Seminar Report: Essentials of Computer Science

Date: October 30, 2024

Venue: [Computer Science LAB]

Organized By: [Department of Computer Science]

Objective:

The seminar on "Essentials of Computer Science" aimed to introduce participants to foundational concepts, trends, and applications in computer science, particularly for students, educators, and technology enthusiasts.

Key Topics Covered:

1. Introduction to Computer Science Fundamentals

The session opened with an overview of essential computer science concepts, including data structures, algorithms, and computational theory. Emphasis was placed on the importance of logical thinking and problem-solving in computer science.

2. Programming Paradigms

Various programming paradigms, including object-oriented, procedural, and functional programming, were discussed. Experts shared insights into selecting suitable paradigms based on project requirements.

3. Artificial Intelligence and Machine Learning

A significant portion of the seminar covered recent advancements in AI and machine learning. Presenters highlighted real-world applications, such as natural language processing, image recognition, and predictive analytics.

4. Cybersecurity Fundamentals

The session also addressed cybersecurity basics, emphasizing the importance of secure coding practices and awareness of common vulnerabilities in systems and networks.

5. Ethics in Technology

The seminar concluded with a discussion on ethical considerations in computer science, such as data privacy, digital rights, and the societal impact of emerging technologies.

Conclusion:

The seminar offered a well-rounded introduction to computer science essentials, equipping participants with the knowledge and inspiration to explore further in this field. Participants left with a deeper understanding of the critical role computer science plays in innovation and problem-solving across industries.

H. I/C CHARGE
DEPT. Of Computer
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Govt .Degree College
Rayachoty

LECTURER
DEPT. Of Computer
Science /Application
Govt .Degree College
Rayachoty
30/10/2024

GOVERNMENT DEGREE COLLEGE: RAYACHOTY

DEPARTMENT OF Computer Science

Name of the academic activity: Seminars

Class : 1st year B.Sc Date: 30/10/2024

Topic: Course 1 Semester - 1

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3	M. Harshitha	13		23	
4	B. Mourika	14		24	
5	T. Nagamunendra.	15		25	
6	T. Bhavya	16		26	
7	D. Karthik	17		27	
8	V. Siva kumar.	18		28	
9	P. Pramavathi	19		29	
10	B. Sohaulla	20		30	

PHOTO

LECTURER/ DEPT. of Computer Science /Application Govt .Degree College Rayachoty

30/10/2024

Signature of the Lecturer

IN - CHARGE DEPT. Of Computer Science /Application Govt .Degree College Rayachoty

