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INTERNET & WEB TECHNOLOGY

Fifth Semester

Computer Science & Engg.

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Chapter -1

Internet Basics

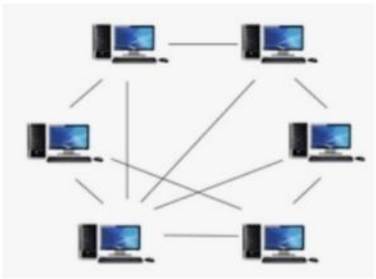
Computer networks

concept of internet,intranet,modem

IP address,internet domains,CIDR notation,ISP,TCP/IP

Computer networks

- A computer network is defined to be an interconnected collection of autonomous computers.
- Interconnected means capable of exchanging information, and autonomous means, that is independent or self-governing.
- Computer networks are required for sharing information when we communicate,we are shareing informations.
- This sharing can be local or remote.



Computer Network Architecture .

Types of computer networks

The three basic types of computer networks are purely based on the size of the area cover by the network.

1. Local area network (LAN)
2. Wide area network (WAN)
3. Metropolitan Area Network (MAN)

1. LAN-

- A local area network is a network that is confined to a relatively small area.
- It is generally limited to a Geographic area such as a lab, school for buildings.

2. WAN-

- Wide area network connects large Geographic areas.
- A WAN is complicated.
- Using a WAN school in India can communicate with places of the other country.

3. MAN-

- Metropolitan area network, in a computer network that is meant to span Metropolitan area.
-

concept of internet-

- The internet is a network of networks, linking computers to computers sharing the TCP IP Protocols.
- It has three components
    1. Network of networks
    2. network with information and resources
    3. users on the network

Intranet-

- It is a local or restricted network that enables people to store, organize, and share information within an organization.
- An internet belongs to an organisation and is designed to be accessible and only by the organisation members, employees, or other with authorization.
- The intranet is just internet technology used in house.
- Internet can solve many of the Communications problems which is important for businesses.

Modem-

- The process of modulation and demodulation, that is, the conversation of digital data to analog form and vice versa is called out by a special device called as modem(modulator / demodulator) .
- Modulation is the process of changing the form of the signal carrying the information.
- The demodulation process does the task of extracting information from the signal that are modulated.
- Mountains also do the task of regulating the information send over a network.
- It has many features like high speed, auto dial/redial, Auto Answer ,self testing, voice over data ,synchronous or asynchronous transmission.

IP address-

- IP stands for Internet Protocol, which are the rules that computer use to communicate over the internet.
- Every machine on internet has a unique number called an IP address.
- A client system communicates with an internet server. An internet server computer communicates with a client computer.
- Two server computers communicate with each other to client computer communicating via one or more servers.
- Every computer on the internet has a four part number address called internet protocol address which contain routing information that identify its location.
- Each of the four part is a number between 0 and 255 so an IP address look like a number under

  125.47.165.138
- An IP address content 32 bit logical address which represent 4 octet of 8 bit each separated by dots identifies the computer system on the network.
- The logical address is divided into two parts
  1. **Network ID-**
     - It is also known as network address.
     - The net ID identify the network must be unique to the Internet work.
  2. **Host ID-**
     - It is also known as host address.

- Host ID is assigned by the Local Network administrator and it must be unique to the network ID.

Classes of IP address-

It has five different classes

1. **Class A**: Class A is for very large organisations and network with a large number of host. Here the first obtained with 0xxx or 0 to 126 and other three octet are also used to identify the each host.
2. **Class B:** Class B is used for mid size network or organisation. Its address begins with10xx or 127 to 191 decimal.
3. **Class C:** class C is design for small networks or organisation with a small number of host and router .It is for midsize businesses .The block size of C is too small for many organisation. Its address begins with110x or 192 to 223 decimal.
4. **Class D:** class D is used for multicasting it's address begins with 1110 or 224 to 239 decimal. It is used to define one group of Host on the internet.
5. **Class E:** It is used for experiment purpose only and reserved for future use .Its address addresses start with 1111 or 240 to 254 decimal. Only a few organisations are using class E.

IPv6:

Internet Protocol version 6 addresses may contain up to 128 bits instead of the 32 bit maximum of IPv4.

Internet domain-

- The collection of network making of the internet is divided into groups which are called domain .
- The domain name system assign name and members of members to identify the computers.
- The name assigned by the DNS are called domain names and the number assigned by the DNS are called IP address.

Domain names-

- A name that identifies one or more IP addresses is called domain name.
- Domain names are used in URLs to identify particular web page.
- For example in the URL **http:/www. Incredible cse.com**, here the domain name is .com.
- **Some other examples of domain names are**
- gov-government agencies
- edu- educational institutions
- org- organizations
- mil- military

- com- commercial business
- net- network organisation
- in- India
- us- United State

CIDR Notation-

- CIDR stands for class inter domain routing is a set of Internet Protocol standards that is used to create unique identifier for networks and individual devices.
- The IP addresses allow particular information packets to be send to specific computers.
- After the introduction of CIDR techniques found it difficult to track and label IP addresses so a notation system was developed to make the process more efficient and standardized. That system is known as CIDR notation.
- CIDR allows for blocks of IP addresses to be allocated to ISP.
-

ISP (Internet Service Providers) –

- For networks connected to the global internet an organisation obtains network number from the communication company that supplies internet connections. Such companies are called internet service provider (ISPs) .
- It is an organisation of business offering public access to the internet. It is our gateway to the net.
- There are many types of internet providers such age BSNL (Bharat Sanchar Nigam Limited),MTNL (Mahanagar Telephone Nigam Limited),VSNL (Videsh Sanchar Nigam Limited), GIAS (Gateway internet access service), Airtel ,Reliance Communication etc.

TCP/IP-

- TCP/IP stands for Transmission Control Protocol and Internet Protocol.
- TCP/IP is a name given to the collection of networking protocols that have been used to construct the global internet.

Advantages of TCP/IP-

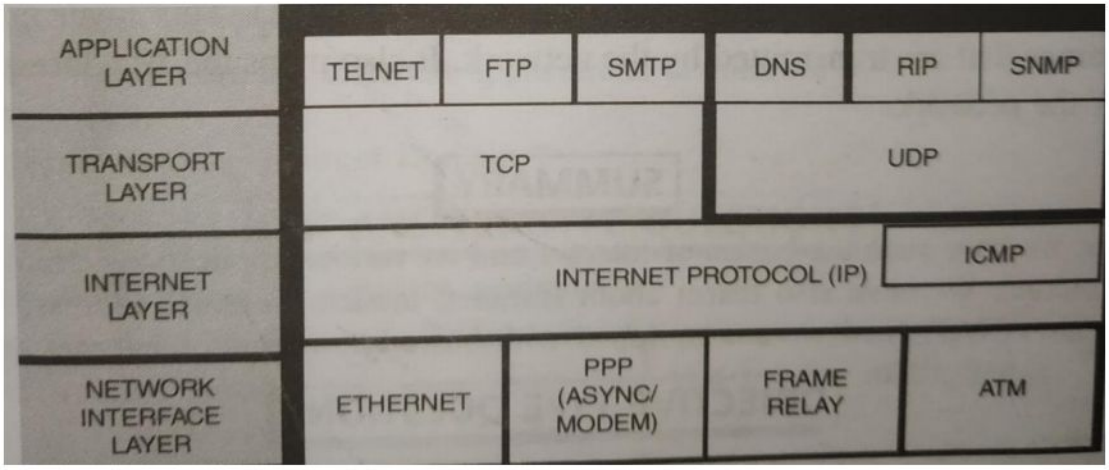
1. It enables dissimilar systems to be connected.
2. It is a protocol standard for the internet.
3. It has many utilities available for troubleshooting.
4. It is route table it is a scalable client-server framework.

5. It has been modified and tested for many years.

TCP/IP layers-

It has four layers

1. Application layar
2. Transport layer
3. Internet layer
4. Network interface layer



1. **Application layer-**
   - This layer is broadly equivalent to the application presentation and session layer of OSI model.
   - It gives an application essays to the communication environment.
   - The protocols used in application layers are FTP(File Transfer Protocol),SMTP(Simple Mail Transfer Protocol), HTTP(HyperText Transport Protocol),RIP(Routing lnformation Protocol) SNMP (Simple Network Management Protocol) .
2. **Transport layer-**
   - The transport layer just above the internet there is the host-to-host layer. It is possible for end-to-end Data integrity.
   - Protocol used in this layer is TCP (Transmission Control Protocol) and UDP (User Datagram Protocol) .
   - TCP is the reliable connection oriented protocol. Reliable means guarantee the delivery of packets.
   - UDP is the unreliable connectionless protocol.
3. **Internet layer-**
   - This layer is responsible for the routing and delivery of data access network.
   - It allows communication across the network of the same and different types and carries out translation to deal with similar data addressing scheme.
   - Protocol supports for this network are ARP (Address Resolution Protocol),RARP (Reverse Address Resolution Protocol),ICMP(Internet Control Message Protocol) IG MP (Internet Group Message Protocol) .

4. **Network access layer or network interface layer-**
    - The design of TCP IP hides the function of this layer from user.
    - The combination of data link and physical layer deals with your hardware and access methods such as CSMA/CD Carrier Sense Multiple Access with Collision Detection.
    - This layer and let the IP datagrams into same that are transmitted by the network.
    - The protocol used in this layer are Ethernet, frame relay ,ATM etc.

Chapter -2

Internet connectivity and www

Introduction to connectivity

Medium used for internet connectivity

ISDN,VSAT,RF Link

Working of internet

Introduction to www,application level protocol

Web browser,URL,hyper text,hyper link,hypermedia

Search Engine,proxy server,CGI,URI,Dreamweaver

Introduction to connectivity-

- Internet connectivity is required to connect our computer to the internet.
- We have to do certain formalities and we have to take certain decision like
- what type of connection we want ?
- what will be used the service for ?
- how much money we want to spend?
- Do we need significant bandwidth to send information?

