LEARNING MATERIAL

On

INTERNET & WEB TECHNOLOGY

(For 5th semester CSE)

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Computer Network :-

It is the group of computers that use a set of common communication protocol over digital interconnection for the purpose of sharing resources provided by the network node

Or

Set of communication element (Bridge, Router, switch, modem, etc) connected by the communication link (wired & wireless like optical fiber, Radio wave, coaxial cable, twisted pair cable, electromagnetic wave, Infrared wave etc)

Concept of Network :-

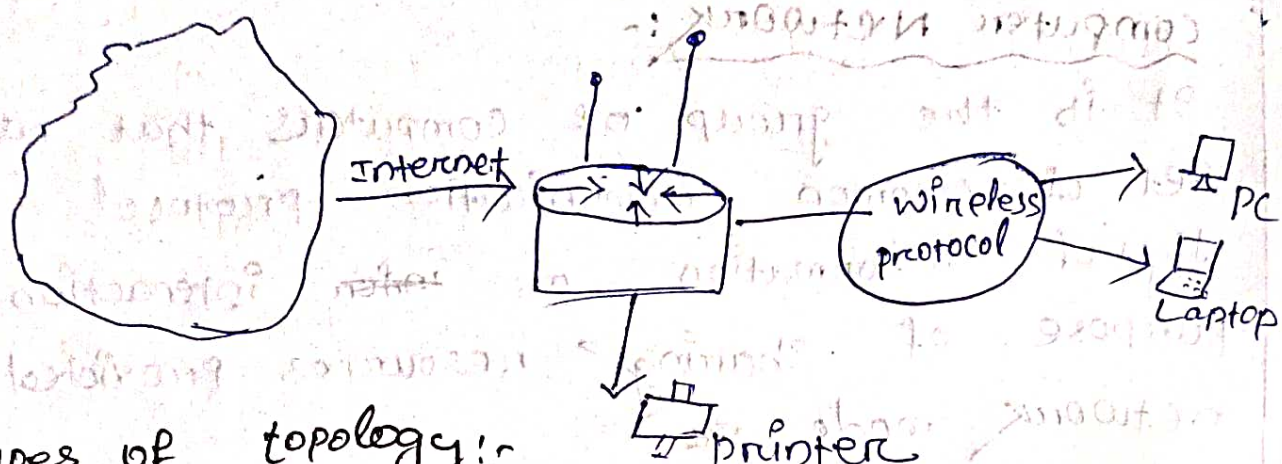
It is the arrangement of communicating element and communication link. When two or more devices connect to a link and two or more link from a topology.

→ It is the geometrical representation of the relationship of all the links connecting the devices or nodes.

→ It determines the data parts that may be used between any pair of devices of the network.

→ There are some factors are considered while selecting the topology

→ cost, reliability, scalability, bandwidth capacity

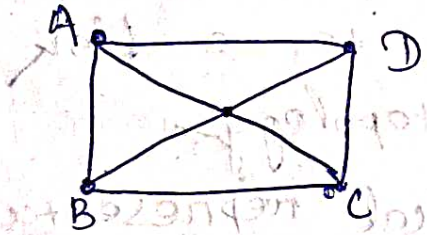


Types of topology:-

1. Mesh topology
2. Star topology
3. Ring topology
4. Bus topology
5. Hybrid topology

Mesh Topology:-

The mesh topology has a dedicated point to point link to every other device.



Advantages:-

-> The use of dedicated link gaurented that each connection can carry its own data.

-> The elementary data to the traffic problem that can occure when link must be share by multiple devices.

-> A mesh topology is robust

-> If one link becomes unusable it doesn't indicate that the whole network is out

of the order.

-> Mesh topology provides privacy and securi

Disadvantages:-

-> A mesh topology a large volume of cableing and large number of I/O points are required

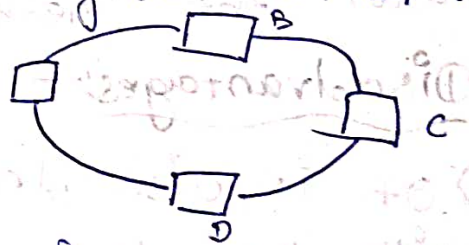
->

Ring Topology:-

In a ring topology device is dedicated in point to point line configuration with the two device

-> A signal is passed along the ring in one direction from device to device and till it reaches its destination.

-> When a device receive a signal called token for another device



Advantages:-

-> A ring topology network is very easy install and reconfigure as each device is connected only to its immediate and necessary situation.

-> If there not physical or logically connected

-> Easy to install

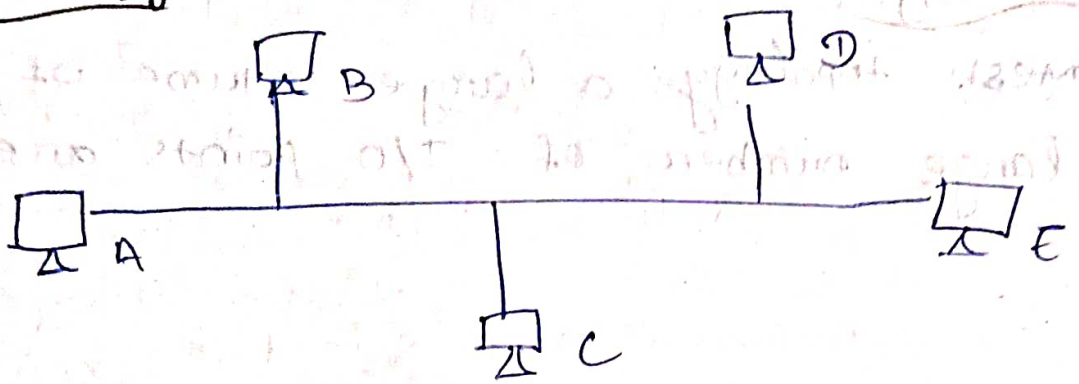
-> Easy to check the fault.

Disadvantages :-

→ some times it occuries ideal situation

→ slow data transmission

Bus Topology



→ A bus topology is a multipoint topology in which multiple numbers of devices can share a common medium or link or bus one long cable acts as a backbone to link all the devices in the network.

Advantages :-

→ A bus topology is very easy to maintain

→ A bus topology network use less cableing than the mesh topology

Disadvantages :-

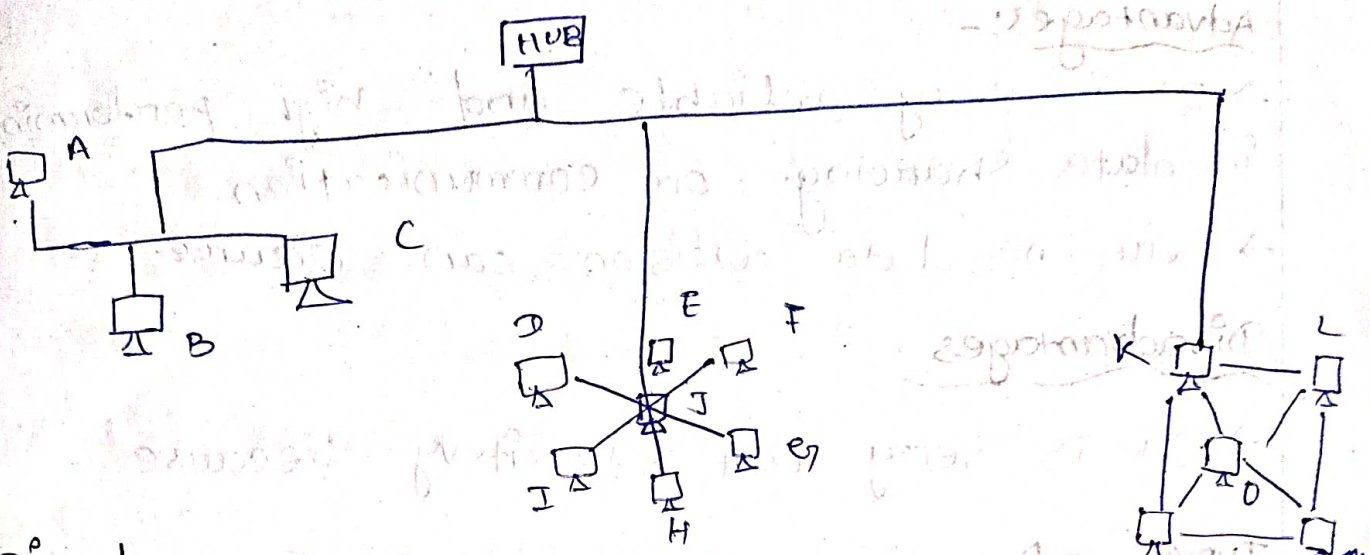
→ It is also deficult to add new devices with the bus cable.

Hybrid Topology :-

→ It is a combination of various topology to form a bigger size network.

Advantages :-

→ If one node not work, it does not affect other network

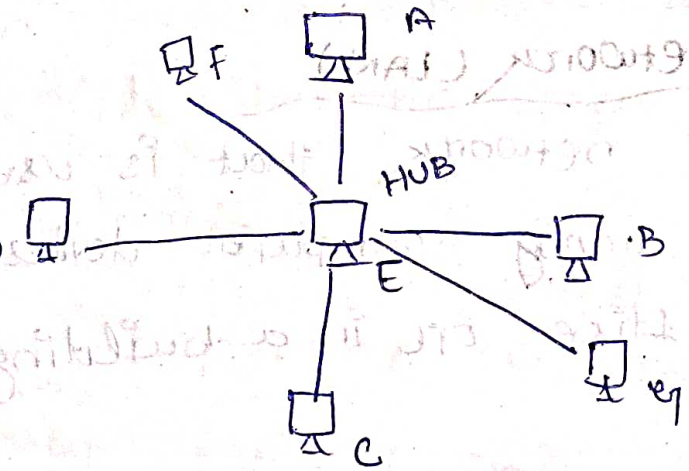


Disadvantages :-

→ High Coust

→ complex design

Star Topology :-



→ In a star topology, every node is connected to a central node (Hub) which is known as router when the central node receives a Packet or data from a connecting node it can pass the Packet or data onto the other node in that network.

Advantages:-

→ It is very reliable and high performing in data shareing or communication

→ Here no data collision can occure.

Disadvantages

→ It is very cost efficitovy because

Types of network:-

The basic type of network are.

① Local area network (LAN)
② Personal area network (PAN)
③ Metro- pollitian network (MAN)
④ wide area network (WAN)
⑤ Computer area network (CAN)

Local area network (LAN)

A LAN is a network that is used for communicating among computer devices usually within an office or in a building or an organisation

→ LAN enable the sharing of resources such as files or hardware devices that may be needed by multiple users.

→ It has a limited size.

→ It is fast with the speed from 10 mbps to 10 GBPS

→ It requires little wireing typically in a single building or organisation.
→ The lower cost compare to MAN or WAN
→ It can be either wired or wireless
→ It may be twisted Pair co-axial or fiber optics cable can be used in wired LANs.

Personal Area Network (PAN)

A PAN is a network that is used for communication among computer devices usually in our homes.
→ PAN enable the sharing of resources such as files or hardware devices that may needed by multiple user
→ It is fast with the speed from 10 MBPS to 10 GBPS
→ It requires little wireing it has lower cost as compaired to LAN
→ It may be twisted pair, co-axial or fiber optics

(3) Metropolitan Area Network:-

A MAN is a larger computer network that usually spans a city or a large campus
→ A MAN is optimized for a larger geographical area than a LAN ranging

from several blocks of building to entire cities

→ A MAN might be owned and operated by a single organization but is usually will be used by many individuals and organi-zati

→ A MAN often acts as a high speed networ to allow sharing of regional resources

→ A MAN typically covers an area of betwee 5 and 50 km diameter.

→ Examples of MAN:- Telephone company network that provides a high speed DSL to customers and cable TV network

(4) Wide Area Network (WAN):-

→ WAN covers a large geographical area such as country, continent. or even whole the world.

→ A WAN is two or more LANs connected together.

→ The LAN's can be many miles aparts

→ To covers great distances WAN's may transmit data over leased high speed phone lines or wireless links such as satellites

→ multiple LAN's can be connected together

using devices such as bridge, routers or gateways which enable them to share data.