Signature of the Department I/C


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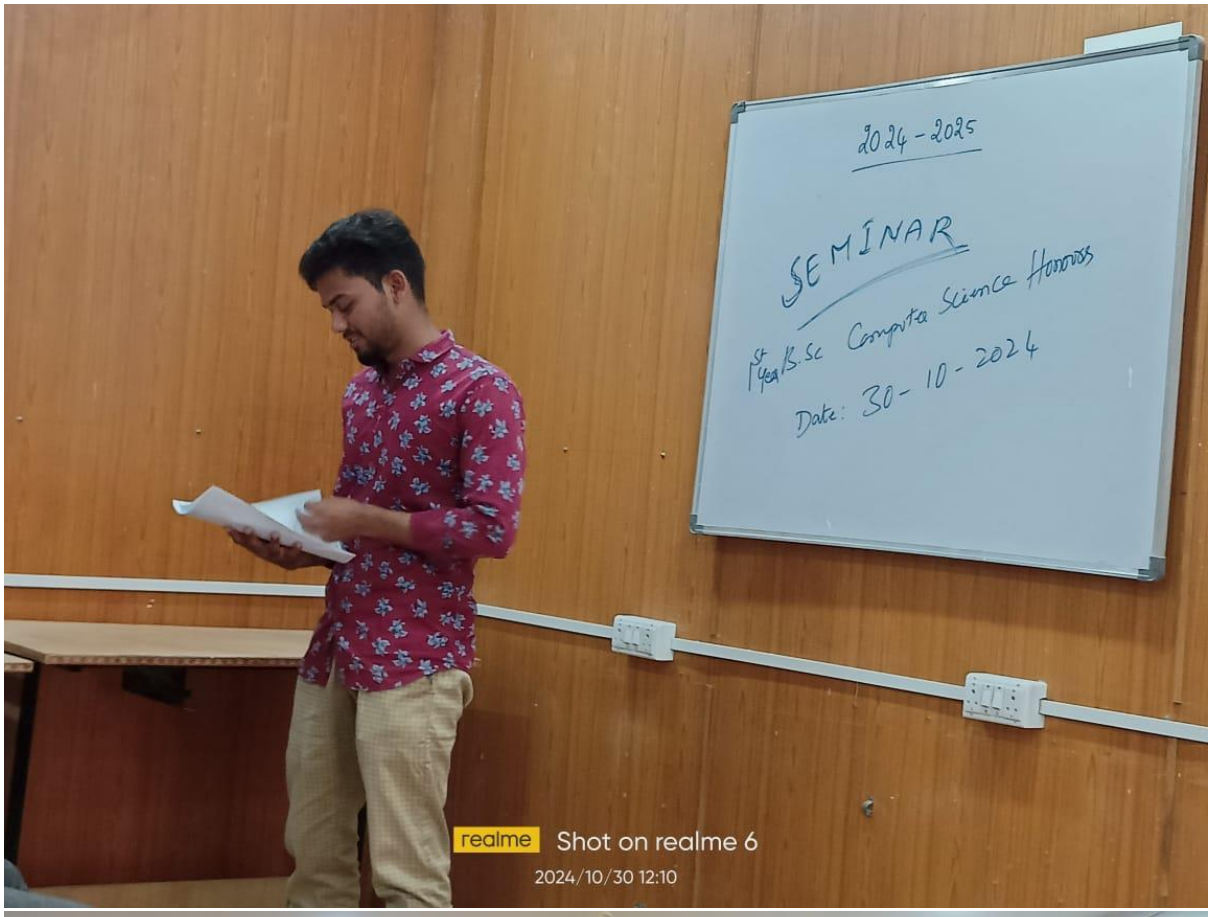
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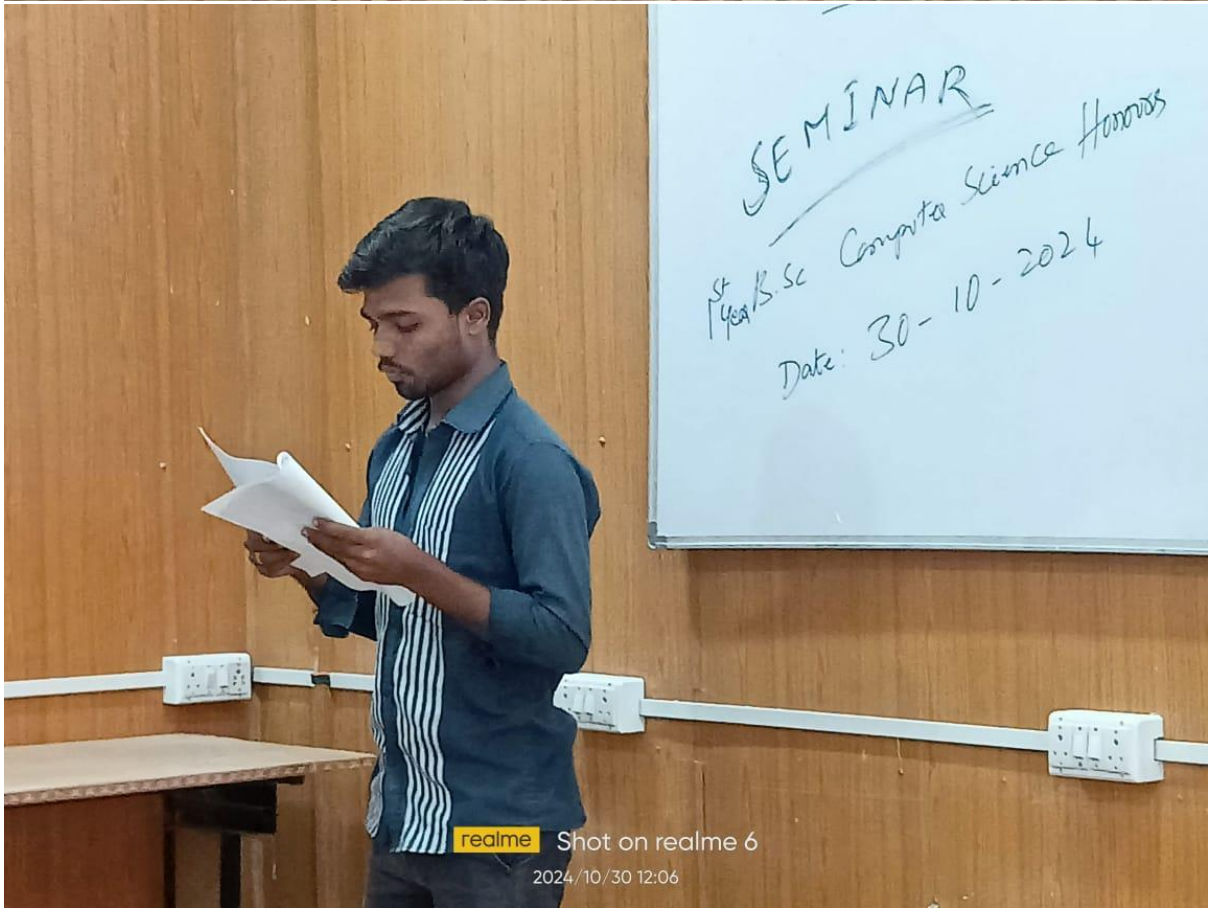
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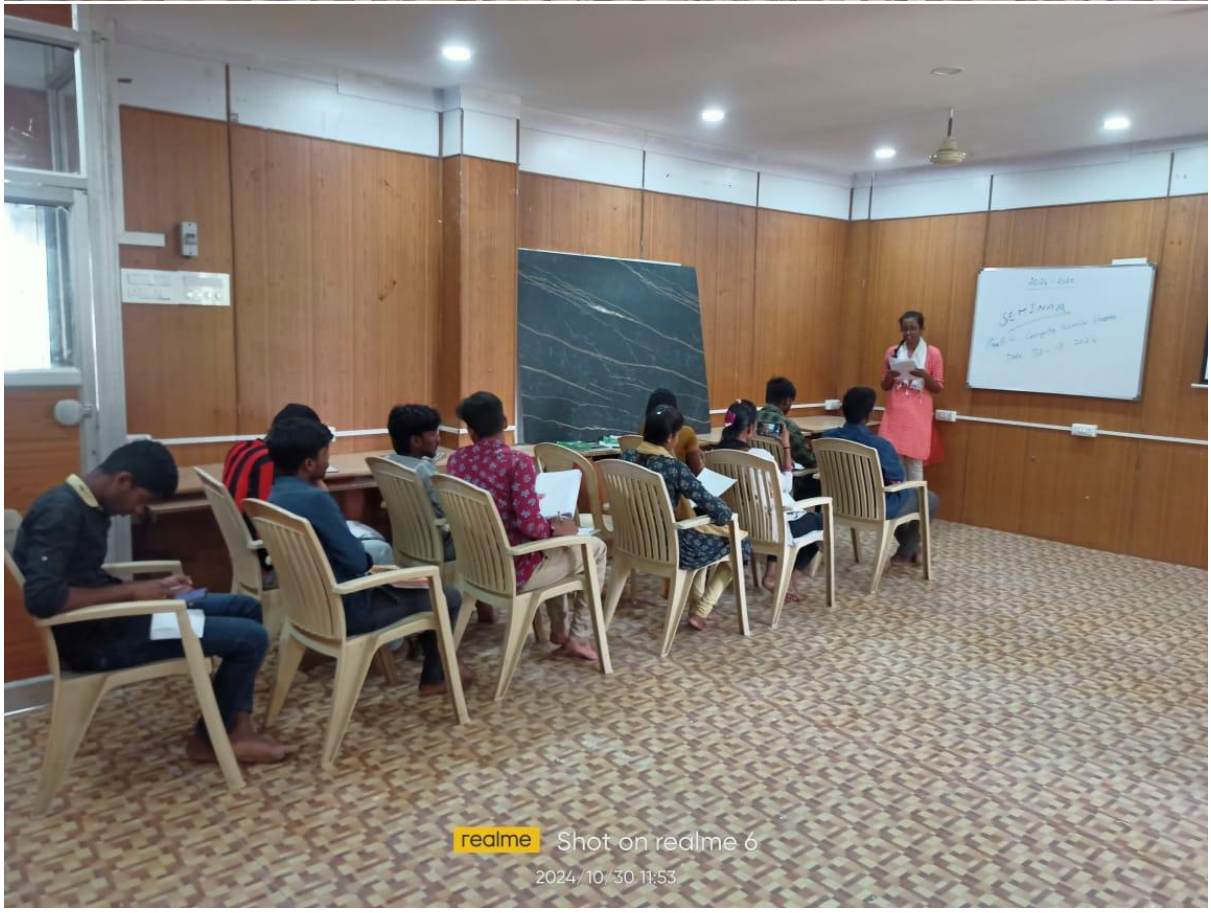
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GOVERNMENT DEGREE COLLEGE