Medium used for internet connectivity-

There are four types of communication medium used for internet connectivity.

1. Modem
2. Dial up connection

3. ISP
4. Communication software

1. Modem-

- Modem stands for modulation and demodulation.
- It is an electronic device which is used to share information between user and computer.
- It converts analogue signal to digital signals and vice versa.
- When you connect to the internet your computer tells you modem to make these connections.

2. Dial-up connection

- The most basic types of internet connection is called a dial up connection.
- This connection is made through a modem that uses a uses a telephone line to connect to the internet .
- The modem must Dial the telephone everytime it wants to connect to the internet.

3. ISP-

- Internet service provider is business organisation that provides the internet facility to consumers and related service.
- It is a gateway to the net.
- You have to subscribe to a provider for your internet.
- Example - MTNL ,BSNL, Reliance, Airtel etc.

4. Communication software-

- To access an internet you need a software and that software is called communication software.
- This software can display text, video, sound over the internet.
- Example -Internet Explorer,Opera, Google Chrome, Mozilla Firefox etc.
- This type of communication software are called web browsers.

Methods of connectivity-

There are several ways of internet connectivity .These are as follows:

1. Connection through LAN:

- If a local area network uses TCP IP protocols for communication within the network.
- It is a simple method to connect to the internet through a router,and other computer that store and forward set of data to other computer on the internet.

2. Direct connection:

- In this connection internet programs run on the local computer which uses the TCP IP protocols to exchange data with computer through the internet.

3. **Remote terminal connection:**

- In this connection internet exchanges commands and data in ASCII text format with a host computer the user's Unix.
- This type of internet essays is called shell account.

4. **Gateway connection:**

- These networks are Gateway that converts command and data to and from TCP IP format.

5. **Connecting through a modem:**

- An isolated computer can connect to the internet so a serial data communication port and a model.

5. **High speed data links-**

- The high-speed data links circuits are provided by telephone companies,cable TV services and other suppliers.
- ISDN integrated service Digital Network is a new digital telephone service.

Types of connectivity-

ISDN-

- Integrated services Digital Network is a new set of protocols that combine digital telephone and data transfer services.
- The main idea of of an ISDN network is to digitalised the Telephone Network to permit the transmission of audio video and text over the existing Telephone Network.
- It provides many features like telephone lines with multiple button for instant call setup to any telephone all over the world.
- The services provided by ISDN can be divided into three main classes which are Bearer services,Tele services, Supplementary Services.
- It is governed by a worldwide set of standard.

VSAT-

- VSAT refers to Very Small Aperture Terminal which is a small fixed earth station.
- It provide the vital communication link required to setup a satellite based communication network.
- It can support any communication requirement be it voice data or video conferencing.
- The main advantages of VSAT is reliable, less time requirement ,network management, better maintenance ,flexible and low cost.

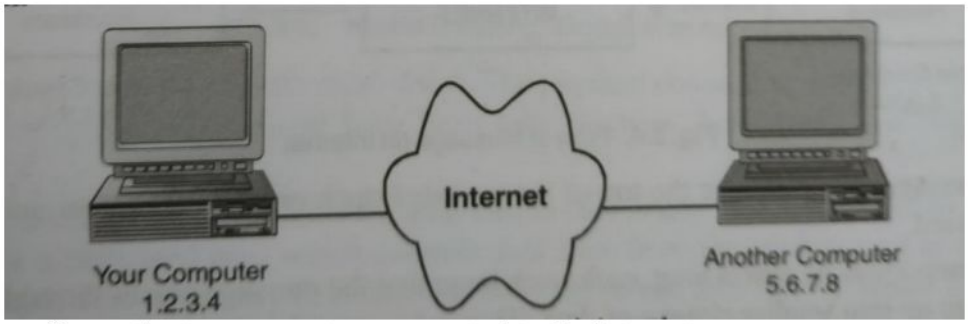
RF Link-

- RF link means radio frequency link.
- This is another way to connect our organisation to the internet.
- In this type of connectivity the connection is established through RF modem.
- RF itself has become synchronous with wireless and high frequency signals describing anything from a m radio between 534 kHz aand 1605 kHz to the LAN at 2.4GHz.

Working of internet-

- Working of internet can be seen in following steps:
    a. Connection to internet
    b. Communication with other computers
    c. Networking infrastructure
    d. Internet infrastructure
    e. Internet routing hierarchy
    f. Domain name resolution.

Connection to internet



- In the above figure the two computers connected to the internet.
- One computer with IP address 1.2.3 point 4 times another computer with IP address high point 6.7.8 the internet is represented as an abstract object in between.

1. Communication with other computers

- One computer can communicate with another computer for sharing data through the Internet service.
- This communication is done through the use of a protocol stack.
- The message would start at the top of the protocol stack on one computer and what its way downwards.

2. Networking infrastructure-

- Ine networking infrastructure the packets travelling through the internet.
- After the packet traverse the phone network and ISP local equipment they are routed on the ISP backbone.

3. Internet infrastructure-

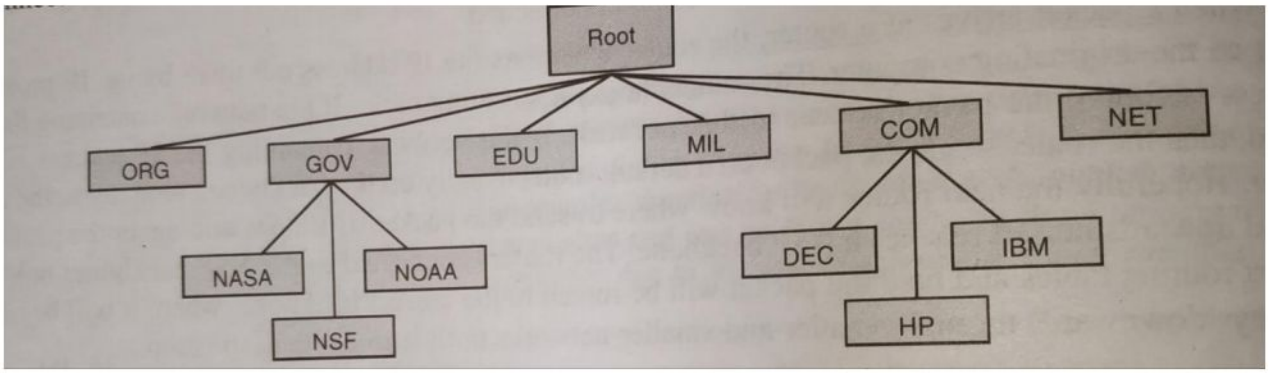
- The internet backbone is made up of many dance network switch interconnect with each other.
- This large networks are known as network service provider for NSPs.

4. Internet routing Hierarchy-

- In this case a router is usually connected between network to route packets between them.
- Each router knows about its subnetworks and with IP address they use.
- When a packet arrives at a router, the router examines the IP address on the originating computer.

5. Domain name resolution-

- Domain name service in structure as a hierarchy similar to the IP routing hierarchy.



- DNS is a distributed database which keep track of computers name and their corresponding IP addresses on the internet.
- At the top of the tree are the domain name roots .Some of the older more common domains are seen near the top.

Introduction to www

- The www refers to world wide web which is developed in 1989.
- The www is an easy to use method for storing and retrieving the information that resides on the system in the internet.
- Through the use of browser ,PC user can find the view server based document.
- When you use a web browser, the web appears as a collection of text,picture,sound and digital movies.
- It is an internet based system that enables an individual to establish itself to the entire world,except two countries or location that prohibited the free interchange of information.
- The major service of www is the world's largest online shopping mall and the world's largest source of information, news and commentary.

Web page-

- Web pages are what make up the world wide web.
- Documents are written in HTML (Hypertext Markup Language) and our translated by our web browser.

Web Servers-

- Web server is the program resides on server computer to server the request of the client software.

Application level protocols-

Application level protocols such as HTTP,FTP,Telnet,SMTP.

HTTP:

- The Hypertext Transfer Protocol (HTTP) is an application protocol for distributed hypermedia information system.
- It is the the foundation of data communication for the WWW.
- HTTP is a connectionless text based protocol to make the communication possible over web.

FTP:

- FTP is a File Transfer Protocol and it only concern is to facilitate the transfer of files from one point to another along with a few management capabilities like making and deleting directories.

Telnet:

- Telnet stands for Telecommunication Network .
- Telnet is the Internet service used for remote login to internet computer.
- It is one of the oldest Protocol in the TCP/IP.

SMTP:

- Simple mail transfer protocol is an internet standard for electronic mail transmission across internet protocol network.
- Electronic mail servers and other mail transfer agent the client mail application use SMTP only for sending message to send and receive mail.
- For receiving messages client application use the post office protocol (POP) or internet message access protocol (IMAP).

Web browser-

- Web browser is a program that the computer runs to communicate with web server on the Internet which enables it to download and display the web pages that you request.
- It understands the HTML and display text.
- It has the ability to integrate or display many types of files.
- A web browser makes it easy to navigate the web and to download items.
- The main features of a browser is to search the information on the current page as well as such the www itself.
- Web browser should be able to handle text images of the world wide wave as well as the hyperlink to digital video for other type of information.
- Examples-
  internet explorer ,Netscape navigator, Google Chrome, Mozilla Firefox etc

URL-

- The www follows a uniform naming scheme to access resources on the web called URL that is Uniform Resource Locator.
- The addressing system is used to identify pages and resources on the web.
- An internet or web address typically is composed of four parts.
    1. A protocol name.
    2. The location of the site.
    3. The name of the organisation that maintains the site.
    4. A software that identifies the kind of organisation it is.

Example-

http://www.incredablecse.com

here http is the service type that is hypertext transfer protocol.