-> The worlds most popular WAN is the Internet

(5) computer Area Network (CAN) :-

-> A computer Area network (CAN) is a network of multiple interconnected local area network (LAN) in a limited geographical area.

-> A CAN is small than a wide area network (WAN) or metropolitan area network (MAN)

-> A CAN is also known as a corporate area network (CAN)

-> CAN benefits are as follows.

(i) cost effective
(ii) wireless
(iii) versus cable
(iv) multidepartmental network access

Media (Medium) :-

-> The media provides connectivity between the end devices (sender & receiver) unless and devices are connected through the any kind media they can't exchange

-> Mainly there are two types of media

(i) wireless media
(ii) wired media

-> Data is transmitted normally through electrical or electromagnetic signals.

(i) wireless media :-

→ It is also known as un-guided media

→ There are 3 types of wireless media

(i) Radio wave
(ii) Micro wave
(iii) Infrared.

(2) wired media :-

→ It is also known as guided media

→ wired media or guided media are those which can provide a conductor from one device to another devices that include.

(i) Twisted pair cable
(ii) co-axial cable
(iii) optical-fiber cable.

→ It is used for point to point communication

→ A signal travelling along any of these media is directed and contain by the physical limits of the medium

Protocols :-

→ It enable communication between two or more end devices.

→ A protocol is a set of predefined rules ~~that~~ that specifies standard for a particular stage or all stages of communication.

Some function of protocols :-

-> Initialization and terminating the communication process
-> providing logical addressing
-> Performing error correction
-> performing authentication
-> performing encryption and discreption.

Intranet :-

-> An intranet is a computer network for sharing information elaboration tools operational system and other computing services with the organization usually to the exclusive of access by outsider
-> This is used by employees to search for information and communication access an organizatio
-> It is a private network
-> within a company i.e used seeurely for sharing the information and computing resources among employees.
-> It has the special network password
-> It uses TCP/IP HTTP and other Internet protocol.
-> Typically an intranet includes connection through one or more get voice.

Benefits of Intranet :-

→ It is improve communication, information sharing and colaboration within a business.

→ The ability for human resources to manage employee records and for customer services representative to trap has request

→ The use of the intranet as a testing environment for new ideas before their implemented on the company internet webpage.

→ Difference between Intranet and Internet

Internet	Intranet
→ Internet is wide network of computer and its open to all	→ Intranet is also a network of computer design for a specific group of user.
→ Internet itself ~~set~~ contained a large number of intranet	→ Intranet can be accessed from internet but with restrication.
→ the number of user is unlimited	→ the number of user is limited
→ the visiter / user traffic is unlimited	→ the user traffic is limited.

Concept of internet :-

→ It is a vast network of servers and computers which are connected to each another via phone lines, microwaves, satellites etc.

→ Servers are the simple computers that store large amount of informations, which provide the information to the other computers as per the requirement.

→ The information contained in the internet can be retrived and displayed in a variety mediums such as telnet, gopher and most recently www or the web

Internet :-

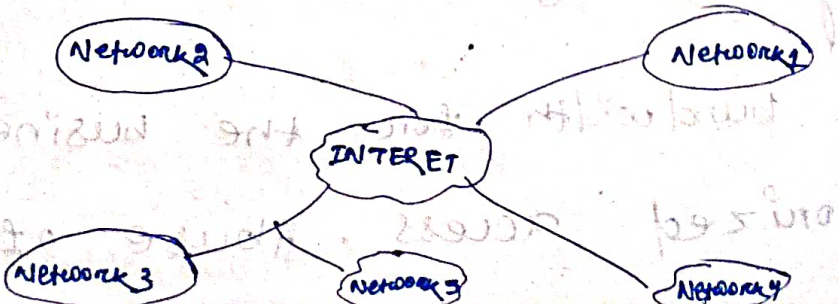
→ Interconnection of different networks is called internet

or

Network of networks is called internet.

→ It is a public network

→ The internet is a global system of interconnected computer networks that use the standard protocol suite (TCP/IP) to serve billions of users world-wide



Intranet:-

→ A network within itself is called intranet

→ An intranet is a computer network that uses internet protocol technology to share information, operational systems, or computing services within an organisation.

Advantages of Intranet:-

→ Sharing of company policies/rules & regulations

→ Access employee database

→ Distribution of circulars/office orders

→ Access product & customer data

→ Sharing of information of common interest

→ Launching of personal/departmental home pages

→ Submission of reports

→ Corporate telephone directories.

Disadvantages:-

→ A company may not have a person to update their intranet on a routine basis

→ Fear of sharing information and the loss of control

→ Limited bandwidth for the business

→ Unauthorized access, Abuse of access

denial of service
→ information overload lowers productivity
→ True purpose of the intranet is unknown to many employees / departments.
→ Hidden or unknown complexity and costs.

Extranet :-

→ Extranet is an intranet for outside authorized users using the same internet technology.
→ Inter-organizational information system
→ Enable outsiders to work together with company's employees.
→ open to selected suppliers customers and other business partners.

Examples :-

Dealers / distributors have access to product files such as :-

1. product specification
2. pictures
3. Images, etc.

To answer the queries of the customers.

Advantages :-

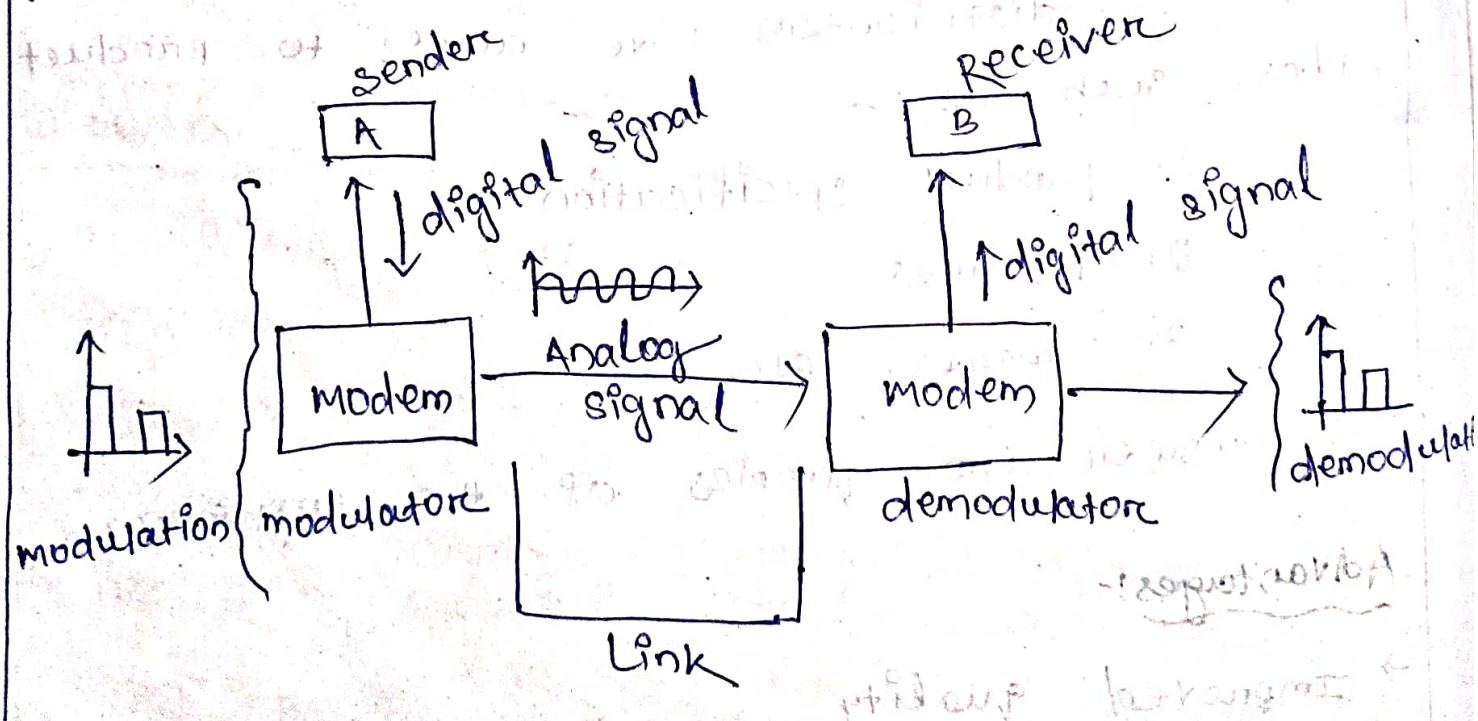
→ Improved quality
→ lower travel costs

→ Lower administrative & other overhead costs
→ Reduction in paperwork
→ Delivery of accurate information on time
→ Improved customer service
→ Better communication
→ overall improvement in business effectiveness

Disadvantages :-

→ The suppliers and customer who don't have technical feel problem
→ faceless contact
→ information can be misused by other competitors.
→ Fraud may be possible
→ Technical employees are required.

Modem :-



→ It is the combination of mechanism of modulator and demodulator. and it is a hardware device that converts data from digital format intended wireing into one suitable for a transmission medium such as telephone line or radio

→ modulator converts digital signal ~~into~~ into analog signal and send it over telephone line this process is known as modulation.

→ Demodulator means that receiving, modem converts analog signal into digital signal and recovers the binary data from the modulation signal

→ It is used for data transfer from one computer to another computer through a telephone Line. It get information from internet.

Transmission Rate :-

→ It includes how many bits per second a modem can transmit or receive.

→ The speed of modem is determined by the modulation and demodulation standard. It is measured in bits Per Second (b/s or bps)

→ Different modem have different speed. (2400 bps, 9800 bps, 56.5 Kbps) ~~self testing~~

Self Testing :-

→ Modem can test the digital connection with computer and analog connection with remote model.

Types of modem :-

① External
② Internal
③ Wireless

External modem

① DSL
② Dial-up
(iii) cable.

External modem :-

→ It usually plugs in through a serial port or a USB port.
→ External modems cost the most, but have the benefits of being easily installed
→ Also plugs into telephone line
→ It needs an external power supply
→ Holder case is required
→ Often, they have the indicators that tell the status of your connection. there is one standard interface for connecting external modems to computer called RS-232.

Example :-

DSL modem :-

→ DSL stands for digital subscriber line
→ It is a technology that enables high-speed data transmission on ordinary twisted pair telephone lines.

Dial-up :-

To make the dial-up connection the modem

Internal modem :-

-> An internal modem is a modem that fits inside of a computer.
-> It can insert into a vacant expansion slot
-> NO external power supply is needed.
-> NO holder case is required.
-> incompatible with different kinds of pc
-> This type of modem is present inside the computer and usually plug directly into the motherboard.