RAYACHOTY – 516269, ANNAMAYYA DISTRICT. (A.P.)

DEPARTMENT OF Computer Science

(UG courses)

Seminar Topic

Types of Network.

Topic Submitted
BY

Name of the Student : Shaik. Suhail

Class : 1st year BSc computer Science

Date : 30/10/2024

Academic Year: 2024-2025

Date 30/10/2024
Day :→ wednesday.

Explain about types of network ?

1. Local Area Network (LAN) : →

* Typically covers a single building (or) campus.
* uses Ethernet cables (or) Wi-Fi for connectivity.
* often depicted with computers, printers, and servers connected with in an office building.

2. Wide Area Network (WAN) : →

* Spans large geographic areas, connecting and multiple LANs
* utilizes leased lines connecting different cities (or) countries on a map.
* Represented with lines, satellites (or) internet links.

3. Wireless LAN : → (WLAN) :

* uses wire less technology like Wi-Fi
* Devices (laptops, Smartphones) connected wirelessly to a central router.
* often illustrated with devices communicating without physical cables.

4. Metropolian Area Network (MAN) : →

* covers a city (or) Metropolian area.
* connects with multiple LANs (or) buildings within a city.
* shown with lines connecting different parts of a city on a map.

5. Client - Server Network : →

* central servers providing service to client computers.
* clients accessing resources (files, databases) hosted on servers.
* Depicted with servers and client devices connected via arrows showing data flow.

6. Peer - to - Peer Network : →

* All computers are peers and can act as clients (or) servers.
* Devices sharing resources directly with each other.
* Shown with interconnected devices without a central server.