Hypertext-

- Hypertext most of the refers to text on a computer that will lead the user to other,related information on demand.
- It represents a relatively recent innovation to user interface sync which overcomes.
- Some of the limitation of written text.
- It is a text links to other text. It refers to an idea of linking different documents together using hyperlinks.
- Whenever we click on this text then next page or some other text display. This is called hypertext.
- By default the colour of hypertext is blue and this text is underlined.

Hyperlinks-

- Hyperlink is a connection that enables and user to jump from one element in an HTML document to another document or website.
- A hyperlink is associated with a normally invisible tags,coded in markup language such as HTML that enables a web browser to find and display the linked document.
- A hyperlink is a reference for navigation element in a document to another section of the same document,another document ,or a specified section of other document,that automatically brings the preferred information to the user.

Hyper media-

- The combination of text, video, graphic, images ,sound, hyperlink and other element in the form of typical web documents.
- Essentially hypermedia is the modern extension of hypertext, the hyperlink text-based document of the original internet.

Search Engine-

- A program that searches document for specified key was and returns a list of documents where the keyword where found.
- A search engine is needed for same region you need a card catalogue in the library.
- There are millions of pages and millions of words on the web. Every minute of the day,more is being added.
- A search engine help us to search through all those millions of the information we need.
- An internet search engine is a tool that web suffers uses to search the internet.
- Examples of search engines are-
  1. google.com
  2. lacoste.com
  3. robot.com
  4. altavista.com
  5. excite.com
  6. yahoo.com

Proxy Servers-

- A proxy server is an application that manages control traffic between a protected instead of router for traffic controllers to prevent traffic from passing directly between network.
- Many process content extra login or support for user authentication.
- It made its IP traffic between the protected internal Network and the internet.
- It runs on a machine that is part of the farewell.
- To use a proxy server, a user, first logs on to proxy server .
- A second connection ,to the internet, is then made by the proxy server.
- The proxy server makes the internet connection, and internet only see the application Gateway IP address.
- There are several advantages in using proxy server as part of your farewell.
- As only the proxy server connects to the internet only the corresponding IP address is exposed.

CGI- Common Gateway Interface

- CG I is a standard method used to generate dynamic content on web pages and web applications.
- It is implemented on a web server,provides an interface between the web server and programs that generate the web content.
- These programs are known as CGI scripts and written in scripting language.
- It is a standard way for web browsers to pass a web users request to an application program and to receive data back to forward to the user .
- When the user request a web page the server sends back the request page.
- The web server typically passes the form information to a small application program that processes the data and may send back a confirmation message.

URI- Uniform Resource Identifier

- Uniform resource identifier is a string of characters used to identify a name of a web resources.
- Which identifiers enables interaction with representation of the web resource over a network using specific protocol schemes specifying a concrete synthesis and associated protocols define each URI.
- It is the way you identify any of the content whether it is a page of text video or sound clips, a still or animated image or a program.
- The most common form of URI is the webpage address which is a particular form or subset of URI called URL (Uniform Resource Locator) .
- It describes the mechanism used to access the resource.

Dreamweaver-

- Adobe Dreamweaver easy software application that allows you to create and develop websites.
- Dreamwaver where is considered WYSIWYG (what you see is what you get)meaning that when your format your web page, you see the results of formatting instead of the mark-up that are used for formatting.
- It also support CSS and JavaScript as well as other language including asp and PHP.
- Dreamweaver makes it easy to upload the entire website to a web server.
- It also preview the entire website to a web server.

Chapter- 3

Internet security

Introduction to security

Types of security
Authentication & authorization
Firewalls
Encryption & decryption
SSL

Introduction to security-

- Internet Security is branch of computer security related to the internet,often involving browser security but also network security on a more general level as it apply to other application or operating system.
- Its objective is to establish rules and measures the use again attacks over the internet.
- The internet represents and insecure general for exchanging information leading to a higher risk of instruction or fraud such as fishing.
- Different methods have been used to protect the transfer of data including **encryption**.

Types of security-

a. Network layer security-

- TCP/IP can be made secure with the help of cryptographic methods and protocols that have been developed for securing Communication on the internet.
- These protocols include SSL and TLS for web traffic, PGP for email and IPsec for network layer security.

b. IPsec protocol-

- This protocol is designed to protect communication in a secure manner using TCP/IP.
- It is just set up security extension developed by ietf and it provide security authentication at the IP layer by using cryptography.
- To protect the content the data is transferred using encryption techniques.

c. E-mail security –

- Email messages are composed to deliver and store in a multiple step process which starts with the message compositions.
- When the user finishes composing the message and sense it the message is transfer into a standard form format.
- Afterwards the message can be transmitted. Using a network connection, the mail client referred to as a Mail User Agent(**MUA**) ,connects to a Mail Transfer Agent(**MTA**) operating on the mail server.
- The mail client then provide the sender identity to the server.
- Next using the mail server commands command the client sends the recipient list to the mail server.
- The client and supplies the message. Once the mail server receive and process is the message several event occur.

d. Pretty Good Privacy(PGP) –

- PGP provides confidentiality by encrypting message to a transmitted or data files to be stored using an encryption also search edge triple DES.
- Email messages can be protected by using Cryptography in various ways such as the following.
- An email message to ensure its integrity and confirm the identity of its sender.
- Encrypting the body of an email message to ensure its confidentiality.
- Encrypting the communication between mails are there to protect the the confidentiality of both the message body and message header.

e. Multipurpose Internet Mail Extension (MIME) –

- MIM transforms non ASCII data at the sender site to Network Virtual Terminal (NVT) ASCII data and delivers it to client Simple Mail Transfer Protocol (SMTP) to be sent through the internet .
- The server SMTP at the receiver side receive the data and delivered to transfer back to the original data.

f. Message authentication code-

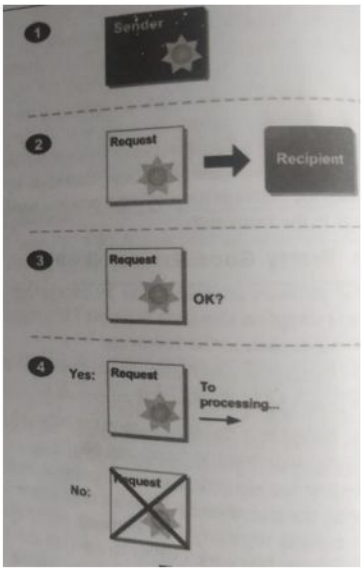
- Message authentication code is a cryptographic method that uses a **secret key** to encrypt a message to stop this method outputs a Mac value that can be decrypted by

the receiver using the same secret key used by the sender. Code protect both messages that are integrity as well as its authenticity.

Authentication and authorization-

- Authentication is a process for identifying and verify who is sending a request .
- Authorisation is a process to provide access rights to the individuals.
- The process of identifying and individual usually based on a username and password.
- In security systems authentication is distant from authorisation which is the process of giving individual basis to system of cell based on their identity.

Process of authentication-



1. The sender obtains the necessary credential.
2. The sender sends a request with the gradient cell to the recipient .
3. The recipient uses the credentials to verify the sender truly send the request .
4. If yes, the recipient processes the request. If no, the recipient rejects the request and responds accordingly.

Types of authentication-

1. **Password-**
    - The use of username and password provides the most common form of authentication.
    - You enter your name and password when promoted by the computers.
    - It checks the pair against a secure file to confirm. If either the name of the password does not match then you are not allowed for the access.
2. **Pass cards-**

- These cards can range from a simple card with a magnetic strip, similar to a credit card, to sophisticated smart cards that have an embedded computer chip.

3. **Digital Signatures-**
    - A digital signature is basically a way to ensure that an electronic document(e-mail, spreadsheet ,text file) is authentic.

Firewalls-

- A Farewell is a computer program that monitors the flow of information from the internet to your computer.
- There are two different types of firewell available for you to use that is hardware firewalls and software firewalls.

1. Hardware firewall-

- Hardware fire is a physical piece of equipment that sits between the internet and your computer.
- For example- it is a Broadband router a common form of internet connection.
- The benefit of using a hardware firewall,is that it has the ability to protect multiple computer systems that are connected to it at the same time.
- This makes it an effective farewell for use in business that have multiple computers connected to the internet as well as in homes that have more than one computer system.

Advantages:

- Operating system independent.
- Better performance.
- Focuses on only firewell related duties.

Disadvantages:

- It can be single point of failure.
- Higher cost to implement and maintain.

2. Software firewall-

- Software fireWalls works in the same way as a hardware farewell by monitoring and blocking information that comes to your computer via the internet, however softwares firewalls must be installed as a program on your computer.
- This software firewalls can either be installed from a computer this that you have purchased or downloaded over the internet.
- Software firewall are the most common type of firewall.

Advantages:

- Less expensive to implement and maintain.
- Lower administative overhead.

Disadvantages:

- Dependent open host operating system.
- Requires additional host hardware.
- Lower performance.

Components of firewall:

Components of firewall are Chokes ,Gates, network client software ,proxy server, network servers.

Features of firewall:

1. Inbound and outbound filtering.
2. Privacy protection.
3. Application integrity.
4. Instruction detection.
5. Notifications.

Encryption and Decryption-

- Encryption is a process to converting information and data into a code, especially to prevent unauthorised access.
- The main elements of an encryption system at the plaintext, the cryptographic algorithm, the key and The ciphertext.
  - (i) **plaintext-** It is the wrong message or adaptor that is to be encrypted.
  - (ii) **Cryptographic algorithm or cipher-** It is a mathematical set of rules that defines how the plaintext is to be combined with a key.
  - (iii) **Key-** The key is a string of digits.
  - (iv) **Ciphertext-** The ciphertext is the encrypted message.