Example :-

Wireless modem :-

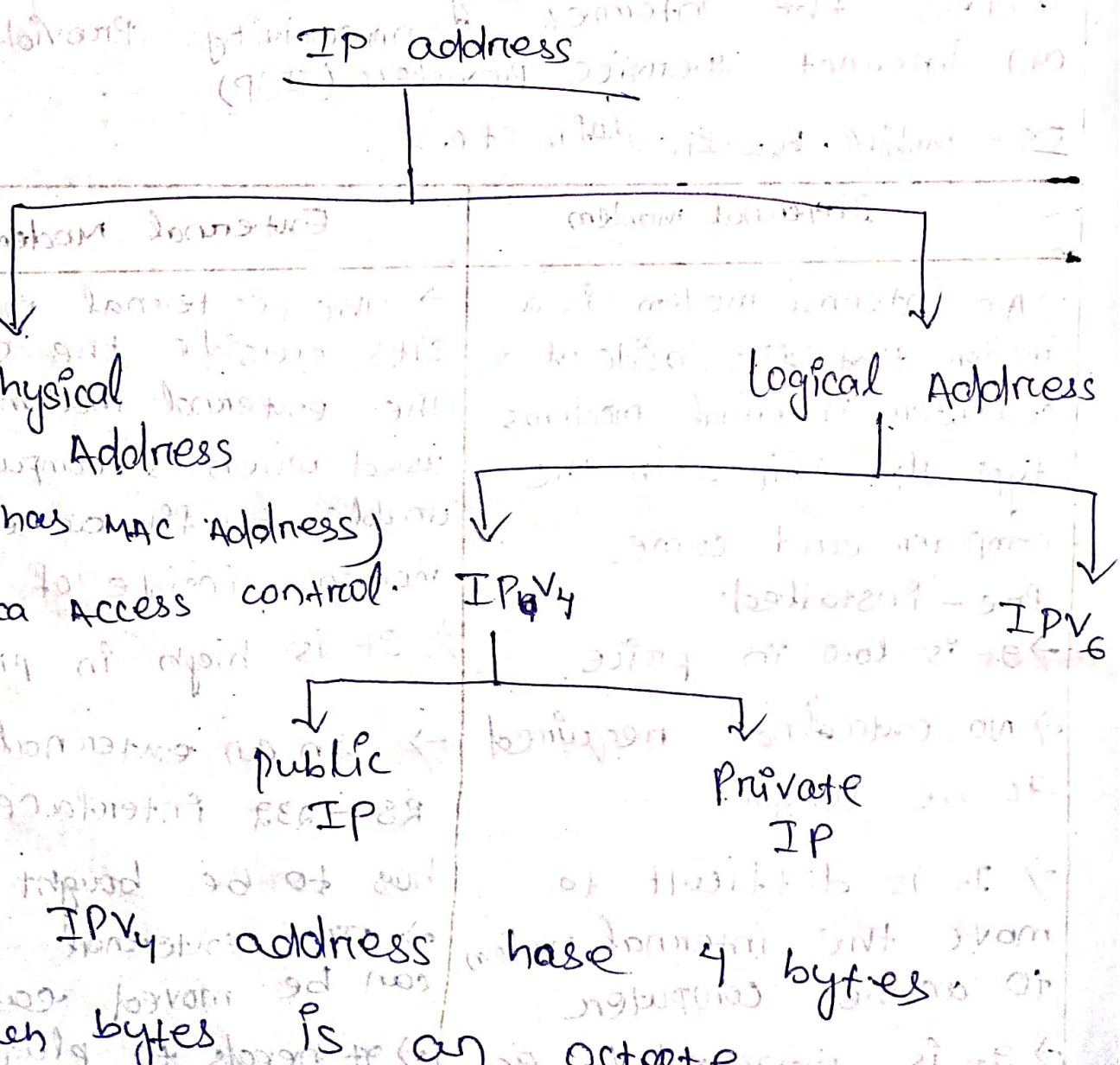
-> A wireless modem is a modem that bypasses the telephone system and connects directly to a wireless network through which it can directly access the internet connectivity provided by an internet service provider (ISP)

Ex - mobile, wifi, Jiofi, etc.

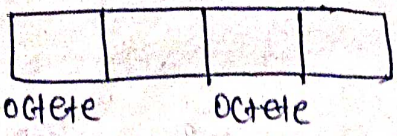
Internal modem	External Modem
-> An internal modem is a modem that fits inside of a computer internal modems typically ship with the computer and come Pre-installed.	-> The external modem sits outside the computer The external modem can be used when a computer is unable to fit an external modem inside of it.
-> It is low in price	-> It is high in price.
-> NO external required to be bought.	-> In an external modem RS-232 interface cable has to be bought.
-> It is difficult to move the internal modem to another computer	-> The external modem can be moved easily.
-> It is powered by PC.	-> It needs to plugs into the wall to power on.

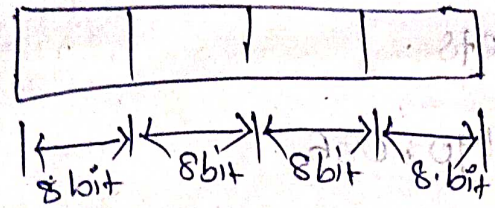
Ip address

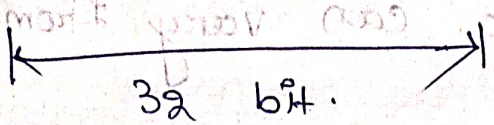
Ip address stands for internet protocol address. An ip address is a 32-bit that uniquely and universally defines the connection of a host or a router to the internet. Ip addresses are unique They are unique in the sense that each address defines one and only one connection to the internet. Two devices on the internet can never have the same address.



→ An IPv4 address hase 4 bytes.
→ Each bytes is an octete.







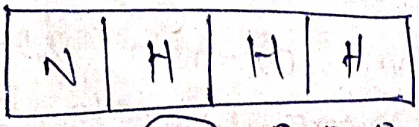
→ IP address = Network Id + host Id.

→ In IP address there are 5 classes.

used generally
- class A → 1.0.0.0 — 126.0.0.0
- class B → 128.0.0.0 — 191.255.0.0
- class C → 192.0.0.0 — 223.0.0.0

Not used
- class D → 224.0.0.0 — 239.0.0.0
- class E → 240.0.0.0 — 255.0.0.0

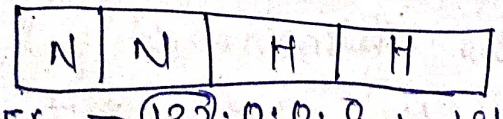
class A



N - Network Id
H - Host Id

Ex - (124).0.0.0 Network Id.

class B



Ex - (132.0).0.0 ; Network Id

class C

Ex - 193.0.0.0

versions of IP address :-

IPv4 :-

→ An IPv4 address consists of four bytes (32 bits) These bytes are also known as octets.

Ex :- 234 . 5 . 67 . 190 . 086.

→ Each sub area can vary from 000 to 25
(28 - 256)

→ 0.0.0.0 through 255.255.255.255, total 32 bits

→ 2^{32} = 4 billion address.

IPv6 :-

→ IPv6 addresses are 16 bytes (128 bits) long

→ 2^{128} unique addresses

→ Each byte in turns is represented as a pair of hexadecimal numbers

→ Ex E3D7 : 0000 : 0000 : 0000 : 51F4 : 9BC8 : C0A8 : 6420

DNS!-

DNS stands for Domain Name system (or service or server). It is an internet service that translates domain names into ip addresses. Because domain names are alphabetic, they are easier to remember. The internet however is really based on IP addresses. Every time you use a domain name,

therefor, a DNS service must translate the name into the corresponding IP address.

→ For example :- the domain name www.example.com might translate to 198.105.232.4

Components of DNS :-

(a) DNS resolver

(b) Name server

DNS Resolver :-

→ It is an internet service that translates domain names into IP addresses.

→ It is responsible for initiating and sequencing the queries that ultimately lead to a full resolution (translation) of the resource sought.

→ E.g - translation of a domain name into ip address.

Name Server :-

→ Server responsible for answering DNS queries

→ Exists at all levels of hierarchy

→ Authoritative name servers hold part of the DNS database

→ One name server can serve more than one zone.

-> many name servers "should" serve the same zone.
-> Same name servers are authoritative for certain zones.

CIDR Notation :-

-> CIDR stands for classes inter domain Routing
-> It is a method for allocating ip address.
-> CIDR was introduced by internet engineering task in 1993. To replace the previous addressing architecture.
-> It is basically the method that IPS, ISP to allocate the bunch of address to a company or a home.
-> For example :- 212.191.200.200/24. The slaces notation means how many bits are turned to one's.
-> For example :- 197.10.10.0/24

convert 24

→ It is also a method of assigning ip address that improves the efficiency of address distribution. and replace the previous syste based on class A, class B, class C networks.

→ The role of CIDR was increased a routing table. As a result. the number o available internet address has increased.

→ The classful design included

class A - 16 Millions
class B - 65535
class C - 254

→ If an organisation need more than 254 host it would be switched into class B. This cloud potentialy waste over 60000 host

→ If that organisation did not need to use them unnecessarily then there may appear IP address.

→ It is based on VLSM (~~very~~ variable length subnet masks) ~~who~~ which enables network engineer to devided an IP address different sizes for creating a subnet work with the different host.

→ CIDR notation made up of two set of numb one is prefix and suffix.

Prefix

→ A prefix which is a binary representation of the network address which is in IP address

Surfix

→ A surfix which declears the total number of bits in the entire address.

→ For example - 192.168.129.23/17 → CIDR

Surfix

→ In IPv4 address alow 32 bit.

→ In IPv6 the address alow 128 bit.

→ CIDR blocks are group of address and ~~contains that~~ share the same Prefix which contain same number of bit.

→ The combination of multiple connecting CIDR block into a large sharing network. which is known as Supernating

Advantages

→ It reduce the problem of wasted IPv4 and at the space

* ISP :-

→ It stands for internet service provider.

→ It is also called IAP which is a business or an organisation that provides consumer access to the internet and related service.

Ex- Jio, BSNL, AIRTEL etc.

Factors to be consider while chosing the IS

-> Bandwidth
-> Availability.
-> Network security
-> Service
-> Location and Speed

Bandwidth :-

-> Data transfering speed provided by ISP compa

Availability

-> Availability of network and performance to its user

Cost :-

refers pricing of the connection as well as the service.

Network security

-> It is an important issue related to the network over the internet.

Customer Services

Better customer services is highly required on ISP

Location & speed

-> It is an important factor where we looking for an internet provider is the location

where we live or work. A better location refers a good level of customer support.

Types of ISP :-

(i) Access provider :-

Here ISP provide internet access employing a range of technology to connect users to their network.

→ For ex :- wifi, fiber optics.

(ii) Mail box ISP :-

→ It offers email mail box hosting services and email server to send receive and store email

(iii) Hosting ISP :-

→ FTP, web hosting services, virtual machine

(iv) Transit ISP :-

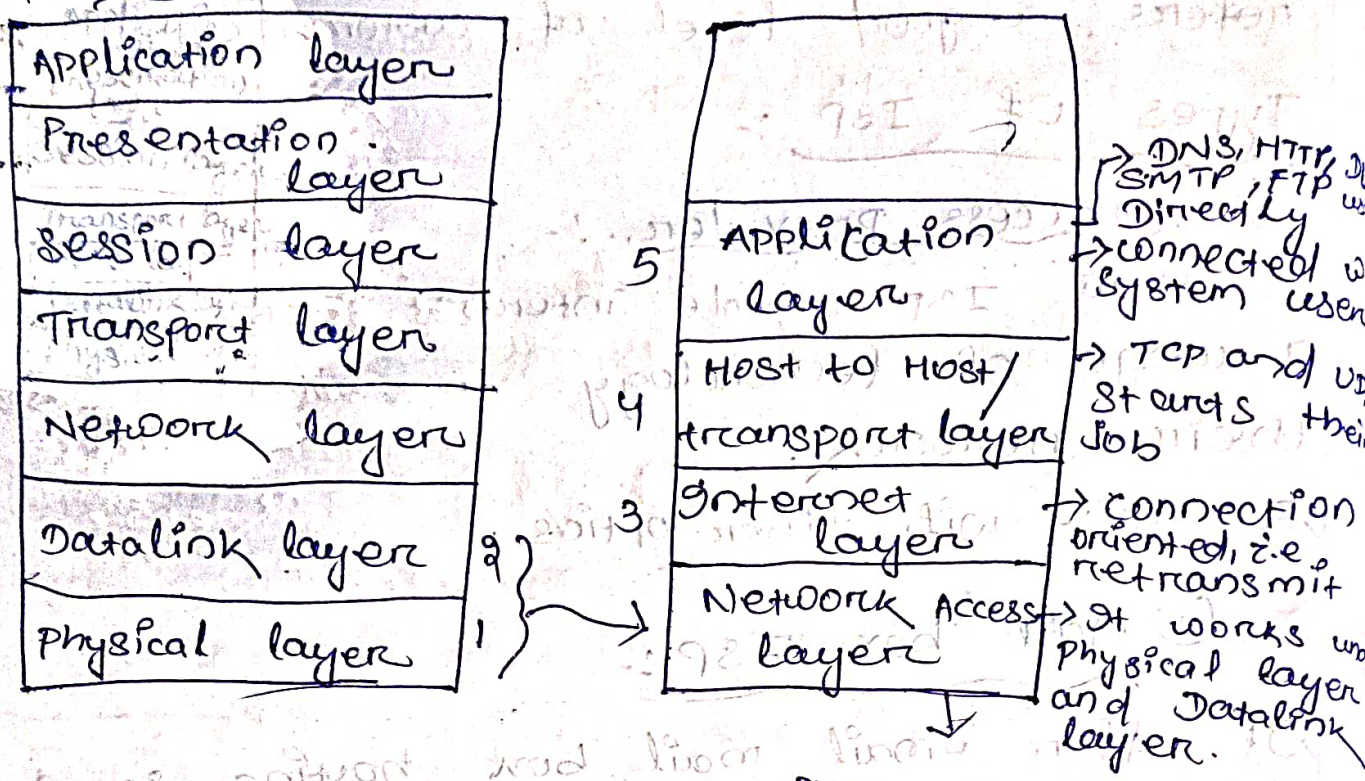
→ It provides large amount of bandwidth needed to connect hosting ISP and access ISP together

(v) Virtual ISP :-

→ It purchased services from other ISP to allow customers internet access.