7. Virtual private Network (VPN) : →

* Extends a private network across a public network (like internet).
* Users securly across acess resources as if they were on private net.
* often shown with a secure tunnel over a public network, protecting data transmission.

8. Intranet : →

* private network with an organization.
* uses internet technologies for internal communication & resource sharing
* Depicted with company servers and computers within a secure net.

9. Extranet : →

* Extends part of an intranet to external users like customers.
* provides controlled access to specific resources over the internet.
* Illustrated with connections b/w internal network resources and authorized external users.

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DEPARTMENT OF Computer Science

(UG courses)

Seminar Topic

Domain Name System

Topic Submitted
BY

Name of the Student : C. Ameeja

Class : BSC I st year

Date : 30-10-2024.

Academic Year: 2024-2025.

Explain about Domain Name System / services (DNS)

* Domain Name System (DNS) is a host name for IP address translation service. DNS is a distributed data-base implemented in a hierarchy of name servers.

* It is an application layer protocol for message exchange between clients and servers it is required for the functioning of the Internet.

* Every host is identified by the IP address but remembering numbers is very difficult for people also the IP addresses are not static therefore a mapping is required to change the domain name to the IP address

* So DNS is used to convert the domain name of the websites to their numerical IP addresses

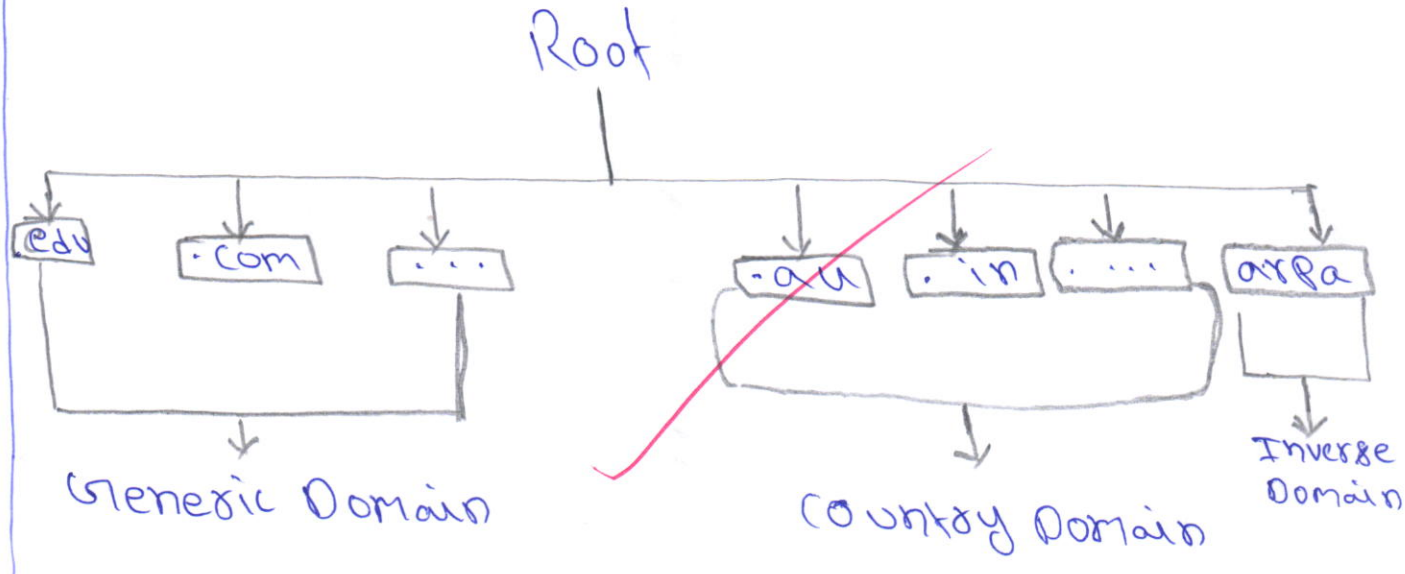
Types of Domain

There are various kinds of domain.

1. Generic domains : .com (commercial) ; edu (educational)
   .mil (military) ; org (non profit organization),
   .net (similar to commercial) are these are generic domains

2. country domain : .In (India) . .US, .UK

3. Inverse domain : if we want to know what is the domain name of the web site. IP to domain name mapping.



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DEPARTMENT OF Computer Science

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Seminar Topic

Internet Protocols

Topic Submitted
BY

Name of the Student : M. Harshitha

Class : Ist Bsc Computer science

Date : 30-10-2024

Academic Year: 2024-2025

COMPUTER SCIENCE

Explain about Internet Protocols?

Internet Protocols are the ultimate frame works that enable communication and data exchange across networks, ensuring the seamless flow of information world wide. At their core, protocals define rules and conventions that govern how computers and Devices communicate over the Internet, ensuring capability and reliability in an increasingly interconnected world.

Imagine the Internet as a vast digital ecosystem where diffently species (computers, servers, routers) need to communicate efficiently. Internet protocols acts as the ultimate interpreters & enforces of rules with in this ecosystem ensuring that data travels securely and accurately from point A to point B.