Example-

"welcome" is the plain text

" add X characters to each letter" is the cryptographic algorithm

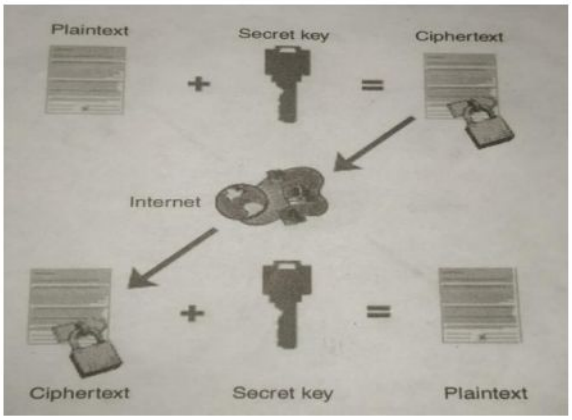
"2" is the key

"ygneqog" is the ciphertext

Types of encryption-

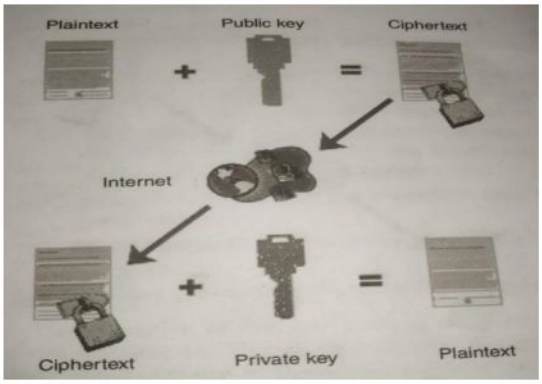
There are two types of encryption that is secret key and public key.

1. Secret-key encryption method or symmetric encryption-



- Secret-key encryption, also known as single-key or symmetric encryption, involves the use of a single-key that is shared by both the sender and the receiver of the message.
- After creating the message the sender encrypts it with their key and passes it to the recipient who then decrypts it by using a copy of the same key used to encrypt it.
- A widely used method of secret key encryption is the Data Encryption Standard or **DES**.
- Secret key encryption does not have some limitation particularly with regard to key distribution.

2. Public key encryption methods or asymmetric encryption-



- Public key encryption for asymmetric encryption involves the use of two case one that can be used to encrypt message (the public key) and one that can be used to other encrypt then or decreased them (the private key).
- This key pairs can be used in two different ways to provide privacy or authentication.
- Privacy is ensured by encoding a message with the public key as it can only be decoded by the holder of the private key.
- Authentication is achieved by encoding a message with the private key. Once the recipient has successfully encrypted it with the public they can be stored it was sent by the holder of the private key.

Secure Socket Layer (SSL) –

- Secure socket layer is a protocol designed and implemented by Netscape Communications.
- Netscape claims it is designed to work,as the name implies.
- At the socket layer ,to protect any higher level protocol build on sockets search age Telnet, HTTP and FTP.
- SSL Technology allows web browsers and web servers to communicate over a secure connection.
- In this secure connection the data that is being sent it is encrypted before being send and then it decrypted often receive payment and before processing.
- Both the browser and the server encrypt all traffic before sending any data.
- SSL address the **authentication**, **confidentiality** and **integrity** which are important security consideration.
- SSL uses **public key Cryptography** which is based on key pairs.

Chapter-4

Internet application

E-mail, E-mail protocols

Telnet

File Transfer Protocol

News groups

Chat room

Internet Relay Chat (IRC)

Video Conferencing

E-Commerce

E-mail-

- Electronic mail is a system in which a computer user can exchange message with other computer users using a communication network.
- A powerful aspect of email is the option to send electronic file to a person's email address.

Advantages of E-mail –

Email is the most frequently used service on the internet for many regions:

1. Sends a message anytime anywhere and the recipient can read it at his or her convenience.
2. Send the same message to multiple recipients it is easy to use .
3. Forward information to people without retyping it.
4. Email is faster.
5. Attach digital files to your messages including electronic documents ,video clips ,music and photos.
6. Send messages around the world as easily as to someone.
7. Email is cost effective.

Disadvantages of E-mail-

1. E-mail reaches the recipient most of the time, but delivery is not guaranteed.
2. There is no guarantee of email privacy.
3. Unencrypted mails are unsafe.
4. It is very difficult to find out the email address of somebody only he tells you.
5. The recipient needs to scan the mail.

E-mail protocols-

- Protocol is about a standard method used at each end of a communication channel in order to properly transmit information.

The emails protocols are

1. **IMAP-**

- IMAP stands for **Internet Message Access Protocol** of assessing electronic mail or bulletin broad messages that are kept on a mail server.
- It is a client/server Protocol in which email is received and help for us by our internet server.

2. **POP-**
    - POP stands for Post Office Protocol which provide a simple,standardise way for used to assess mailboxes and download messages to their computers.
    - When using the POP protocol on our e-mail messages will be downloaded from the mail to your local computer.
3. **SMTP-**
    - SMTP stands for Simple Mail Transfer Protocol is used by Mail Transfer Agent(MTA) to deliver our email to the recipients mail server.
    - The SMTP protocol can only be used to send emails not through received them.
4. **HTTP-**

- HTTP protocol stands for **hypertext transfer protocol**.
- It is not a protocol dedicated for email communication but it can be used for accessing our mailbox.

Telnet-

- Telnet stands for telecommunication network.
- It is one of the oldest Protocol in the TCP/IP.
- The computer which initiates the connection in the local computer and the computer which accept the connection in the host computer.
- Telnet allows you to log into computers on the Internet and use our online database library catalogue chat services and so on.
- There are no graphics internet sections just text.
- To Telnet to a computer you must know its address. This can consists of words or numbers .
- Some devices require you to connect to a specific port on the remote computer.
- In this case type the port number after the internet address.
- Telnet services make possible to share services and resources without having to move large amount of data and program from one site to another.
- Telnet program must be installed on your local computer and configure to your web browser in order to work.

Use of telnet-

- Gaming system there are a number of text based games still available through Telnet .
- Outside of games on this we already know of a particular use such a connecting to a particular government database you probably had no use for it.
- Many library catalogues only reachable through Telnet.

File Transfer Protocol-(FTP)

- FTP stands for file transfer protocol.
- It allows file to transferred between different kinds of computers, without regard to operating system used by the computers or even how they are connected.
- This is both a program and the method used to transfer files between computers to the internet.
- By using FTP the internet becomes as if use this drive is attached to your computer.
- FTP sites contain ebook, articles, software ,games ,images ,sounds, multimedia ,Course work ,data sets and more.
- FTP transfers can be performed on the www without the need for special software.

FTP used for download (transfer from another machine to your machine)

1.Connect to the server and login:

- Service with restricted access requires a username and a password.

2. Find the files or folder we want to download:

- Double click a folder to open it.
- Command line FTP programs are more like navigating in DOS using the “cd” command.

3. Choose the appropriate download mode:

- There are two transfer modes in FTP. The first is called either “ascii”or “text” and the other is called “binary” or “image”.

4. Begin the transfer and get the file:

- It makes sure that where the file is begin put on your local machine.

FTP used for upload (Transfer from your machine into another machine)

1. **Connect to the server and login:**

- Service with rest SSC require a username and a password.

2. Find the files or folders we want to upload

3. Choose the appropriate upload mode:

- See the notes on download for details.

4. Begin the transfer.

News groups-

- News group service are hosted by various organisation and institution.
- Most internet service providers host their own news servers or send access to one, for their subscribers.
- There are also a number of companies who sell access to premium news server.

Types of newsgroups-

- News group channel accounts in either of two types binary or text.
- There is no technical difference between the two but the naming difference is and allows user and server with Limited facilities to minimise network bandwidth uses.

1. **Binary newsgroups-**
    - While newsgroups were not created with the intention of distributing binary files,they have proven to be quite effective for this.
    - Because of the way they walked a file uploaded once will be spend and can then be downloaded by the unlimited number of users.

2.Moderated newsgroups-

- A moderated newsgroup has one or more individuals who must approve article before they are posted at large.
- A separate addresses used for the submission of Post and the moderator than proper get post which are approved for the the readership.

Chat room-

- A chat room h a virtual space place on the internet for people from all walks of life from around the world can get together in one place and textually chat with one another.
- The only few things a person need to connect to a chat room are a computer and an Internet connection of any speed.
- There are however chat rooms that require client programs is with IRC (Internet Relay Chat) .
- Chat rooms begin at a text based environment for people to communicate with each other and has since expanded to include voice and video as well as three dimensional avatars which represented you in a Computer Based world.
- There are quickly becoming replaced by more existing text best chat rooms with picture picture of dance all various games you can play while you chat.
- Chat rooms offered by different websites range in features and security.
- While chatrooms may be exciting cyber locations to meet new people they can also be a dangerous.

Internet Relay Chat (IRC) –

- The internet relay chat IRC service provides a way for many users to communicate about a given topic .
- Which communication occurs on a separate channel.
- A user who creates a channel chooses a topic and specifies whether the channel is open to anyone or restricted to the setup people specified by the channel creator.
- A user can request a list of the IRC channels currently in progress and can choose to join one of the channel.
- When a user joins an IRC channel the user enters a nickname that IRC uses to identify the user to another.

Video Conferencing-

- Video conferencing uses telecommunications of audio and video to bring people at different sides together for a meeting.
- This can be as simple as a conversation between two people in private office (point to point) or involve several sites (multi-point) with more than one person in large room at different sites.
- Besides the audio and visual transmission of people video conferencing can be used to share documents,computer displayed information and white boards.
- Improvements are been made in collaborative tools that allow people at different sides to electronically manipulate a common document for computer application.
- The quality of a video conference primarily depends on the characteristic of the circuit between the conferencing sites.

Need of video conferencing-

Sometimes it's just not possible or practical to have a face-to-face meeting with two or more people. Sometimes a telephone conversation or Conference Hall is adequate to stop an email exchange is adequate.

a. Live conversation is needed.
b. Visual information is an important component of the conversation.
c. Faculty member keeps in touch with class while going for a week at a conference.
d. Guest lecturer brought into a class from another institution.
e. Faculty member participate in a defence at another institution.
f. Administrator on tight schedules for operate on a budget preparation from different parts of Campus .
g. Student interviews with an employer in another City.