(vi) Free ISP :-

→ It provides service free of charge and often display advertisement which users are connected



TCP/IP

→ The internet protocol should commonly known as TCP/IP. It is the set of communication protocol used for the internet and other similar network

→ It is named from two important protocol Transmission control protocol and internet Protocol.

→ Which were the first two networking protocol define in the standard

→ TCP/IP have 5 layer but ~~to~~ to access the internet we used 4 layer.

(A) Network Interface :-

→ It includes the function of the physical

layer and datalink layer

-> TCP/IP suite includes host to Network layer protocol such as Serial line. Internet protocol and point-to-point protocol.

(B) Internet Layer:-

-> It is exactly same to the network layer of OSI model. IP is the primary protocol operating at this layer and it provides data encapsulation, Routing, addressing and fragmentation services to the protocol at the transport layer.

(C) Transport Layer

TCP/IP should include two protocol at this layer. TCP and UDP (user datagram protocol) This protocol Provides connection and connection-less data transfer services.

(D) Application Layer:-

The TCP/IP protocol at the application layer can take different form of Protocol such as FTP (File transfer Protocol), HTTP (Hyper text transfer Protocol).

———— X ————

✓ Chapter-02 Internet Connectivity & WWW

* **Connectivity :-**

→ The process of connection to access internet is known as the connectivity.

→ There are too medium for connectivity. i.e
① wired
② wireless

Wired :-

coaxial, twisted, fiber optics cable

Wireless :-

Radio wave, Microwave and satellite

* **Methods of connectivity :-**

① Dial-up connection
② ISDN (Integreated service Digital Network)
(iii) DSL (Lised-line connection)
(iv) satellite (wireless internet access)

→ Theey are exist several ways to connect to the internet from the internet. i.e ISP (Internet Service Provider) for accessing the internet through the different method

VSAT :-

very small aparaeher Terminal.

→ It is a satellite connection system that Senses home and business users. A VSAT end user needs a box that interface between the users computer and outside the antena with a transiver. The transiver receive or sent signal to a satellite in the air

medium in sky

-> Another way it transmit and receive signal from a satellite through dish antena

-> we see in our house for DTH or at the top of the tall buildings.

-> It has two parts an outdoor unit and an indoor unit.

-> The outdoor unit that consist of a dish antena (Reflector) .. In this reflector it catch the signal from the service provider and release the signal to the user

Working of Internet :-

global system interconnected networking is possible here. the internet works through network computers.

→ Two or more computer are using to be network when they are able to data interchange through wires.

→ There LAN, MAN & WAN are able to access

WWW :-

It is a huge collection of pages of information link to each other around one

globe

→ It is a system of creating, organising and linking the documents.

→ Every page is a combination of text, picture, audio, video, animation and hyperlink

→ The web has unique features it has no central control or it is not centrally controlled.

→ The web was because people work within the guideline.

→ All web server could use the same protocol or mechanism

→ It is interactive because the search engine has push technology features like web lasting

Application level protocol:-

It consists of a protocal.

(i) Protocol which are used user

(ii) Protocol which help and support the Protocol used by the user.

→ User

→ (DNS) client server mode.

→ It translate to the ip address.

→ SMTP :-

Simple mail transfer protocol.

→ It is used for email transmission

→ It secured with SSL (secured socket laye

→ FTP

File transfer protocol

→ Here we can transfer the file command using PUT/GET - send one file, SEND - send single file.

→ It used for connect to remote (USER, OPEN, PASS)

→ These command used for ~~tran~~ terminate the session also

→ CLOSE - Disconnect from FTP

→ QUIT - All connection are stop that is FTP & user has no connection.

Disadvantages :-

→ It has no encrypted version

→ It is used to exchange, files in internet..

→ It is most commonly used to upload and download from the internet..

→ FTP can be invoked from the cmd or some GUI

→ FTP also allows through update, Delete, Rename move & copy files within a server.

→ It allows end to end connection

(i) File structure - no internal - structure i.e it is saved in the form of byte.

(ii) Record structure - Here file is made up of sequentially maintained.

(iii) Page structure :- Here it is page

wise maintained.

Web Browser:-

→ It is used for find out some matter
→ web browser is a software application
→ It is used to locate, retrive and also display the content of www.
→ These are basically used to explore the interne
→ More than one web browser can be installed on a single computer.

Types of web Browser:-

→ Text web Browser
→ web :- browser that display only text known as text web browser
Ex- LYNX :- which provides access to internet in text mode only

→ Graphical web Browser:-

A web browser that supports both text and graphics information is known as graphic web browser.

→ Some major graphical web-browsers are internet explorer, firefox, chrome, opera safari, uc browser, brave etc
→ The first graphical web browser is MOSAI and NCSA

URL :-

→ uniform resource locator.

→ A client that wants to access a web page needs the address i.e complete address of website is called URL

→ It is unique for webpage, To facilitate the access of documents distributed through out the world.

→ The URL is a standard for specifying any kind of information on the internet.

→ The URL defines protocol, host computer port and path.

Ex

http://www.yahoo.com/weather/Dkl.html

protocol. Domain Name Path of web page

Uses of URL :-

→ The information content in a URL, gives the ability to host from 1 web page to another

→ When you type a URL into your browser or click a hypertext link, your browser sends a request to a remote controller called a web server to download one or more files.

→ Every URL is unique identifying on specific file.

Hyper Text :-

Hypertext is a text which connect links. to other text. It may refer to plain simple text it may refer to plain simple text that. Contains links to access other link of text within same or different document.

-> It provides the information or organize the present information.

-> Links connect node to other document and usually activated when click by mouse.

Hyperlink :-

A link on which hypertext is connected means a link on hypertext and it goes on a specific URL. i.e Hyperlink.

-> These are found in all web pages allow to the user to click their way from page to page.

Hypermedia :-

-> It is an extension of the term "Hyper-text" is a non-linear medium of information that includes graphics, audio, video, plain text and hyperlinks

-> This designation contrast the term multimedia which may include non-linear presentation

as well as hypermedia.

Search Engine :-

These are programs that search document for specified keyword and return the list of document where the keywords were found.

-> It is a general class of program however, the term is often use to specifically describe system like gogle and yahoo.

-> It enable the users to search for the document on the www.

-> It accepts query.

-> It look in index for word that match all criteria

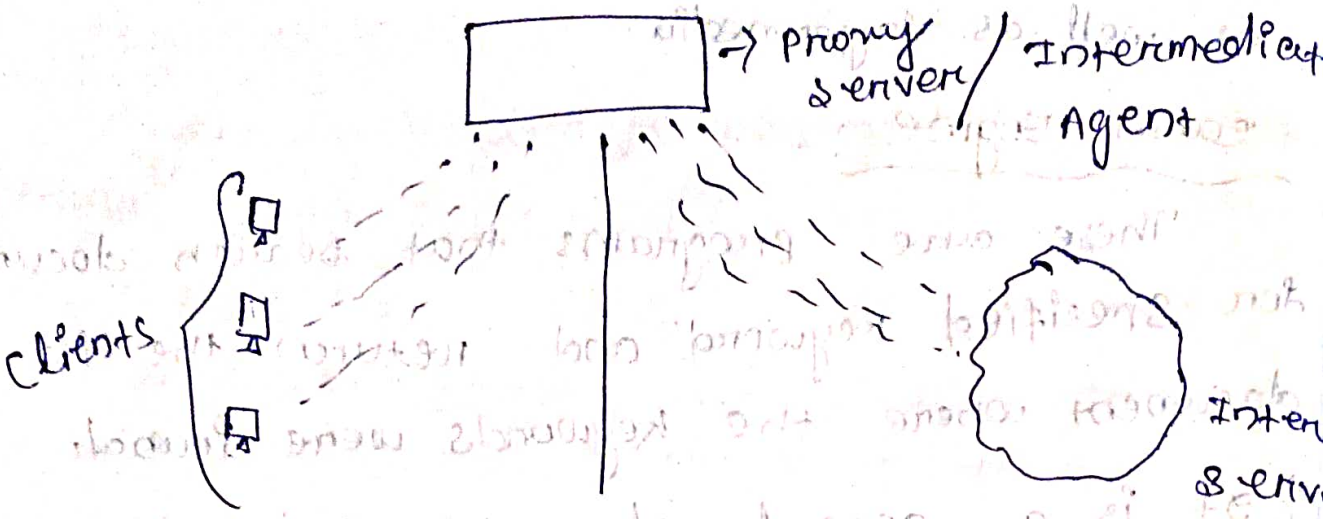
-> It short by relivance location, link, analysis etc.

-> It creates result page.

Proxy Server :-

It is the indirectly deal of the server It represent for a server behalf of another person. Here client is indirectly send details to the server and server also indirectly access with client.

Structure Next page


→ Proxy server / Intermediat
Agent
Clients
Inter
Serv

Advantages :-

-> Network security
- Here it hides the real ip address of user in the network
- It improve the network performance.
- It monitering the user in a network
- It can block the website
- Access control is possible.

Disadvantages :-

-> It is not easy to install for all
-> The uses of email and surfing net is limited.

GeI :-

-> It is a technique for using the graphics design
-> Here we can design the medium processing 3D image.
-> It is an interface that enables web server to execute an external program.

URI :-

uniform Resource Identifier.
-> It is a string of character used to identify a resource on the internet either by location or by name, or both
-> It is the combination of URL and URN

URL - uniform resource Locator

→ It is a string of character but it refers just the address

→ It is most use the way to locate resource on the web.

URN :- uniform Resource Name

→ Here the web shows the individual name under a server.

Dreamweaver :-

→ It is an IDE used for designing, developing managing websites quickly and efficiently

→ It allows us by using the variety of language like HTML, Javascript, CSS, BB script PHP, Jsp etc

→ It allows us designing web sites visually as well as by coding.

→ It also allows drag and drop feature to design as it is web development tool.

→ It makes coding simpler by code highlight feature.

→ It makes coding faster by code completion feature.

Introduction to internet security :-

Internet security is a branch of computer security which comprises various security measures exercised for ensuring the security of transactions done online.

→ In this process the internet security Prevent attacks targeted at browsers, n/w, OS and other applications

Types of security :-

Network layer security :-

→ TCP/IP can be made secure with the help of cryptographic methods and protocols.
→ These protocols include secure sockets layer (SSL) succeeded by transport layer security (TLS) for web traffic; pretty good privacy (PGP) for email and IP security for the n/w layer security

Internet protocol security (IPsec)

This protocol is designed to protect communication in a secure manner using TCP/IP.

→ It is a set of security extensions developed by the Internet Task Force (IETF) and It provides security and authentication at the IP layer by transforming data using encryption.
→ Two main types of transformation form the basis of Ipsec. The Authentication header (AH)

and Encapsulating security payload (ESP)

→ These two protocols provide data integrity, data origin authentication and anti-replay service

Electronic mail security (E-mail)

Email message are composed, delivered and stored in a multiple step process which starts with the message's composition when the user finishes composing the message and sends it, the message is transformed into a standard format: an RFC 2822 formatted message

→ Afterwords the message can be transmitted using a network connection the mail client, referred to as a mail transfer agents (MTA) operating on the mail server.

→ The mail client then provides the sender's identity to the server Next using the mail server commands the client sends the recipient list to the mail server.

→ The client then supplies the message once the mail server receives and processes the message several events occur: recipient server identification connection establishment and message transmission.