One fasinating protocol within this ecosystem is the Border Gateway protocol (BGP), which regulates how data is routed b/w different networks on the Internet. It's like the ultimate

air-traffic controller of the digital world, directing traffic to it's destination through the most efficient routes possible.

Understanding internet protocols is crucial for anyone curious about how data flows through the ultimate global nervous system that is the Internet. By adhering to these protocols, devices ranging from smartphones to super computers can connect & communicate effectively, making the world more interconnected than ever before.

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DEPARTMENT OF computer Science

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Seminar Topic

CRIPTOGRAPHY

Topic Submitted
BY

Name of the Student : B. Mounika

Class : Ist Bsc Computer Science

Date : 30-10-2024

Academic Year: 2024-2025

COMPUTER SCIENCE

* Explain about criptography

Criptography is a method of protecting information and communications through the use of codes. so that only those for whom the information is intended can read and process it.

It computer science, criptography refers to secure information and communication techniques derived from mathe-matical concepts and a set of rule-based calculations called Algorithms to transform messages in way that are hard to decipher. these deterministic, digital signing, verification to protect data privacy, web browsing on the internet and confidential communications such as credit card transaction and email.

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DEPARTMENT OF computer science

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Seminar Topic

Internet Application

Topic Submitted
BY

Name of the Student : T. Nagamunendra

Class : 1st year B.S.C

Date : 30 - 10 - 2024

Academic Year: 2024 - 2025

Explain about Internet Application?

A,

* The Internet has many few Major application like electronic mail services, web browsing, peer to peer networking The use of email increase because of it's several features like attachments, Messages, Data usage.

* The attachment feature such as word documents excel sheets, and graphical media is possible because of Multipurpose Internet mail extensions. but the result is traffic volume couped by mail is calibrated in terms of data packets in the networking.

* Electronic mail services become a vital part of personal professional communication method, and received securely by encryption. The price of ticeks for transport and sport are received in the mail.

* The web browser is a critical application of the internet and is highly commericial dominated. by Microsoft and highly influenced by www- world wide web.

* The web browser is free - and available as an open - source model that enriches the minds of future generations the open source has been devoloped and depolyed on a Modular basis since the source code is accessible only with few usage restrictions. The open - source feature has been integrated to File Mangers and web browsers.

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DEPARTMENT OF COMPUTER SCIENCE

(UG courses)

Seminar Topic

INTERNET Application

Topic Submitted
BY

Name of the Student : T. Bhavya

Class : 1st BSc computer science

Date : 30/10/2024

Academic Year: 2024 to 2025

COMPUTER SCIENCE

Explain about Internet Application?

* The Internet has many few major applications like electronic mail services web browsing, peer to peer networking. The use of email increases because of its several features like attachments, messages data usage.
* The attachment feature such as word documents, excel sheets, and graphical media is possible because of multipurpose Internet mail extensions, but the result is traffic volume caused by mail is calibrated in terms of data packets in the network.
* Electronic mail services became a vital part of personal and professional communication method, and its time and cost consuming. The data is transmitted and received securely by encryption. The price of tickets for transport and sport are received in the mail.
* The web browser is a critical application of the internet and is highly commercial.

dominated by microsoft and highly influenced by WWW - world wide web.

* The web browsers is free and available as an open-source model that enriches the minds of future generations. The open-source has been developed and deployed on a modular basis since the source code is accessible only with few usage restrictions. The open source feature has been integrated to file managers and web browsers.

Anu
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DEPARTMENT OF Computer Science

(UG courses)