E-Commerce:

- E-commerce is associated with buying and selling of information products and services via computer networks.
- It is a new way of conducting managing and executive business transactions using computer and telecommunication network.
- It is a very beneficial to customer. Online ordering helps customer to buy online products without any physical involvement and self sometime and money.
  It has 3 prospect
    1. **Communication perspective:** from a communication prospective electronic Commerce is the delivery of information ,products /services or payment via telephone lines, computer networks or any other means.
    2. **Business process perspective:**
       From a business process prospective e-Commerce is the application of Technology towards the automation of business transactions and workflows.
    3. **Service perspective:** from a service perspective eCommerce is the tool that address the desires of farms customers and management to court service cost while improving the quality of goods and increasing the speed of Service Delivery.

       Types of E-Commerce
       1. **Business to business-** B2B refers to Electronic Commerce between customers rather than between a business and a customer's. Businesses can obtain deal with hundreds or thousands of other businesses as customers or suppliers.

       2. **Business to customer-** B2C involving an individual and a sort of selling goods for stop emails virtual store fonts allow individual customers to browse for product and soft using credit cards. It is more like an extension of catalogue shopping through mail order and telephone ordering using credit cards for making payments.
       3. **Customer to customer-** It takes place on the Internet without and business as middleman. You put an announcement at any of the customer exchange website that you are selling second hand laptops.

Advantages of E-Commerce:

1. It increases cells and decreases cost of goods.
2. It provides the buyers a wide range of choice than traditional commerce.
3. It enables people to work from home and has an added benefit of reduction in traffic and population caused by employees who have to communicate in office.
4. Advertising on the wave can make a big or small farms promotional messages reach out to potential customer all over the world.
5. Help protect against slot and thief losses because electronic payment can be easier to minor than payments made by cheque.

Disadvantages of E-commerce:

1. Pros are not completely eliminated in a eCommerce transaction.
2. Cyber laws are not properly and earnest and the existing one are not clearly define.
3. Things like food jewellery and declared as a track and never turned to E-Commerce because it is not possible to inspect them from remote location.

Chapter-5

Websites Classification

Static Websites

Dynamic website

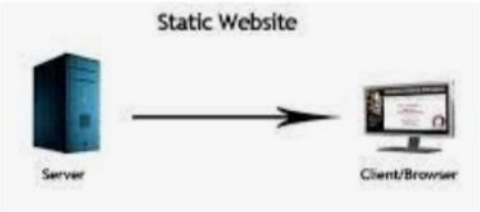
Web portals

Social networking sites

RSS Feed, Blog, Netiquette

Static Websites-

- Static website contains the web page with fixed content.
- Each page is coded in HTML and display the same information to every visitor post of static size are the most basic type of website and are the easiest to create.
- It does not require any web programming or database design.
- A static side can be built by simply creating a few HTML pages and publishing them to a web server.
- Static web page is content based code the content of each page does not change only if it is manually operated by the Webmaster.
- This was well for small website but it can make large sites with thousands and hundreds of 50 difficult to maintain.
- Static sites that contain a lot of pages are obtained design using templates.
- This make it possible to update several pages at once and also helps provide a consistent layout throughout the site.



Advantages:

- Cost effective
- Benefit for the small Enterprises
- Quick to develop

- Cheap to develop
- Cheap to host

Disadvantages:

- Requires web development expertise to update site
- Site not as useful for the users
- content can get static.

Dynamic website:

- A dynamic website contains information that changes, depending on the viewer of the site,the time of the day, the time zone ,the native language of the country the viewer is in or many other factors.

Example of Dynamic Website

- News and events could be posted to the site through a simple browser interface.
- Dynamic features of site are only limited by imagination.

- **Some examples of Dynamic Website** features could be: content management system, e-commerce system, bulletin/discussion boards, intranet or extranet facilities, ability for clients or users to upload documents, ability for administrators or users to create content or add information to the site (dynamic publishing).

Advantages of Dynamic Website

- Much more functional website.
- Much easier to update.
- New content brings people back to the site and helps in search engines.
- Can work as a system to allow staff or users to collaborate.

Disadvantages of Dynamic Websites

- Slower/more expansive to develop.

- Hosting costs a little more.

Web portals-

- A web portal is most often one specially-designed webpage at a website which brings information together from diverse sources in a uniform way.
- Usually, each information source gets its dedicated area on the page for displaying information (a portlet) often the user can configure which ones to display.
- The extent to which content is displayed in a "uniform way" may depend on intended user and the intended purpose, as well as the diversity of the content.
- Apart from this common search engines feature, web portals may offer other services such as e-mail, news, stock quotes, information from databases and even entertainment content.
- Portals provide a way for enterprises and organizations to provide a consistent look and feel with access control and procedures for multiple applications and databases.
- **Examples** of Early Public webportal were AOL, Excite, iGoogle, MSN, Rediff and Yahoo. Classification of Web Portals Web portals are classified as horizontal or vertical.

Social networking sites-

Advantages of Social Networking Sites

* Facilitates open communication, leading to enhanced information discovery and delivery.

* Allows. employees to discuss ideas, post news, ask questions and share links. - Provides an opportunity to business contacts.

* Targets a wide audience, making it a useful and effective recruitment tool.

* Improves business reputation and client base with minimal use of advertising.

* Expands market research, implements campaigns, delivers communications and directs interested people to specific websites.

Disadvantages of Social Networking sites

* Opens up the possibility for hackers to commit fraud and launch spam and virus attacks.

* Increases the risk of people falling prey to online scams that seem genuine, resulting in data or Identity theft.

* Porentially results in lost productivity, especially if employees are busy updating profiles etc.

* Define what social networking is particular to your organization, so employees know exactly what is meant by the term.

Examples of Social Networking Sites

Facebook Flicker, Google+, HiS, ibibo, MyOpera, Orkut, Twitter etc.

RSS Feed-

- RSS is about getting live web feeds directly to your computer. RSS takes the latest headlines from different websites, and pushes those headlines down to your computer for quick scanning.
- The acronym RSS stands for many versions of the same thing.
- Really simply syndication.
- Rich site summary(RS 0.91)
- RDF site summary (RS0.9 and 1.0)
- Real time simple syndication (RSS 2.0)

Use of RSS-

1. Jokes and inspirational quotes
2. New
3. Hobby Interests
4. Photos
5. Reading Your Friends Blogs
6. Politics

Blog-

- A blog (a truncation of the expression web log) is a discussion or informational site published on the world wide web and consisting of discrete entities ("Posts") typically displayed in reverse chronological order (the most recent post appears first).
- More recently "multi-author blogs" (MABs) have developed, with posts written by large numbers of authors and professionally edited.
- Blog can also be used as a verb, meaning to maintain or add content to a blog Blogging can be seen as a form of social networking service.
- Many blogs provide commentary on a particular subject, others function as more personal online diaries.
- Most blogs are primarily textual, although some focus on act , photographs, video, music, featuring very short posts.

Netiquette-

- The word netiquette derives from net and etiquette and as such, is a set of established conventions that have evolved over time on the internet and on the usenet news. is most of all based on:

- What has been found useful and proper in the electronic form of communication made Netiquette possibleb by the Internet?
- What is appropriate in any form of communication between civilized human beings and what is dictated by the common sense ?

Chapter-6

Development of portals using HTML

Design a webpage, Good web design

HTML Introduction

HTML tags, Anchor tag, table tag

HTML Frames, Forms

Disadvantages of HTML

Separating style from structure with style sheets

CSS Rules, Types of CSS

Design a webpage-

We have following steps to design a webpage

1. **Gathering information**
   - What kind of information are they presenting.
   - How did they present the information.
   - Do all of the links work.
2. **Determine your audience**
   - Your audience will affect the design and content of your project.
3. **Create a story board**
   - Create a story board of ideas that you want to use in your activity.
   - It's helpful to write each concept or activity on a different piece of paper, then physically arrange them until you have the structure you want.
4. **Plan your navigational tools**
   - Plan how people will never get within your activity.
5. **Establish credibility**

- Each web page should include pieces of information that will establish credibility to your activity.

Good web design-

- A good website design is a unique blend of artistic skill, technical prowess. It also involves the knowledge of constantly changing technology and the implementation of a complete Internet marketing campaign.

1. **Layout-**
   layout consists of the following aspects that is white space, flow alignment .
2. **Navigation-**
   It is one of the most important thing to consider when designing a web page easy to use navigation is essential to a good website whether they are internal or external link they must work.
3. **Typography-**
   Effective use of topographic have content because more readable and the easier to read for the site's users , like font choices ,font sizes, spacings, line length,colour, paragraphing etc.
4. **Clarity or sharpness-**
   keeping your design crisp and sharp is super important in web design.
5. **Consistency-**
   consistency means making everything match that is heading size on toys colouring button sides facing design elements photo choice etc.
6. **Usability-**
   web design is not just about pretty picture.With so much information and interaction to be effected on a website it's important that you the designer provide for it all.
7. **Ads-**
   Too many advertisements on your side make for a bad User experience. Try for well-placed highly noticeable as interest .
8. **Things that blink-**
   Blink can be and annoying and you don't want to annoy your readers.
9. **Noise-**
   A lot of people like to add music to their websites to stop that's all well and good but if it's a loud sound then it is very irritating.
10. **Graphics-**
    Graphic is an important part of a website they add color, attitude and theme which is more attractive.
11. **Content-**
    Whenever you write something make sure you spell check it and if you have time read it to make sure there are not grammatical error.
12. **Maintenance-**
    After creating a website you have to maintain it.

HTML Introduction-

The standard uses for creating and recognizing hypermedia documents is the Hypertext Markup Language (HTML).

Features of HTML Language

1. It is easy to understand and can be easily modified.
2. It provides a flexible way to design the web pages along with the text.
3. Graphics, video, sound can also be used and imported to give attractive look to the web pages.
4. Effective presentations can be made with all formatting effects.
5. HTML documents can be displayed on any platform such as: Macintosh, Windows and UNIX.