→ Using (DNS) services the sender's mail server determines the mail server(s) for the recipient then the server opens up a connection to the recipient mail server(s) and sends the

message employing a process similar to that used by the originating client, delivering the message to the recipient(s)

Pretty good privacy (PGP) :-

→ Pretty good privacy provides confidentiality by encrypting messages to be transmitted or data files to be stored using an encryption algorithm such triple DES or CAST-128.

→ Email messages can be protected by using cryptography in various ways such as the following :-

- signing an email message to ensure its integrity and confirm the identity of its sender
- Encrypting the communication betn mail servers to protect the confidentiality of both message body and message header

Multipurpose Internet Mail Extensions (MIME)

- MIME transforms non-ASCII data at the sender's site to Network to virtual Terminal (NVT) ASCII data and delivers it to client's simple mail transfer Protocol (SMTP) to be sent through the Internet

→ The server SMTP at the receiver's side receives the NVT ASCII data and delivers it to

MIME to be transformed back to the original non-ASCII data.

Message Authentication code (MAC):-

→ A message authentication code (MAC) is a cryptography method that uses a secret key to encrypt a message

→ This method outputs a MAC value that can be decrypted by the receiver, using the same secret key used by the sender

→ The message authentication code protects both a messages data integrity as well as its authenticity.

Authentication & Authorization:-

Authentication:-

It is a process of identifying and verifying who is sending request

Authorization:-

It is a process to provide access rights to the individuals.

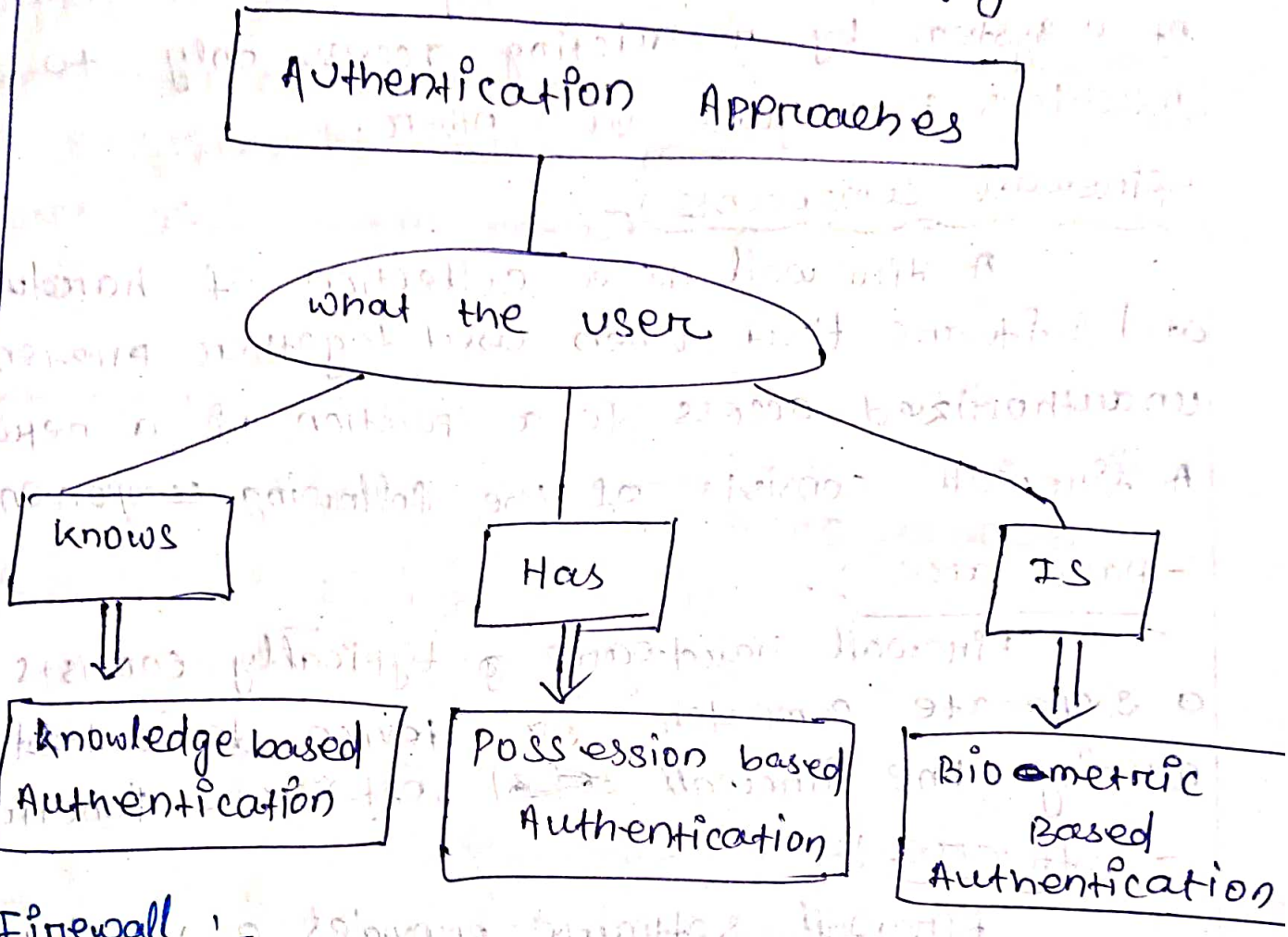
General Process of Authentication:-

→ The sender obtains the necessary credential

- The sender sends a request with the credential to the recipient.

- The recipient uses the credential to verify the sender truly sent the request.

- If yes, the receiptient processes the request, If no, the recipient rejects the request and responds accordingly.



Firewall :-

A firewall is simply a program or h/w device that filters the information coming through the internet connection into your private network or computer system.

Role of Firewalls :-

A firewall is a term used for a "barrier" between a network of machines and users that operate under a common security policy and generally trust each other and the outside world.

- There are two basic reasons for using a firewall at present to save money in concentrating your security on a small number of components and to simplify the architecture of a system by restricting access only to machines that trust each other.

Firewall components :-

A firewall is a collection of hardware and software that when used together prevent unauthorized access to a portion of a network. A firewall consists of the following components

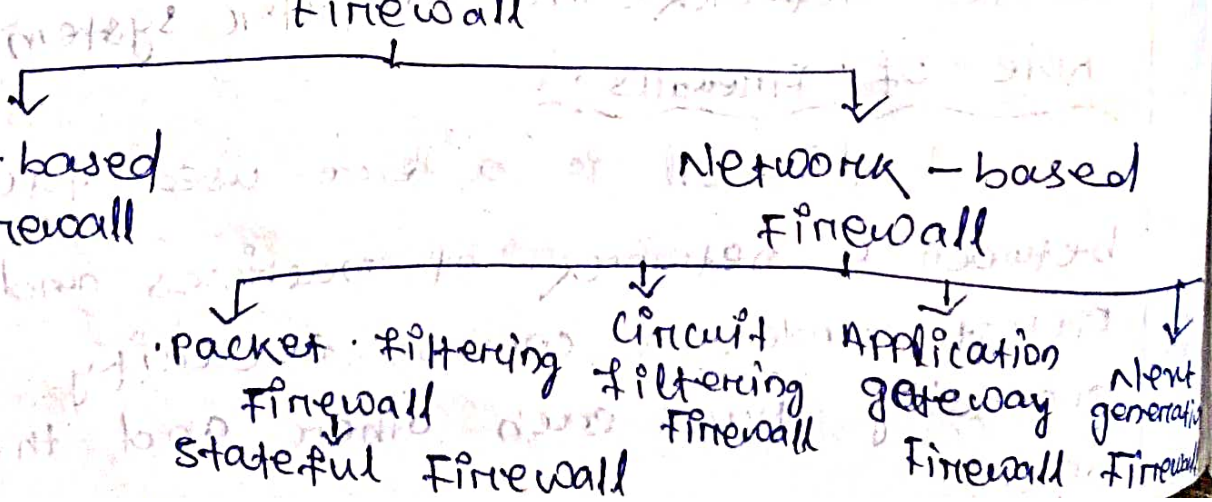
- Hardware :-

Firewall hardware typically consists of a separate computer or device dedicated to running the firewall software functions

- Software :-

Firewall software provides a variety of applications. In terms of network security a firewall provides these security controls through a variety of technology.

Types of Firewalls



Host - Based

A host based firewall is installed on each network node which controls each incoming and outgoing packet. It is a software application or suite of applications that come as a part of the operating system. Host firewall protects each host from attacks and unauthorized access.

Network - Based :-

Network firewall functions on the network level by employing two or more network interface card (NICs). In other words, these firewalls filter all incoming and outgoing traffic across the network by using firewall rules. A network based firewall is typically a dedicated system with proprietary software installed.

Advantages :-

→ Concentration of security all modified software and logging is located on the firewall system as opposed to being distributed on many hosts

→ Protocol filtering, where the firewall filters protocol and services that are either not necessary or that can not be adequately secured from exploitation.

→ Information hiding, in which a firewall

can 'hide' names of internal systems or electronic mail addresses, thereby revealing less information to outside hosts

→ Application gateways, where the firewall requires inside or outside users to connect first to the firewall before connecting further thereby filtering the protocol.

Disadvantages :-

→ the most obvious being that certain types of network access may be hampered or even blocked for some hosts including telnet, ftp, X windows NFS, NIS, etc

→ A second disadvantage with a firewall system is that it concentrates security in one spot as opposed to distributing it among systems thus a compromise of the firewall could be disastrous to other less protected systems on the subnet

Encryption and Decryption :-

Encryption :-

It is a process of encoding a message so that its meaning is not obvious plaintext to ciphertext : encryption

$$C = E(P)$$

Decryption :-

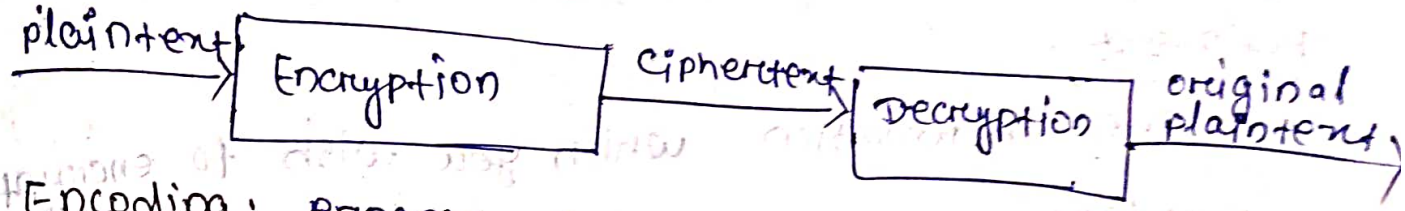
The conversion of encrypted data into its

original form is called Decryption. It is generally a reverse process of encryption.

Ciphertext to plaintext : Decryption

$$P = D(C)$$

requirement $= P = D(E(P))$



Encoding; Process of translating entire words or phrases to other words or phrases.

Enciphering; Process of translating letters or symbols individually

Encryption :- It is the group term that covers both encoding and enciphering.

The Elements of Encryption :-

There are many different ways that you can use a computer to encrypt or decrypt information. Nevertheless each of these so called encryption systems share common elements

Encryption algorithm :-

The encryption algorithm is the function usually with some mathematical foundations which performs the task of encryption and decrypting your data.

Encryption keys :-

Encryption keys are used by the encryption algorithm to determine how data is encrypted or decrypted keys are similar to computer passwords. when a piece of information is encrypted you need to specify the correct key to access it again

plaintext :-

The information which you wish to encrypt

Ciphertext :-

The information after it is encrypted.