Seminar Topic

Types of fraud detection

Topic Submitted
BY

Name of the Student : DIVVALA KARTHIK

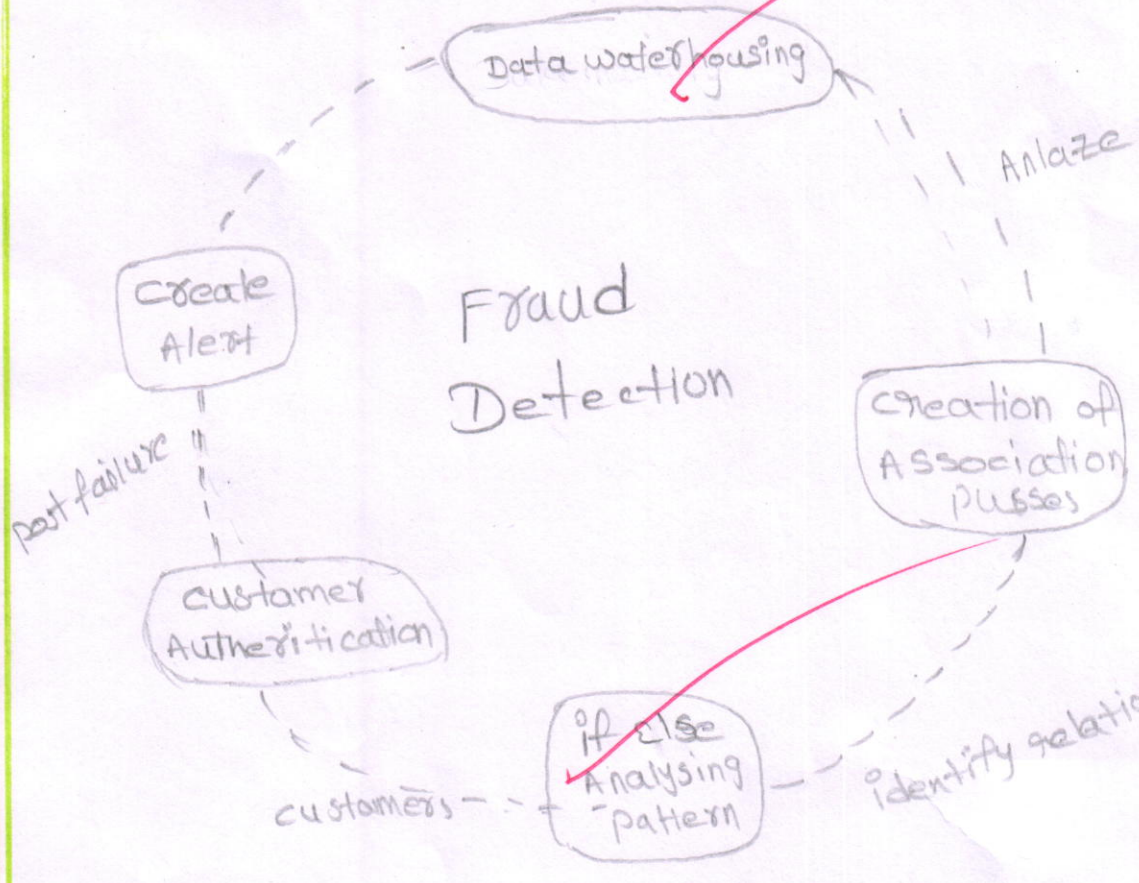
Class : 1st Year B.Sc M.P.C

Date : 30/10/2024

Academic Year: 2024 - 2025

(1) what is fraud detection / Techiques.

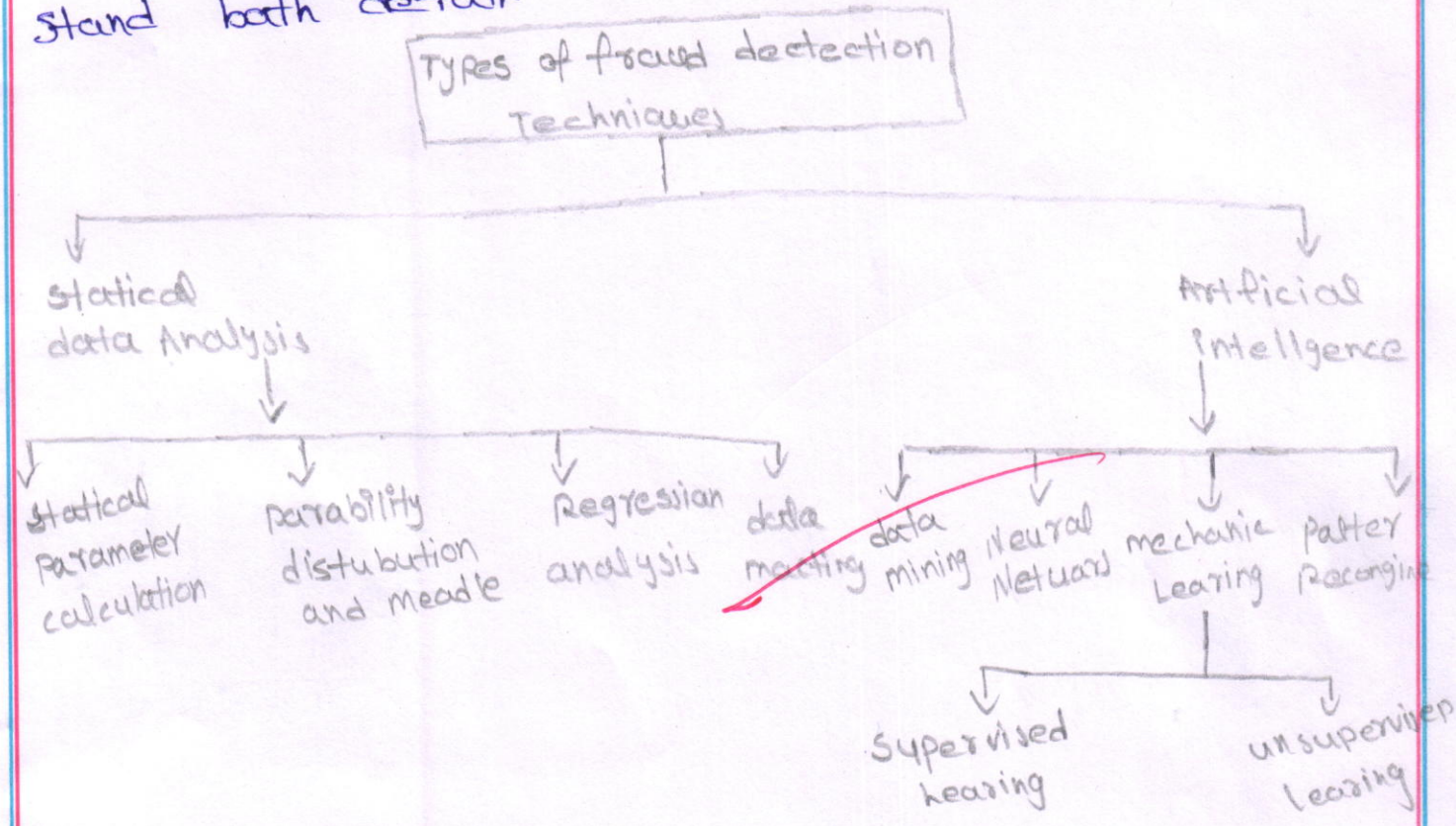
fraud detection process that dectects and prevents fraudsters from obtaining money or property through fake means. It is set of activities undertaken to dectect and block the attempt of fraudsters from obtaing in money or property. fraud utently fraud detection is prevelent across banking insurance. medical Government and public sectors as well as in law enforcement agencies.