HTML Document Structure

Html documents are structured into two parts, the head, and the body. The head contains information about the document that is not generally displayed with the document, such as its title. The body contains the body of the text, i.e., where you place the document material to be displayed. Elements allowed inside the head, such as title, are not allowed inside the body, and vice versa.
Structure of a HTML document:

```
<html>

<head>

<tittle>
Welcome to cs dept
</title>
 </head>
<body>
<p> <i><b><u>
</body> </html>
```

HTML tags-

- HTML tag based language. Is an element that instruct the web browser for to store and how to show .
- A tag compressors of text and closed in angular brackets<>.
- These tags are not case sensitive.
- This tag are of two type container tag and empty tag
- Container tag include both the on and off tag that is open tag<> and close tag</>.
- Empty tag include only the on tag. This element do not enclose any data.

Tag	Description
<!DOCTYPE>	Defines the document type
<html>	Defines an HTML document
<head>	Contains metadata/information for the document
<title>	Defines a title for the document
<body>	Defines the document's body
<h1> to <h6>	Defines HTML headings
<p>	Defines a paragraph
 	Inserts a single line break

<hr>	Defines a thematic change in the content
<!--...-->	Defines a comment

Formatting

<address>	Defines contact information for the author/owner of a document/article
<b>	Defines bold text

Forms and Input

Tag	Description
<form>	Defines an HTML form for user input
<input>	Defines an input control
<textarea>	Defines a multiline input control (text area)
<button>	Defines a clickable button

<select>	Defines a drop-down list
<optgroup>	Defines a group of related options in a drop-down list
<option>	Defines an option in a drop-down list

Lists

Tag	Description
	Defines an unordered list
	Defines an ordered list
	Defines a list item
<dl>	Defines a description list
<dt>	Defines a term/name in a description list

<dd>	Defines a description of a term/name in a description list

HTML Anchor tag-

A website consists of various pages that give access to various pages that are linked to each other. This is the most powerful feature of WWW known as hyperlink. In HTML, anchor tag (<a> ....) is used to mark the text as a hypertext link that a user can click to display the document which is anchored to it. It is a container tag. This tag can be used in two ways:

• The text or image that is clicked to activate the link.

* The address that will be opened using the defined link.

These links are used in the following ways:

* To jump from one section of the page to another within the same web page.

To link to another page within the same website.

* To link to another page or website anywhere in the world.

Creating Hyperlink to a Document

The hyperlink to a document is created using HREF attribute of anchor tag which marks the beginning of the link to another document, resource or to a particular place in another document. The general syntax is:

<A HREF="path of the filename">name of the link</A>

where HREF attribute indicates the hypertext reference—path of the file name. This path can be an absolute address or relative address. HREF is also responsible for displaying "name of the link" to be underlined and colored.

Tables tag-

Tables are an effective means of displaying information in a concise and precise form. Instead of writing several pages of explanation, a table can effectively give all necessary information. Tables are defined with the <table> tag. A table is divided into rows (with the <tr> tag), and each row is divided into data cells (with the <td> tag). The letters td stands for "table data," which is the content of a data cell. A data cell can contain text, images, lists, paragraphs, forms, horizontal rules, tables, etc.

Example

<html>

<head>

<title> illustration of Table with caption

```
</title>
</head>
<body> <center> <table border="4" bgcolor="yellow"> <caption><h1><font
color="red">Quantity-Cost table</font></h1></caption>
 <tr>
<th>Quantity</th>
<th>Cost(in Rs.)</th>
<th>Quality</th>
</tr>
<tr>
<td>10</td>
 <td>2500</td>
<td>Best</td>
</tr>
<tr>
<td>20</td>
<td>200</td>
<td>Good</td>
</tr>
<tr>
<td>10</td>
<td>25</td>
<td>Poor</td>
 </tr>
< tr>
<td>100</td>
 <td>3000</td>
<td>Good</td>
 </tr>
</table>
</center>
```

</body>

</html>

Tag	Description
<table>	Defines a table
<caption>	Defines a table caption
<th>	Defines a header cell in a table
<tr>	Defines a row in a table
<td>	Defines a cell in a table
<thead>	Groups the header content in a table
<tbody>	Groups the body content in a table
<tfoot>	Groups the footer content in a table
<col>	Specifies column properties for each column within a <colgroup> element

<colgroup>	Specifies a group of one or more columns in a table for formatting

HTML Frames-

A framed page consists of two or more HTML documents. Since each document is a separate entity with its own URL, it behaves independently of the others. Thus, scrolling or reloading of one document will not result in equivalent behaviour in the others, Advantages

1. Frames prove to be an excellent navigational tool if used properly.

2. Site maintenance is relatively easy with frames.

3. With frames, you can display contents of other websites without letting your users leave your site.

4. With <NOFRAME> tag you can add alternative content for browsers which do not support <FRAME> tag

Disadvantages

1. Framed sites are not indexed well by search engines.

2. Users cannot bookmark individual pages.

3. Frames are not supported by older browsers.

4. Designing good-looking sites with continuity amongst various frames of a page is challenging.

Example

<html> <head>

<title> HTML Frames Examples </title> </head> <body>

<h1>1 st FRAME</h1> </body>

</html>

Forms-

- To make your website more interactive you can use HTML forms.
- Forms allow your website visitors to enter information into fields which are then submitted in the way you decide.
- There are many possible ways to handle HTML form, you can have an e-mail sent to you through a form, logins, CGI scripts (Common Gateway Interface), Perl Scripts, sent to an e-mail address, and more.

- The possibilities are very wide.

```
<html>
 <head>

<title> Form tag with its attributes

</title> </head>

<body bgcolor="pink">
 <br>
<h2><center>Application Form</center></h2>
 <hr size="3" width="200" color="green" noshade> <br> <br>
<form> First Name    <input type="text" name="first"
size="15" maxlength="20" value="Your first name"><br><br>
Password      
<input type="password" name="secret" size="15" maxlength="6"
value=""><br><br>
 <input type="radio" name="gender" value="yes" checked>Male<br>
<input type="radio" name="gender" value="no">Female<br><br>
<input type="checkbox" name="percent" >Check if percentage is above 70 <br>
<br> Additional Information<br><textarea name="info" cols="50" rows="10">
</textarea><br><br> Upload your latest resume<br>
 <input type="file" name="Upload" value=""><br><br>
 <input type="submit" value="Submit Form">
<input type="reset" value="Clear">

</form>
 </body>
</html>
```

Disadvantages of HTML

There are many potential problems associated with marking up your data using HTML. Three particularly serious problems come to mind:

1. The GUI is embedded in the data. What happens if you decide that you like a table-based presentation better than a list-based presentation? In order to change to a table-based presentation, you must recode your entire HTML! This could mean editing many of pages.
2. Searching for information in the data is tough. Forget about the relationships between pieces of data which are crucial to power searching.

3. The data is tied to the logic and language of HTML. What happens if you want to present your data in a Java applet? Non-HTML processing applications should not be burdened with extraneous work.

Separating style from structure with style sheets

- Style sheets are often treated as a means to separate style from content.
- That's not entirely depending on your definitions of style and content, Style sheets allow you to control the rendering e.g., fonts, colors, leading, margins, typefaces, and other aspects of style of a web document without compromising its structure.
- Style sheets maintain the separation between structural and presentation information, and provide for a graceful fall-back if the specific presentation requested by the style sheet is not available,
- Cascading Style Sheets (CSS) are simple style sheet mechanism that allows authors and readers to attach style to web pages, It uses common desktop publishing terminology that should make it easy for professional as well as untrained designers to make use of its features.
- Visual design issues, such as page layout, can thus be addressed separately from the web page logical structure.
- One of the main purposes of CSS is to separate the content from the document's structure, CSS is used to style the content of the document while HTML/XHTML/XML is used to build the structure.
- That way, once the document is built, any changes to the look of the page con be made in the style sheets.

- All tags in HTML have a default style. That is, the browser has a certain way of rendering each 127 type based on some basic rules. This can be overridden via an inline style using the STYLE attribute on the tag.
  Ex-
  Some text.

CSS Rules

- A CSS rule set consists of one or more statements in the following forms:

Selector { property : value }
Selector
{
property value;
property : value;
property : value;
…..
}

- The selector defines what elements the rule will be applied to. Following it is a declaration block, denoted by the curly braces {}.Within this block are zero or more declarations. Multiple declarations are separated by a semicolon (';'),

- Each declaration consists of a property and a value, separated by a colon (:). Properties are identifiers, such as font-size, background-color, etc. The values permitted depend on the individual property.

- Whitespace may be used around any of these tokens, so you can format them for easy reading. You can also insert comments anywhere whitespace is permitted.

selector { /* a comment for this rule */ property : value; property : value;

property : value; Selectors

In their simplest form, selectors consist of a tag name. Multiple tag names can be specified by separating them with a comma (^,'). So the following rules:

```
H1{ background-color: #ffff00 }
 h2 { background-color: #ffff00 }
 h3 { background-color: #ffff00 }
```

could also be expressed as:

```
h1, h2, h3 { background-color: #ffff00}
```

This is known as grouping. Also note that a tag name can appear in any number of style rules.

```
h1, h2, h3 { background-color: #ffff00}
h1{ color: red }
```

The styles of all rules that match a given element will be applied.

The simplest style rules associate a style declaration with an HTML tag. The following rule assigns the value green to the color property of first-level headers, i.e., hl's are green.

h1 {color: green;} or h1 {color:#00ff00;} Multiple properties set in the same rule are separated by semicolons. This style might be used by a well-known high-tech culture magazine:

```
h1
{
color: white; background-color: red; font-family: Arial, sans-serif; )
{
```

color: #fff; (short cut for #ffffff) background-color: #f00; (short cut for #ff0000) font-family: Arial, sans-serif;
}

Types of CSS

There are three types of CSS styles:

1. **Inline styles:** Inline styles are styles that are written directly in the tag on the document. Inline

styles affect only the tag they are applied to.