Encryption Techniques :-

1. Symmetric key encryption
2. Asymmetric key encryption.

Symmetric key encryption :-

In this encryption techniques sender and recipient share a common key

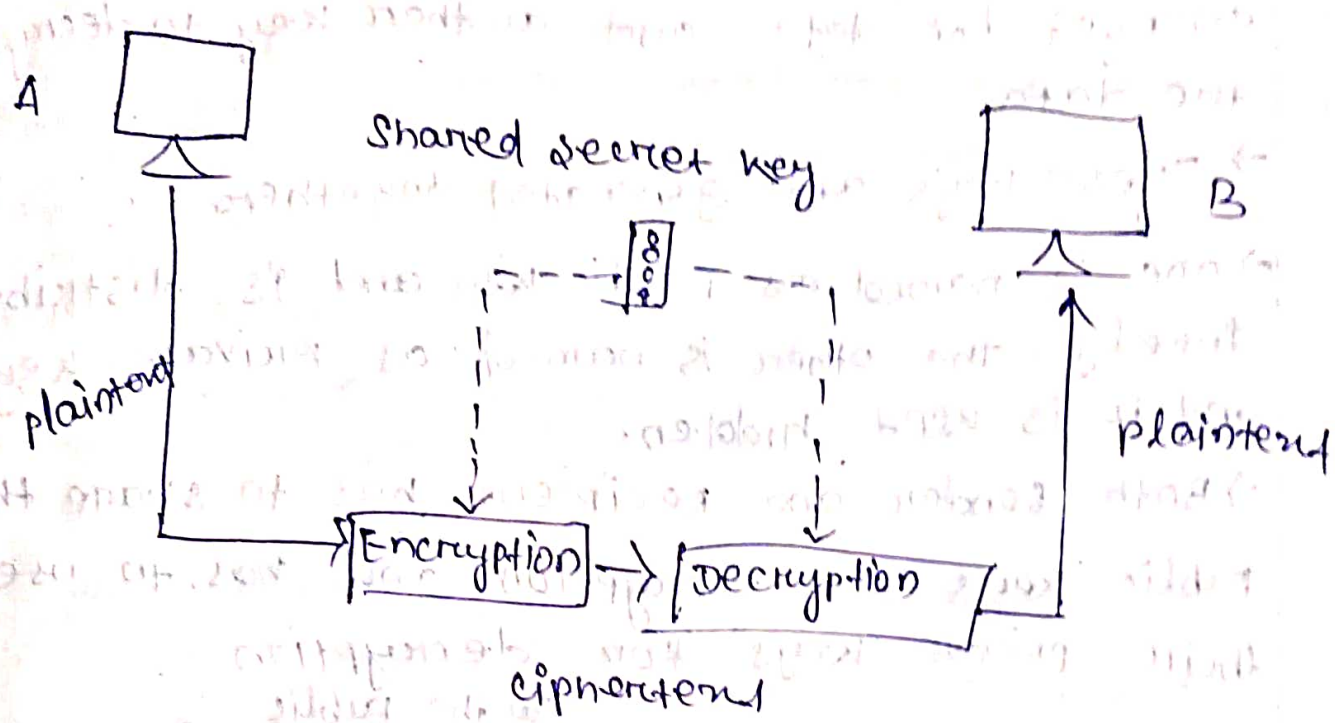
→ All traditional schemes are symmetric / single key / private key encryption algorithm with a single key used for both encryption and decryption since both sender and receiver are equivalent either can encrypt or decrypt messages using that common key.

Requirements :-

(1) a strong encryption algorithm

(2) a secret key known only to sender/receiver

$$Y = E_K(X)$$
$$X = D_K(Y)$$



Here plaintext X, ciphertext Y, key K, encryption algorithm E_K, decryption algorithm D_K

→ assume encryption algorithm is known.

→ Implies a secure channel to distribute key

→ symmetric encryption is generally more efficient than asymetric encryption and therefore preferred when large amounts of data need to be exchanged

Advantages:-

- It is simple to implement
- It is faster

Disadvantages:-

→ key must exchanges in secure way.

→ Easy for hacker to get a key as it is passed

in unsecure way

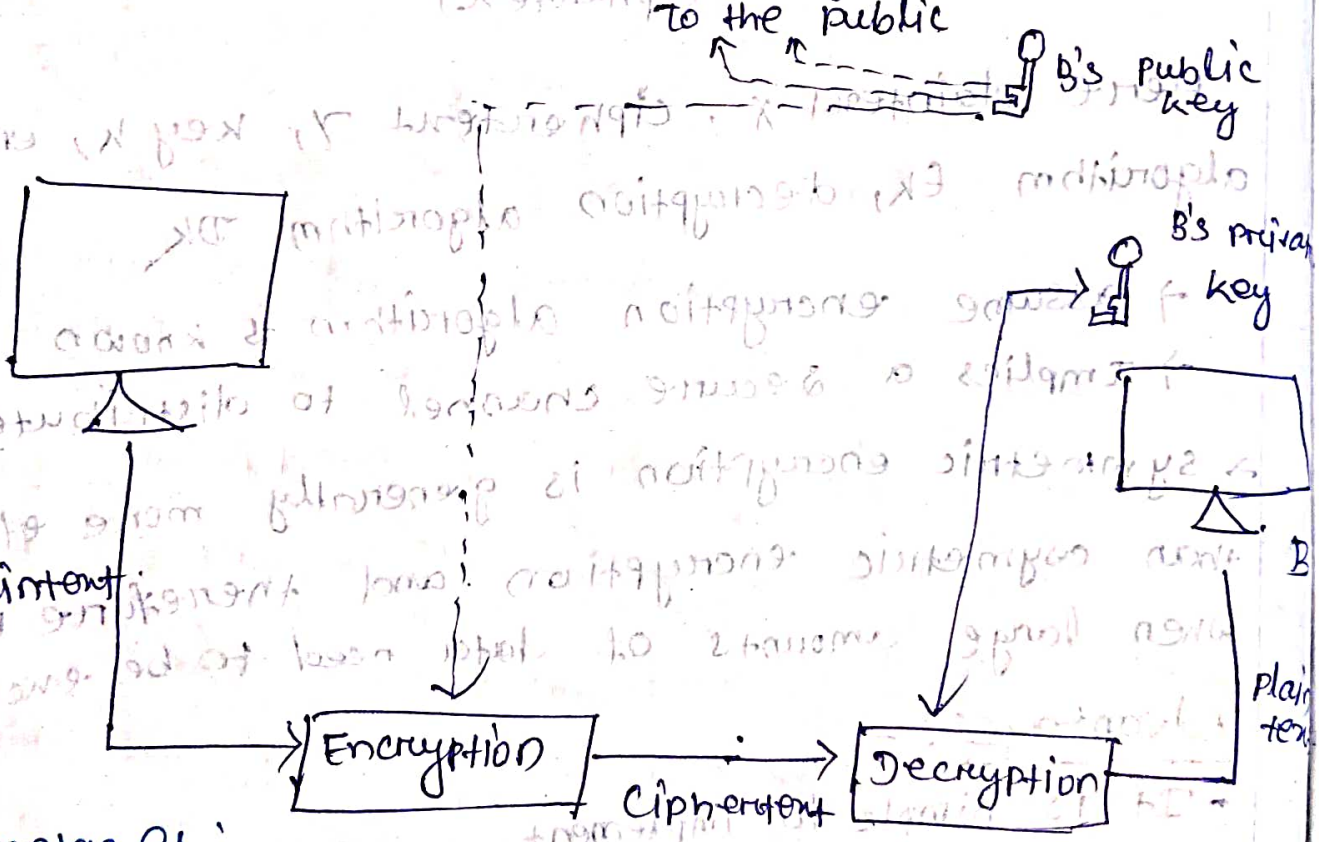
Asymmetric Encryption :-

→ Asymmetric encryption use two keys one to encrypt the data and another key to decrypt the data.

→ These keys are generated togethers

→ one is named as public key and is distributed freely. the other is named as private key and it is kept hidden.

→ Both sender and recipient has to share their public keys for encryption and has to use their private keys for decryption



Advantages :-

→ It is more secured

→ It is provides more authentication

Disadvantages :-

→ It is relatively complex to implement.

Electronic Mail (E-mail) :-

Internet provides main communication services that are E-mail, Newsgroup (Usenet)

→ E-mail is a private communication betⁿ two parties who have accounts on internet

Advantages :-

→ It is faster, easier
→ E-mail is more convenient than traditional mail.
→ Email is cheap
→ It is flexible

E-mail Networks :-

Data and messages can be transmitted from one computer to another using telephone lines, micro-wave link, communication satellites or other telecommunication equipments

The same message can be sent to a number of different addresses

E-mail is sent through a company's local area network or beyond through a nation wide communication network

→ E-mail services use a central computer to store message and data and route them to their intended destination with a subscription to a public network and individual PC. It needs only a modem and a telephone to send and receive written or vocal message

E-mail clients :-

If you are accessing the internet at

home through an ISP you will need a program which can send and receive E-mail, This is known as E-mail client

Example :-

Microsoft's Outlook Express
Netscape mail

Structure/ Format of mail :-

- Email address
- Header
- Body
- Signature
- Attachment

Protocols of E-mail :-

1. POP3 (post office protocol 3) :-

It is a protocol that define how email messages are to be retrieved from a mail server

It is one of the two protocol that a PC mail should be able to use if it is to send and receive email over the internet.

-> SMTP & POP3 can share information with each other. so we don't need to use the same e mail client

2. SMTP (simple mail transfer protocol) :-

This is the method protocol computer use to send messages by message transfer Agents (MTA) on the Internet

MTA are client & server programs that perform email services such as sending or receiving mail for a host computer.

3. MIME (Multipurpose Internet Mail Extension) :-

It represents a standard for describing data types. It gives information about data.

It was designed as an extension to the simple mail transfer protocol allowing people to send binary data.

A particular MIME type is a pair of elements deliminated by "/"

4. IMAP (Internet Message Access protocol) :-

It is a method of accessing e-mail or bulletin board messages that have kept on a mail server.

In other words, It permits a client in a program to access remote message stores as if they were local

Telnet (Terminal Network) :-

Telnet is a protocol or set of rules that enables one computer to connect another computer. This process is also known as remote login

=> The user computer which initiates connection is referred as local computer and the machine being connected to which accepts the connection is referred as the remote or host computer

To start telnet session you must login

the server by entering a valid username and password.

- Telnet is both TCP/IP application and a protocol for connecting a local computer to a remote computer
- Telnet operates on client server principle. The local computer uses a telnet client program to establish the connection and display data on local computer monitor.
- The remote or host computer uses a telnet server program to accept the connection and sends response to request for information back to the local computer.
- The telnet application acts as a terminal emulator i.e whatever commands are typed in local computer are sent accross the network for the execution by the remote computer.

File Transfer protocol (FTP):-

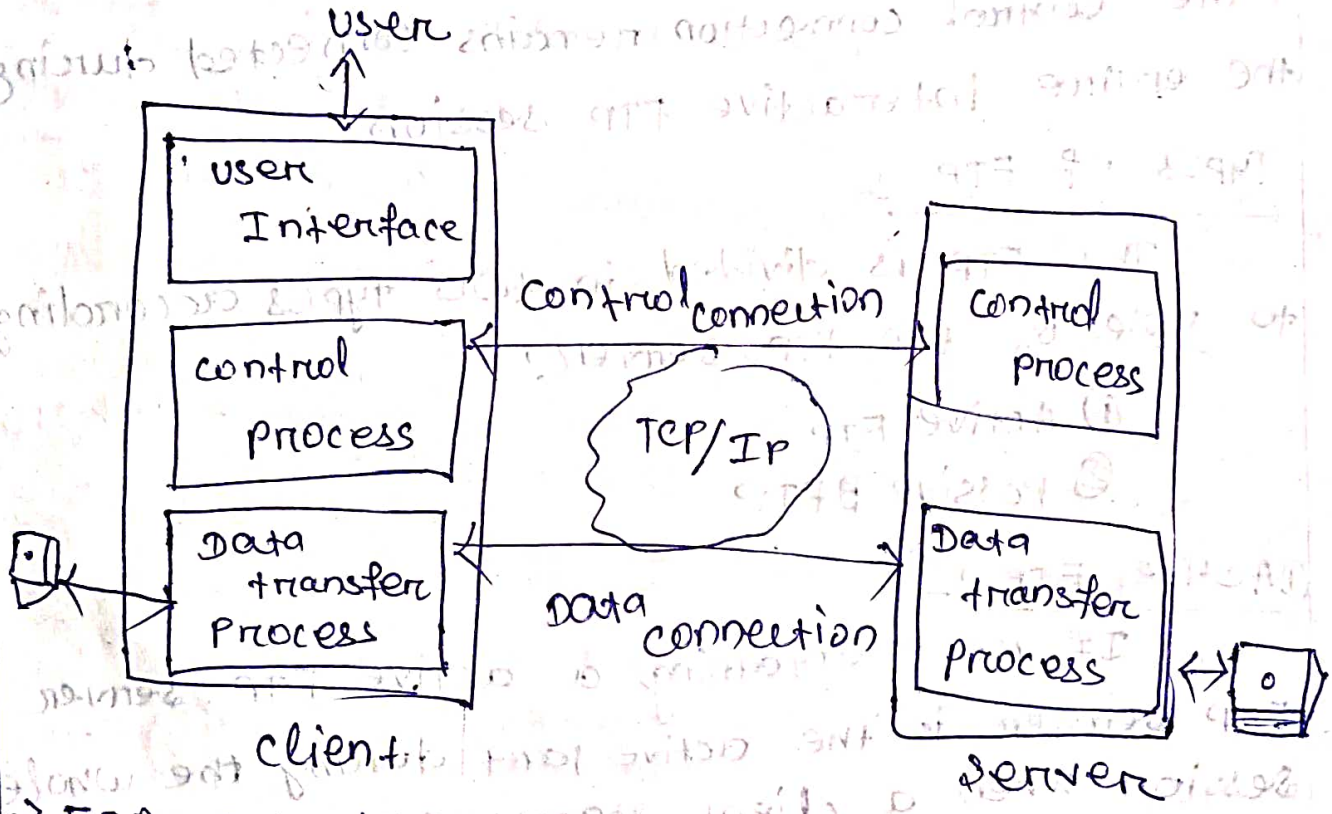
- File transfer protocol (FTP) is the standard mechanism provided by TCP/IP for copying a file from one host to another or transferring files from one system to another.
- Some problems in transferring files are two system may use different file name conventions two systems may have different