Types of fraud dectection Techniques in computers

fraud detection generally involves data analysis - based techniques.

These techniques are broadly categorized as statical data Analize techniques and artificial intelligence or AI - based Techniques let's understand both detail.



* Statical parameter calculation

Statical parameter calculation refers to the calculation of various statical parameter such as averages quantities, performence metrics and probability distrubutions for fraud - related collected during the data capuring process.

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* Regression Analysis

Regression Analysis allows you to Examine the relationship between two or more variable's of interest It is also estimates the relationship between independent and dependent variables This helps understand and identify Relationship between several fraud variables which further helps in predicting future fraudulent activities helps in are based on the usages patterns of fraud variables in a potentials fraudient use case.

* Probability distribution models

In This Techniques, materials and probability distrubution of various law bussiness fraudulent activities are mapped either in term's of different parameter's or probability distubution.

* Data maching

Data maching used to compare two set of collected data (ie fraud data) The process can be carried out either based addition algorithms or programed pops. An additional data maching is used to remove duplicate records and identify links. between two data set of marketing security, or other purpose.

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DEPARTMENT OF Computer Science

(UG courses)

Seminar Topic

Malware

Topic Submitted
BY

Name of the Student : U. Siva kumar

Class : 1st year (M.P.CS)

Date : 30/10/2024

Academic Year: 2024 - 2025

MALWARE :-

Malware (short for "malicious software) is a file or code typically delivered over a Network that infects, explores, steals or Conducts virtually any behaviour an Attracker wants and because malware Comes in So many variants. there are numerous methods to infect computer Systems. Through varied in type and Capabilities, malware usually has one of the following objectives.

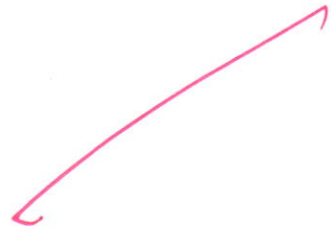
*. provide remote Control for an attacker to use on infected machine.

*. Send Spam from the infected machine to unsuspecting targets.

Malware

*. Investigate the infected user's local network

*. steal sensitive data.



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DEPARTMENT OF Computer Science

(UG courses)

Seminar Topic

Internet protocals

Topic Submitted
BY

Name of the Student : P. Premavathi

Class : 1st year B.Sc computer science.

Date : 30-10-2024

Academic Year: 2024 - 2025

COMPUTERSCIENCE

1. **Explain about Internet protocals?**

Internet protocals are the ultimate frame works that enable communication & data exchange across networks, ensuring the seamless flow of Information world wide. At their core, protocals define rules and conventions that govern how computers and devices communicate over the internet, ensuring capability & reliability in an increasingly interconnected world.

Imagine the internet as a vast digital ecosystem where different species (computers, servers, routers) need to communicate efficiently. Internet protocals acts as the ultimate interpreters & enforces of rules within this ecosystem ensuring that data travels securely and accurately from point A to point B.

One fasinating protocal within this ecosystem is the Border Gateway protocal (BGP), which regulates how data is routed between different networks on the Internet. It's like the ultimate air traffic controller of the digital world directing traffic

To it's destination through the most efficient routes possible.

Understanding internet protocals is crucial for anyone curious about how data flows through the ultimate global nervous system that is the internet. By adhering to these protocals, devices ranging from smart phones to super computers can connect & communicate effectively, making the word more inter connected than ever before.

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RAYACHOTY – 516269, ANNAMAYYA DISTRICT. (A.P.)

DEPARTMENT OF Computer Science

(UG courses)

Seminar Topic

Types of Multiplexing.

