUPPAM,
PUDUCHERRY - 605 107.