ways to represent text and data, two systems may have different directory structures. All these problems have been solved by FTP in a very simple and elegant approach

FTP server and FTP client :-

→ In host computer program called a FTP server when the server or host is one that uses the FTP for transferring files to client

→ A FTP client is a user program that downloads a file from the server.



→ FTP establishes two connections between the hosts once connection is used for data transfer the other for control information so separation of commands and data transfer makes FTP more efficient

→ FTP uses two well-known TCP ports: Port 21

is used for the control connection and port 20 is used for the data connection.

→ The client has three components: user interface, client control process and the client data transfer process

→ The server has two components: The server control process and the server data transfer process. The control connection is made betn the control processes. The data connection is made betn the data transfer processes

→ The control connection remains connected during the entire interactive FTP session.

Types of FTP :-

The FTP is divided in two types according to role of the FTP server:

1. Active FTP
2. Passive FTP

① Active FTP :-

If we maintaining a active FTP server the FTP server is the active part during the whole session when a client starts an active FTP session the server will initiate data transfer

② Passive FTP :-

Passive FTP requires the client to be the active part. i.e once control session is established it will ask for a port with which data connection will take place

and finally initiate data connection with the port received passive FTP is considered more secure than active FTP

* IRC (Internet Relay chart) :-

IRC is form of real time internet charge or synchronous conferencing. It is mainly dessigned for group communication in discussion forums called channel.

It also allows one to one communication via Private message as well as chart and data transfer via client to client.

IRC channel :-

IRC establish a communication IRC session is called as IRC channel.

IRC Network :-

There are thousands of IRC networks in the world they run various implementation of IRC server and are administered by various group of IRC operators.

IRC server :-

An IRCD (Internet Realay chart Daemon) is a server software that implement the IRC protocol which enables people to talk with each other via internet.

Video conferencing :-

Video conferencing means to conduct a conference between two or more participants at different sites by using computer networks to transmit audio and video data for example a point to point (two person) video conferencing system works much like a video telephone.

- Each participant has a video camera microphone and speakers mounted on his or her computer. As the two participants speak to one another, their voices are carried over the network and delivered to the other's speakers and whatever images appear in front of the video camer appear in a window on the other participant's monitor.

E-commerce :-

→ Commonly known as Electronic marketing
→ It consist of buying and selling goods and services over an electronic systems such as the internet and other computer networks
- E-commerce is the purchasing, selling and exchanging goods and services over computer networks through which transaction or terms of sales are performed Electronically

uses

→ Low entry cost
→ Reduces transaction costs
→ Access to the global market
→ Secure market share

PROCESS :-

A consumer uses web browser to connect to the home page of a merchant's website on the internet.

→ The consumer browses the catalog of products featured on the site and selects items to purchase. The selected items are placed in the electronic equivalent of a shopping cart

→ When the consumer is ready to complete the purchase of selected items, she provides a bill-to and ship-to address for purchase and delivery.

→ When the merchant's web server receives this information. it computes the total cost of the order including tax, shipping and handling charges and then displays the total to the customer.

→ The customer can now provide payment info such as a credit card number, and then submit the order.

→ When the credit card number is validated and the order is completed at the commerce server site, the merchant's site displays a receipt confirming the customer's purchase.

→ The commerce server site then forwards the order to a processing network for payment processing and fulfillment

Types :-

① Business to Business (B2B)

② Business to consumer (B2C)
③ consumer to Business (C2B)
④ consumer to consumer (C2C)
⑤ Business to Employee (B2E)

* Chartroom :-

→ It is used to describe any form of synchronous conferencing occasionally asynchronous conference

→ Real time online chat/ online interaction

→ The primary use of chartroom is to share information via text with a group of users

→ multiple people in the same topic can gossip with instant messaging.

→ Now technology has enabled the use of file sharing and webcams to be included in some programs.

Newsgroup :-

A Newsgroup is a discussion about a particular subject consisting of notes written to a central Internet site and redistributed through USENET, a worldwide network of news discussion groups usenet uses the network news Transfer Protocol. (NNTP)

ch-05 Website classifications ✓

Websites :-

→ website is a collection of related web pages that may contain text, images, audio and video

→ The first page of a website is called home page Each website has specific internet address (URL) that you need to enter in your browser to access a website

→ website is hosted on one or more servers and can be accessed by visiting its homepage using a computere network

→ A website is managed by its owner that can be an individual, company or an organization.

→ A website can be of two types

- Static website
- Dynamic website.

Static website :-

A static website contains web pages with fixed content

→ Each page is coded in HTML and displays the same information to every visitor

→ static sites are the most basic type of website and are the easiest to create

→ A static site can be built by simply creating a few HTML pages and publishing them to a web server.

Advantages :-

→ Quick to develop

→ cheaper to develop

-> easier to host
-> ideal for small websites
-> Faster to transfer

Disadvantages :-

-> Lost more for long run
-> Limited functionality
-> editors need significant training & skills

Dynamic websites :-

-> A dynamic website contains information that changes depending on the server the time of the day the time zone, the viewers native language and other factores
-> Dynamic websites contain web pages that are generated in real time
-> These pages include web scripting code, such as PHP or ASP
-> When a dynamic page is accessed the code within the page is parsed on the web server and the resulting HTML is sent to the clients web browser
-> The word "Parse" means to analyse an object specifically
-> Most large websites are dynamic, since they are easier to maintain than static websites. This is because static pages each contain unique content, meaning they must be manually opened edited and published whenever a

change is made.

-> Dynamic websites that access information from a database are also called database driven websites

Advantages :-

① Restructuring of dynamic websites is simpler so ensuring its longevity

② Access to be able to content manage the website from any laptop, any place in the world

③ website content contributors/editors only need basic content editing skills

④ Multiple user access for updating/content managing - users or employees who are experts in their subject will add information to their relevant section of the web site

⑤ A dynamic website permits you to archive past material on a certain date or permits an item to be revealed or removed at a certain date automatically

⑥ As the content is held within a database, it permits the user to search the information for content also a website map is automatically generated as content is added.

Disadvantages :-

① For smaller films, a Dynamic web site might be too expensive or seen as unnecessary that the investment may not be even

② slightly longer initial development time

③ cost of implementing training of content management system to client

Differences

Static	Dynamic
→ contains information that does not change. It remains the same or static, for every viewer of the site	→ contains information that changes depending on the viewer the time of the day, the time zone, the viewer's native language and other factors
→ requires HTML, CSS & Javascript	→ requires HTML, CSS & Javascript, PHP, ASP.Net JSP & MySQL etc.
→ Easy to develope & a bit experienced people can develop it	→ websites not easy to develop. because require quality developers to develope it
→ never uses database connectivity	→ deals with database and generate the contents dynamically using database queries
→ Higly secure than Dynamic	- less secure

Web portal :-

→ A web portal is a specially designed website that often serves as the single point of access for information

→ It can also be considered a library of personalized and categorized content

→ A web portal helps in search navigation

Personalization, notification and information integration and often provides features like task management collaboration and business intelligence and application integration

classification of web portal :-

Web portals are classified as horizontal or vertical

→ A horizontal portal is used as a platform to several companies in the same economic sector or to the same type of manufacturers or distributors

→ A vertical portal (vortal) is a specialized entry point to a specific market or industry which subject area or interest some vertical portals are known as vertical information portals "(VIPs). VIPs provides news editorial content, digital publications and e-commerce capabilities

Social Networking site (SNS)

A social networking site is an online platform that allows users to create a public profile and interact with other users

→ SNS usually allow a new user to provide a list of people with whome they share a connection and then allow the people on the list to confirm or deny the connection.

→ After connections are established, the new user can search the networks of connections to make more connections

Pros of SNS :-

→ give chance to connect with people around

the world
- gives access to easy, instant communication tools
- social networking creates brand exposure for businesses
- The possibility of unlimited communication with other users
- Real time access to news and important information
- Social networking reduces feeling of loneliness

Cons of SNS:-

→ Risk of fraud or identity
→ Time wasters
→ Corporate invasion of privacy
→ It creates as association with depression with frequent use
→ social networking can lower productivity levels and academic performance.

RSS FEEDS:-

RSS (Really simple syndication):-

- RSS is a type of web feed that allows users and applications to receive regular updates from a website or blog of their choice.
→ the acronym RSS stands for really simple syndication or Rich site summary. It is sometimes referred to as the feed or RSS feed
→ In the early days of internet, if you wanted to keep track of updates on your

favorite website then you had to bookmark it and then manually visit to see if there were any updates

→ RSS feed solves that problem by allowing users to keep track of their favorite websites without having to manually visit the website each time

→ RSS allows bloggers and publishers to automatically syndicate their content, so many people in their email, feed reader and other devices.

How Does RSS Feed work?

RSS feeds work by publishing your latest content in a structured XML document. This feed contains your full articles or the summary and metadata for each item like date author, category, etc

→ This XML document can then be fetched and read with a RSS feed reader. There are many RSS feed reader s/w available for all OS, desktops and mobile devices

→ All wordpress blogs come with builtin support for RSS feeds. By default, each page of your wordpress site contains a metatag that points to your websites RSS feed location

→ you can disable RSS feeds in wordpress but continue reading and you might change your mind about disabling them

Benefits of RSS:- RSS makes it easy for

users to subscribe to your content using an RSS feed they can receive updates from your blog or website directly in their feed readers, desktop application and many other devices

→ subscribers don't have to remember your website URL because they can bring the content into a central location where they like to read all of their favorite websites at once.

→ your content also becomes portable and your subscribers can even take it with them for offline reading

→ RSS feeds help you blind and nature a loyal following around your blog. RSS subscriber are more likely to share your content on social media. many of our readers automatically tweet every new wpBegineer article using RSS feed.

Blog :-

A Blog is an abbreviated word used for term "weblog". This is a word used to describe different type of websites and portals specific which share information on topics or wider categories it usually includes features like blog posts, video, comments, links to other websites, widgets etc.

Blogging :-

Each and every skill you need to run and a blog is called blogging includes skills like manage Blogging Engine optimization, social search media marketing, writing, editing and publishing posts Designing and maintaining the design of your website etc.

Things needed for a Blog :-

(1) Domain Name :-

Domain name is a name people use to reach your website or Blog just like www customizeblogging com is Domain name and you reach Blogging game by entering that URL in your browsers web Address Bar. You can register a Domain name by going to any Domain name registrar's website and choosing a domain name and yes you if that name is alreardy registered you have to choose another one

(2) web Hosting :-

You need a computer on you can say that server to store all of your website's data so that people could see it. You will store your all data in some web hosting company's server.