<a href="" style="text-decoration: none;">

2. **Internal/Embedded styles:** Embedded styles are styles that are embedded in the head of the document.

Embedded styles affect only the tags on the page they are embedded in.

<style type="text/css"> p{ color: #00f; } </style>

3. External styles: External styles are styles that are written in a separate document and then

attached to various Web documents. External style sheets can affect any document they are attached to.

<link rel="stylesheet" type="text/css" href="styles.css" />

CSS best practises recommends that you use primarily external style sheets for styling web pages so that you get the most benefit of the cascade and inheritance.

CHAPTER-7

CLIENT SIDE SCRIPTING WITH JAVA SCRIPT

Introduction to script,client side scripting,types of scripting

variables in javascript,built -in function

Array in javascript,conditional statements,loops

Document Object Model (DOM)

Creating function in java

Event handling in javascript

Embedding javascript with html

Working with cookies

connecting database using javascript in html page

Working with browser ,validating and submitting forms

Introduction to script-

Client side scripting-

Client side scripting is scripting which is done in WebPages resides at client side (Deals with web browsers). The Client side scripts are not all special effects however, some can be functional, providing a way to check form input for validity before sending the data to the server.

Ideas of when to use client side scripts.

- Complimentary form pre-processing (should not be relied upon!)
- To get data about the user's screen or browser.
- Online games.
- Customising the display (without reloading the page)

Limitations of Client-Side Scripts

1. The safety is major concern for client side scripts.

2. Anyone who can load the document can readily examine the client-side script code. 3. It is very difficult to hide the programming logic from the user.

TYPES OF SCRIPTS

1. Immediate Scripts

Immediate script is the term to indicate lines of JavaScript that not only run when the browser loads the document, but also influence the layout of the page. Such Scripts are placed in <BODY> sections

<HTML><HEAD></HEAD>

<BODY>

<SCRIPT>

//Script that produces content for the body

</SCRIPT>

</BODY>

</HTML>

2. Deferred Scripts

A deferred script is one that the browser sees when the document loads, but the wording of the script tells the browser not to anything with the code other than to be aware that it exists. Such script sections usually consist of small groups of script lines. Adding a deferred script to the Head Block prepares the brewer to respond to user interaction later.

<HTML> <HEAD>

<SCRIPT>

// Script that initializes items for user-driven actions

</SCRIPT> </HEAD> <BODY>

</BODY>

</HTML>

3. Hybrid Scripts

These scripts are used in designing pages, which require both immediate and deferred scripts. The immediate script lines help to create the contents of the page while the deferred script lines react to the user's actions once the page has been fully loaded.

[1] <SCRIPT LANGUAGE="JavaScript" SRC="filename.js"></SCRIPT>

[2] <SCRIPT LANGUAGE="JavaScript">

// Script goes here

</SCRIPT>

[3] <HTML><HEAD> <SCRIPT Language=”JavaScript”>

Var hello=”Welcome to JavaScript”; </SCRIPT> <NOSCRIPT>

Sorry! Your browsers does not support JavaScript </NOSCRIPT> </HEAD> <BODY> <SCRIPT Lanaguage=”JavaScript”>

Document.write(hello); </SCRIPT> </BODY> </HTML>

Variables in javascript

Variables are name given to some memory location to store values temporarily.

Variable names in JavaScript, can begin with alphabet (A through Z and a through z) or underscore character or ($) sign. The rest of the characters may be letters, digits (0 through 9) or underscore. E.g. name, total_amout etc.

Variable Types

Unlike C/C++ or Java, JavaScript does not require specification of data type contained in a variable. It has variant data type define by var command. The same variable can contain different type of values among Integers, Floating point numbers, Boolean values, Strings or Null. The JavaScript interpreter maintains a record of the type of value contained in the variable. For example,

var name="Hello"; var total=789;

Built in function-

alert(string or variable) : To give a message dialog box.

prompt("message", "default value”): To give a message and get value in the form of string and pass is to some variable.

confirm("message"): Used to confirm something from user by giving a confirmation dialog box with command buttons OK and Cancel. It returns boolean value, true or false which can be used in conditional statements.

Example

<html> <head> <title>Using Built-in Functions</title> </head> <body> <script language="JavaScript">

alert("Welcome to JavaScript");

var name=prompt("Please Enter your name","");

```
 if(confirm("Should I wish you"))
{
alert("Dear "+name+" Thanks for Using JavaScipt");
}
else
{
alert("Try Next Time");
} </script> </body> </html>
```

Array in javascript

Array are JavaScript objects that are capable of storing a sequence of values. These values are stored in indexed locations with in the array. The length of an array is the number of elements that an array contains. The individual elements of an array not accessed without using the name of array followed by the index value of the array element enclosed in square brackets.

The array element index starts with 0. Hence the last element is one less than the length of the array. Array must be declared before it is used. The array can be declared as:

arrayname = new array (Array length)

or

arrayname = new array, (Array length)

Example:

```
<html>
<head> <title> array elements </title> </head> <body> <script language = "java script"> a = new array (5) a[0] = "AB" a[1] = "CD" a[2] = "EF" document write (a[1]);
</script>
</Body>
</html>
```

Conditional Statement-

Let us see some conditional statements as follows:

If Statement

Used to test the given condition, if condition is true the execute the statement written within the block otherwise execute the statement written in else block.

Let us see some of the Syntax variations as follows:

[a] if (condition)

{

statements; }

[b] if(condition)

{

statements; } else {

statements;

}

[c] if(condition)

{

if(condition) {

statements; }

}

[d] if (condition1)

{

statements; } else if(condition2) { statements; } else { statements; }

Loops-

[1] for loop

for(initilization;condition;updateStatement) {

statements;

}

[2] while loop-pre-condition check

while(condition) {

statements; }

[3] do-while loop-post-condition check, Executes at least once

do {

statements; }while(condition);

Document Object Model (DOM)

JavaScript is an object-based language. JavaScript has some predefined object and has the capability to create user defined objects.

1. Object Types

An object type is a template from which specific objects of that type are created. It defines properties and methods that are common to all objects of that type.

Instances

New instances are create using the object template. Each instance has its own set of properties and methods to be applied.

2. Creating Instances of Objects

Instances of objects of specific type are created using new operator.

variable=new objectType(parameters)

For example,

currentDate=new Date() myBday= new Date(1999,3,2)

3. Other Predefined Objects

Math Object

String Object

Array Obect

Date Object

Function Object

Creating function in java

Function is a set of statement defined under a single name. Functions are created using function command. Syntax is

function functionName([parameters]) {

statements;

[return value or variable;) }

Example : Write a function to calculate the factorial of given number.

function factorial(n) {

```
var f=1; for(var i=1;i<=n;i++)
return f;
}
```

Objects in javascript

Objects can be created using functions only. Properties of an object are defined with the function and value is passed using this operator, this operator represents the current object.

Syntax -

```
function objectName(parameters) {
this.property Name=parameter;
```

Instance of such objects can be created using new operator.

Syntax

```
variable = new objectName(values);
```

Event handling in javascript

- The processing is performed in response to the occurrence of an event is known as event handling.
- The code that performs this processing is called an event handler.
- **JavaScript event handlers:**

***** Display a dialog box when user moves the mouse over a link.

* Validate the data a user has just entered into a form.

*Load and display an animation sequence when a user clicks a button.

*Interact with Java Applets and browser Plug-ins.

How JavaScript Handles Event

JavaScript's approacgh to event handling is a two-step process:

1. Defining the events that can be handled by scripts.
2. Providing a standard method of connecting these events to user-supplied JavaScript code.

Last Minute Checking before submission

```
<html>
<head>
<script>
function checkForm(form)
 {
for(var i=0;i<form.elements.length;i++)
{

if(form.elements[1].value=='')
{
alert(“Please fill all the fields”);
 return false;
 }
}
return true;
}
 </script>
</head>
<body>
<form onSubmit="return checkform(this)">
//form elements
<input type="submit">
</form>
</body>
</html>
```

Embedding javascript with html

Like other scripting languages that extend the capabilities of the application with which they work, JavaScript extends the standard web page beyond its normal use. We have already seen in this chapter numerous ways to make your website come alive and given the flexibility of

the language, the only limit is your imagination. We must now consider how JavaScript works within HTML pages.

Working with cookies

- Netscape cookies are small strings of text stored in our cookies.txt file. They are often used to store information about us or our computer that is used by various sites to "remember" some bit of information about you between visits to that website.
- The server writes this code to your machine and will reread it when you visit again. Although this feature is very useful, there are still debates as to its security and validity of use.
- The hidden Object: Often when you create an interactive form, you want to keep some information hidden, yet still pass this information on to the server when the form is submitted.
- This is often information about the user-perhaps when he last accessed your page, or some preference that he had set in the previous form that generated this one. You can keep track of this information with hidden fields.
- This field is often used in place of Netscape's "cookies" for compatability to browsers that do not support the create praticamen. Hidden fields contain text information and are not displayed on the screen with the rest of the form.

To create a hidden object, use the following syntax :

<INPUT

TYPE="hidden"

NAME="hiddenName"

[VALUE = "textValue"]>

connecting database using javascript in html page

- You cannot connect directly from a browser to the database as the database doesnot have access. Even if you could, you shouldnot: if your javascript sends SQL statements to the database, there is nothing stopping a random visitor from having fun by changing your SQL to "drop table", and your entire database is gone.

- What you do is setting up a server side web service (using PHP, Java servlets or whatever) that accepts a URL, converts it to a DB query and returns the result as JSON.
- The primary thing from a security standpoint is that you never insert a string from the web into the SQL without validating it first.