Topic Submitted
BY

Name of the Student : Shaik Sanaulla

Class : 1st year B.Sc M.P.C

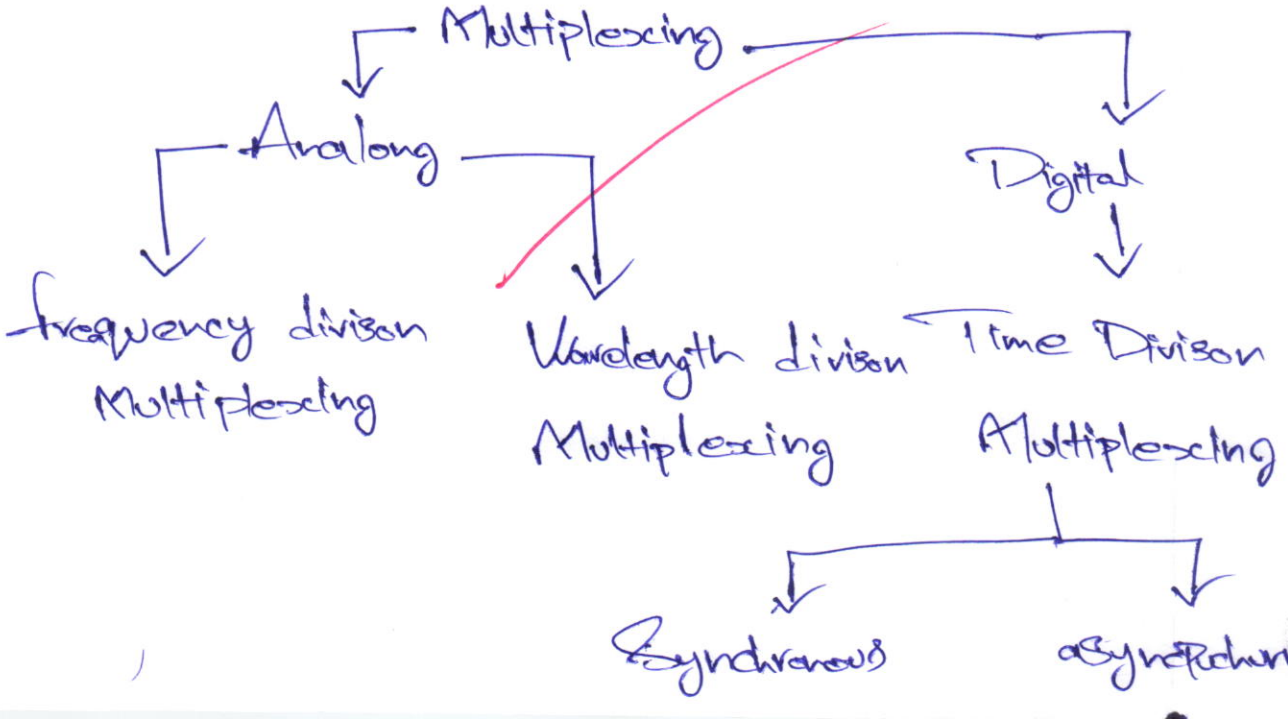
Date : 30/10/2024

Academic Year: 2024-2025

Multiplexing:

Multiplexing is a techniaue used in telecommunication and comptur hetwerks to combine multiple Signals into a single transmission channel or medium the Primary goal of multiplexing is to make efficient use of available resources. whether it is time frequency or space, to transmit multiple signals. Simultaneously ; There are several types of multiplexing including time Divison multiplexing (T.D.M), frequency Divison Multiplexing (F.D.M) and wavelength Divison Multiplexing (WDM)

Multiplexing Techniques



Time Divison Multiplexing (T.D.M)

* Concept : Divides the transmission channel into discreate slots.
* Operation:

Each input signal is assigned a specific time hot signal take using the channel during their designated time slot.

Advantages:

* Simple ? Implementation
* Efficient for Periodic and bursty data

Disadvantages:

* Inefficient for continous high - bandwidth signal
* Synchronization among multiple signals is crucial.

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Seminar Topic

Symmetric and Assymmetric Encryption

Topic Submitted
BY

Name of the Student : S. Md. Afroz

Class : 1st Year B.S.C MPC

Date : 30/10/24

Academic Year: 2024-2025

About Symmetric and ASymmetric Encryption.

Symmetric Encryption :→

* It uses a single shared key (secret key) to encrypt and decrypt the message.
* The size of ciphertext in symmetric encryption could be the same (or) smaller than the plain text.
* It is efficient as this technique is recommended for large amounts of text.
* The encryption process of symmetric encryption is faster as it uses a single key for encryption and decryption.
* Symmetric encryption is mainly used to transmit bulk data.
* It is less seared as there is a use of a single key for encryption.

Asymmetric Encryption : →

* It uses two different keys for encryption and decryption.
* The size of ciphertext in asymmetric encryption could be the same (or) larger than the plain text.
* It is inefficient as this technique is used for only short messages.

* The encryption process in asymmetric encryption is slower as it uses two different keys; both keys are related to each other through the complicated mathematical process.
* It is mainly used in smaller transactions. It is used for establishing a secure connected channel before transferring the actual data.

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