Netiquete :-

Netiquete is a code of good behavior on the internet. This includes several aspects

of the internet, such as email, social media online chat, web forums, website comments multiplayer gaming, and other types of online communication

→ While there is no official list of netiquette rules or guidelines, the general idea is to respect others online Below are ten example

(1) Avoid posting inflammatory or offensive comments online (aka flaming)

(2) Respect other's privacy by not sharing personal information, photos, or videos that another person may not want published online

(3) Never spam others by sending large amount of unsolicited email

(4) Do good sportsmanship when playing online games whether you win or lose

(5) Don't troll people in web forums or website comments by repeatedly hangging or annoying them

(6) Stick to the topic when posting in online forums or when commenting on photos or videos such as Youtube or facebook comments

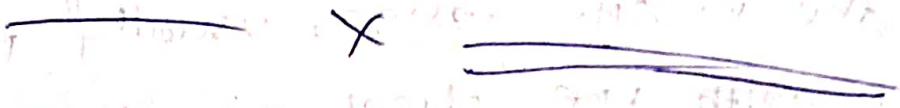
(7) Don't swear or use offensive language

(8) Avoid replying to negative comments

with more negative comments. Instead break the cycle with a positive post

→ If someone asks a question and you know the answer offer to help

→ Thank others who help you online



Design a webpage

The web design process in 7 simple steps
In orderr to design, build and lunch your website its important to follow these steps

(1) goal Identification: In this inital stage the designer needs to identify the end goal of the website design, usually in close collaboration with the client or other stake holders

(2) Scope definition :-

one of the most common and difficult problems playing web design projects is scope creep. The client sets out with one goal in mind, but this gradually expands evolves or changes altogether during the design

(3) Sitemap and wireframe creation:-

The sitemap provides the foundation for any well designed website. It helps give web designe a clear idea of the websites information architecture and explains the relationships between the various pages and content elements

(4) Content creation:-

once your website frame work is in place you can start with the most important aspect of the site. the written content.

purposes:- content drives engagement and action

First, content engages readers and drive them to take the actions necessary to fulfill a site's goals. This is affected by both the content itself and how it's presented

purpose 2 ; SEO

content also boosts a site's visibility for search engines. The practice of creation and improving content to rank well in search is known as search engine optimization or SEO

getting your keywords and key phrases right is essential for the success of any website. I always use google keyword planne.

(5) visual elements

Finally its time to create the visual style for site. This part of the design process with often be shaped by existing branding elements color choices and logos as stipulated by the client but its also stage of web design process where a good web designer can really shine

(6) Testing :-

Thoroughly test each page to make sure all links are working and that the website loads properly on all devices and browsers. Errors may be the result of small coding mistakes and while it is often a pain to find & fix

them its better to do it now than present a broken site to the public

(7) Lunch :-

Now it's time for everyone's favorite part of the website design process when everything has been thoroughly tested and your happy with the site and its time to launch

HTML

-> Hyper Text markup Language (HTML) is the main markup language for creating web pages and other information that can be displayed in a web browser

-> A markup language is a set of makup tags
- The tags describe document content.

Features :-

-> Predominant markup language for web pages
-> from the building blocks of all websites
-> easy to learn and use
-> platform independent
-> allows images and objects to be embedded at can be used to create interactive forms
-> It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists links, quotes and other items

→ images, video, audio can be added
→ Hypertext can be added
→ Markup language
→ can embed scripts in languages such as Javascript which affect the behaviour HTML web pages.
→ Web browsers can also refers to ess to define the apperance and layout of text and other material

Why learn HTML ?

→ It is a simple markup language It's implementation is easy
→ It is used to create a website
→ Helps in developing fundamentals about web programming
→ Boost professional Career

Advantages :-

→ Used to build websites
→ Supported by all browsers
→ Simple to edit
→ Light weight
→ can be integrated with other languages like CSS, Javascript etc
→ Display changes Instantly
→ HTML is user friendly.

Disadvantages :-

→ It can only create static web pages for dynamic web pages other languages have to be used

→ A larger amount of code has to be written to create a simple web page.

→ Security feature is not good.

→ If we need to write long code for making a webpage then it produces some complexity

Basic HTML Tags

Paragraph Tag :-

Tag :- <P> </P>

Attributes : Align = left, right, center

code :

```
<P align = left> This is a paragraph tag </P>
<P align = left> This is a paragraph tag </P>
```

output :-

This is a paragraph tag
This is a paragraph tag

Break Tag :-

Tag :

Function : puts a one line break betn text

code : This is a break tag
This is another break tag

output :-

This is a break tag
This is another break tag

Bold Tag

Tag :

Function: creates bold text

code : this is bold

output : this is bold

Italic Tag :-

Tag :

Function : creates Italic text

code : This text is italic

output : This text is italic

Unordered list Tags :-

Tag : <ul>

Function : The ul tag lists items using bullets

code : <ul> This is a ul tag

output : This is a ul tag

List Tags :-

Tag : <li>

Function : creates a ordered list

code :

```
<li> Apple </li>
<li> orange </li>
<li> Banana </li>
```

output : • Apple
• orange
• Banana

Hyperlink Tag :-

Tag :

Function : create a hyperlink to another page

Attributes : • Target = new

code : document

output : document

Table Tag :-

Tags : <table> </table> create table
<tr> </tr> create table row
<td> </td> " " column

code :

```
<table border=1 cellpadding=2 cellspacing=2>
    <tr>
        <td> cell 1 </td>
        <td> cell 2 </td>
    </tr>
</table>
```

output

cell 1	cell 2

Image Tag :-

Tag :

Attributes : alt, Align, Borderc

code : This is an image

OUTPUT :

This is an image

Email Tag :-

 swainkuna063@gmail.com

Image tags with locations

To place this in a left, center or right position you would

CSS

-> css stands for cascading style sheets

-> ess describes how HTML elements are to be displayed on screen, paper, or in other media

-> CSS saves a lot of work. It can control the layout of multiple web pages all at once

→ External style sheets are stored in css files

→ css is used to define styles for your web pages including the design, layout and variations in display for different devices and screen sizes

CSS Example :-

```
<!DOCTYPE html>
<html>
  <head>
    <title> This is document title </title>
    <style>
      h1 {
        color : #36CFFF;
      }
    </style>
  </head>
  <body>
    <h1> Hello world! </h1>
  </body>
</html>
```

Separation of style and structure :-

The basic idea behind css is to separate the structure of a document from the presentation of the document. HTML is meant for structure. It was never intended for

anything else. All those attributes you add to style your pages were added later as the viewing public demand it. All those additions though make HTML clumsy and work against its main purpose of structuring a document. HTML is there to let a browser know that this block of text is a paragraph and that block of text is a heading for this paragraph.

Without all the extra HTML for styling the structure of your document is much more readable making it easier to update without breaking the document. All of your CSS can be moved to a separate file making it easier to update your styles as well.

Types of CSS :-

Stylesheets come is 3 types

(1) Inline :- style attributes are used inline with the HTML tag.

Ex- When in the course

(2) Embedded (Internal) : style information is in a <style> tag which is nested in the <head> tag of a single web page.

Ex :-

```
<style typ = "text/css">
p{color: red}
</style>
```

③ Linked (external) :- the style is in one .css file that is linked to multiple web pages. The link tag on the page is connected to the external file.

Ex

```
<link ref="stylesheet" type="text/css" href="style.
```

CSS Rules :-

A css rule is grouping of one or more css properties which are to be applied to one or more target HTML elements.

A css rule consists of a css selector & a set of css properties. The css selector determines what HTML elements to target with the css rule. The css properties specifies what to style of the targeted HTML elements

Ex

```
div {
    border : 1px solid black
    font-size : 18px;
    }
```

This example creates a css rule that target all div elements and the set of css properties border and font-size for the targeted elements.

The css selector part a css rule is the part before the first { In the ex above it the div part of the css rule. The css properties

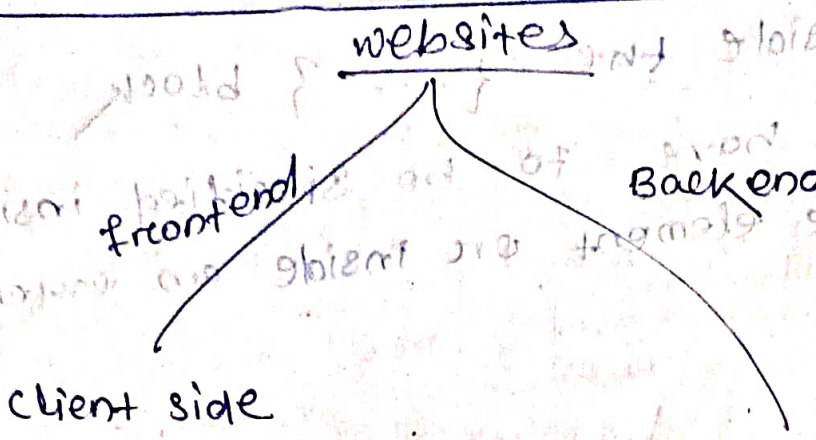
are listed inside the {...} block

→ CSS rules have to be specified inside either a style element or inside an external CSS file

Advantages :-

→ Easier to maintain and update
→ Greater consistency in design
→ More formatting options
→ Lightweight code
→ Faster download times
→ Search engine optimization benefits
→ Ease of presenting different styles to different viewers
→ Greater accessibility.

ch-09 PHP



Introduction to PHP :-

It is a server side scripting language that is enbedded in HTML, It is used to manage dynam content, database, session tracking, even build entire e-com sites.

→ It is integrated with a number of popular databas including mysql, postgre SQL, oracle, sybase, informix and microsoft SQL server.

→ PHP is pleasingly zeepy in its execution especially when compiled as an apache module on ther unix side. The mysql side once started executes even ver complex queries with huge result sets in record setting time

→ PHP supports a large no. of major protocols such as POS, IMAP, LDAP, PHy added support for java and listibuted object architectures making on tier developement a possibility for the 1st time.

PHP variables :-

→ All variables in PHP are denoted with a leading dollar sign ($)

→ The value of a variable is the value of its most recent assignment

→ variables are assigned with the = operator, with the variable on the left hand side & the expression to be evaluated on the right

• variables can but do not need to be declared before assignment

PHP strings :- (function of manipulate)

- strlen() - length of the string
- str_word_count() - how many words are present in a string, it will return that
- strrev() - Reverse a string
- strpos() - search for a specific text
- str_replace() - replacing the string within a text

PHP operators :-

* Php language supports following type of operators
  - Arithmatic
  - comparison :- compare 2 strings or 2 text
  - Logical / or Relationally :- combining the statement AND, OR, NOT
  - Assignment
  - conditional / ternary.

PHP conditional statements :-

- if statement, (if 1 condition true, then if statement executed)
- if ... else (more than 1 condition is present)
- if ... else ... if (1st condition true, then if statement is executed false, 2nd statement is executed if both the condition is false, then it is executed.)
- Switch (multiple condition)

PHP Loops :-

To execute the same block of code repeatedly as long as certain condition.

* for (through a block of code specify on to it)
* while. (specify no of condition)
* do-while :-> (1st loop is continue upto while condition is true)
* foreach

PHP Arrays :-

Stores multiple value in 1 single variable (special variable)

* Numeric : Numeric index represents
* Associative array : it represents named key.
* multi-dimensional array : These array containing 1 or more arrays

GET & POST method :-

GET

client side ---> server side through PHP.

- It is used to request data from a specified resource and get it from a common http method
→ GET requests are remain browser history
→ It can be bookmark
→ It can be cached.
→ GET request should never be used when dealing with sensitive data.
→ GET request have length restriction.
→ GET requre only used for request data, not in modification.

POST :-

→ It is used to send data to a server to create or update resource.
→ It is also common method http
→ It can not be cached
→ It can not be bookmarked
→ It has no length restriction

Both methods are gone under the PHP method.

PHP Session :-

(starting to end time)

* Starting PHP session (A session is started with a state function)
* Storing session variable (doing manipulation)
* Destroying a session (To remove all the function)