Working with browser window

- The JavaScript object model and its very interesting set of built-in objects, methods, and functions provide what we would expect from any modern programming language.
- They provide control structures, encapsulation, functions, mathematical operations, and so forth. Since JavaScript is designed to work with and on the World Wide Web there must also be a linkage between it and the contents of HTML pages.
- This linkage is provided by JavaScript's extremely rich set of browser and HTML objects.
- The browser objects are a reflection of the browser environment, and include objects that can be used to reference the current page, the history list, and the current URL.
- There are also methods for opening new windows, putting up dialog boxes, and writing HTML directly. We have already been leaning heavily on one such method, the write method of the document object.
- The browser (or navigator) objects are at the top of JavaScript's object hierarchy, since they represent overall information and actions that are not necessarily associated with a particular web page.
- Within a given web page, however, each HTML element has a corresponding object, an HTML object, within the object hierarchy. In particular, every HTML form, and every HTML element within every form, has a corresponding object.
- Browser Objects The primary browser objects, in rough order of significance, are as follows:

window

Document

location

history

validating and submitting a form

- This section covers the final pieces of information you need to complete your exploration of JavaScript and forms. The last two form-based objects, submit and reset, are accompanied with an example of a simple mail-in form that checks the input before it is sent back to you.

- The submit Object : The submit button was originally intended in HTML to be the final button a user would click to send a form back to the server. It would submit information, send feedback, or present a structured request for new information (you see this in search engines like Yahoo!).
- With JavaScript, you can now use this button to also send all of the information collected in a form to another window on your browser, or to the same window itself, which causes the contents of the window to change in some way.
- An example of this is changing the background color of the window based on the user's preference on a form. You create a submit object by using the following syntax :

<INPUT

TYPE="submit"

NAME="submitName"

VALUE="button Text"

[onClick = "handler Text"]>

Chapter-8

Server side scripting

Introduction of server side scripting

Components of server side scripting

Difference between CSS and SSS

Server side scripting method

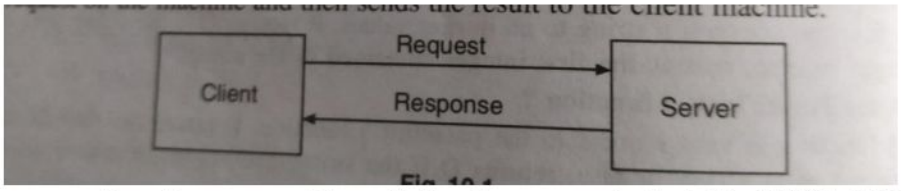
Javascript on server

SQL (Structured Query Language)

Introduction of server side scripting

- Server side scripting is defined as “web server technology in which the user's request is fulfilled by running a script directly on a web server to generate dynamic web pages."

- In simpler terms, a server-side scripts runs on the server rather than your computer. When you visit a website, the script will create the webpage on dynamically. In case of server side scripting, the client sends the request on the machine and then sends the result to the client machine.



- Popular server-side scripting languages include Perl PHP, ASP, JSP, Ruby, Cold fusion and Python Advantages:

1. Load times are generally faster than client side scripting.
2. It does not require the user to download plugins like JAVA or flash.
3. You can create a single website template for the entire website. Each new dynamic page you create will automatically use it.
4. Your scripts are hidden from view. Users only see HTML output, even when they view the source.

Components of server side scripting

- Server side scripting is not only the collection of some programs that are executed on request, hut it also contain some other below mentioned parts:

Web Server

- A web server is a software that continuously monitors for any request that has been made from any client. It reads any request, it trees out the particular file or values from the database and sends the results to the client machine.
- The web servers that are available these days are:
- PWS (Personal Web Server): This web server is available for Window 98, 98 SE (Second Edition) and ME (Mellenium Edition).
- IIS (Internet Information Server): This is available for Window NT (Server and workstation), 2000 (Server and Professional), XP, 2003 etc.

Apache: This web server is available for both windows and linux or Unix platforms. Every web server creates a default web directory for storing its files

ASP (Active Server Pages) **JSP** (Java Server Pages) **PHP** (Personal Home Pages)

Database Files

- The third part of working of the server side scripting is the database files. These database files can be designed in any of the available database such that:

* MS Access

SQL Server My SQL

- ORACLE The job of the database is to store the information about various entities (any physically existing object is known as entity).
- SQL is Structured Query Language that is used to interact with the databases. It is integral part of any Relational Database Management System (RDBMS) package system. SQL uses some predefined syntax statements .

The main scripting methods that are used in server side scripting are mentioned below

ASP: The active Server pages are the server side scripting language that executes on the windows platform only. When the IIS web server is installed on a machine, the ASP itself starts running on the computer (there is no need of installing the special compiler)

JSP :JSP needs a special type of software package in order to run properly. This software package is always working in conjunction with the web server. One such software is known as Tomcat server.

Difference between CSS and SSS

1. Server-side scripting is used at the backend, where the source code is not viewable or hidden at the client side (browser). On the other hand, client-side scripting is used at the front end which users can see from the browser.
2. When a server-side script is processed it communicates to the server. As against, client-side scripting does not need any server interaction.
3. The client-side scripting language involves languages such as HTML, CSS and JavaScript. In contrast, programming languages such as PHP, ASP.net, Ruby, ColdFusion, Python, C#, Java, C++, etc.
4. Server-side scripting is useful in customizing the web pages and implement the dynamic changes in the websites. Conversely, the client-side script can effectively minimize the load to the server.
5. Server-side scripting is more secure than client-side scripting as the server side scripts are usually hidden from the client end, while a client-side script is visible to the users.

Server side scripting method

Let us see some of the server side scripting methods : 1. CGI (Common Gateway Interface) : Simple scripting mechanisms supported by practically

All web servers. Most commonly written in Perl, C/C++, or Python.

1. Java Servlets : Ability to execute java objects on the server. Newer,less common technology but has dramatic performance advantages over CGI.

Javascript on server

JavaScript extends the capabilities of the server. By providing a scripang language the share cm do more without calling an external program. This makes it easier for Webmasters to sui kurs te their sites that browsers can take advantage of. And it can reduce the load on the server by keeping the processing within the server software.

1.Request Object

(a) The Built-In Properties :

(i) agent

(ii) ip

(iii) Method

(iv) Protocol

(b) client object:

(i) Client properties

(ii) Client object expire

(iii) Cookies store information between sessions

(c) java script and CGIs

(d) The java script balancing act

SQL (Structured Query Language)

It is used to interact with the databases. It is integral part of any Relational Database Management System (RDBMS) package system. SQL uses some predefined syntaxed statements to perform various database operations like.

Retrieving Information from a Table

SQL uses the select statement for this purpose.

Syntax :

Select column names /* from tablenames; where;

(i) Column names is the list of columns (separated by (,) comma) or * for listing all columns.
(ii) and Tablename is the name of the table. Hence, the statement can be written as:

Select * from emp;

and the above statement retrieves all the columns and rows from the emp table.

Inserting Records into a Table For inserting 1ows or records into the database tables, the SQL uses following

syntax:

insert into tablename values (set of values);

Example: To insert any record in a table having name emp and having field empno and sol, we can issue a SQL statement:

insert into emp values (1, 1000)

Deletion of Records

Chapter-9

Server side programming using PHP

Introduction to PHP

Variables,String,operator types

Conditional statements,loop

PHP arrays

GET and POST methods,sessions

Introduction to PHP

- PHP is an open-source server-side scripting langauge.
- You can create dynamic web pages with the PHP scripting language.
- A dynamic web page interacts with the user, so that each user visiting the page sees customized information. PHP can also be used to create dynamic web pages that are generated from information accessed from a MySQL database.
- You can embed PHP commands within a standard HTML page PHP's syntax is similar to that of C and perl, making it easy to learn for anyone with basic programming skills another feature that PHP offers is connectivity to most of the common databases.
- PHP also offers integration with various external libraries, which allow the develops to do anything from generating PDF documents to parsing XML.

Syntax: Place a file containing the code below inside the WWW directory of your web serves account and save it as info.php

```
<?php
phpinfo();
? >
```

Variables in php

Variables in PHP are represented by a dollar sign followed by the name of variable. The variable name is case-sensitive.

Variable names follow the same rules as other labels in PHP. A valid variable name starts with a letter or underscore, followed by any number of letters, numbers, or underscores. For example,

```
<? php
$ var = 'Bob';
$ var = 'joe';
 echo "$var, $var";                 //outputs "Bob, joe"
$4site = 'not yet';           //invalid; starts with numbers
$_4site = 'not yet'; //valid; starts with an underscore
 Stayte = 'manikka';           //valid; 'a' is
```

By default, variables are always assigned by value. That is to say, when you assign an expression to a variable, the entire value of the original expression is copied into the destination variable. This means, for instance, that after assigning one variable's value to another changing one of those variables will have no effect on the other.

STRINGS:

- A string is series of characters where a character is the same as a byte. This means that PHP only supports a 256 character set, and hence does not offer native unicode support.
- String can be as large as upto 2 GB (2147483647 bytes maximum)
- A string literal can be specified in four different ways:

1. Single Quoted

The simplest way to specify a string is to enclose it in single quotes (the character ').

For example

```
<?php
echo 'this is a simple string';
? >
```

2. Double Quoted

If the string is enclosed in doubel quotes (" "), the PHP will interpret more escape sequences for special characters:

sequence	meaning
\n	linefeed
\r	Carriage return
\t	Horizontal tab
\v	Vertical tab
\e	Escape sequence

3. Heredoc

Doc text behaves just like a double quoted string, without the double quotes. This means that quotes in a heredoc don't need to be escaped.

4.NOWdoc:

It is a single-quoted strings what heredocs are to double-quoted strings. It is similar to a heredoc, but no pasting is done inside a nowdoc.

Operator type-

1. **Arithmetic operator**

Operator	Description	Example
+	Add two operands	A+B
*	Multiply both operands	A*B
-	Subtract second operand from first	A-B
/	Divide numerator by denumerator	A/B
%	Modulus indicates the reminder	A%B

2. **Comparison operator**

Operator	Description	Example
==	Both side operand are equal	A==B
! =	Not eual to	A! =B
>	Greater then	A>B
<	Less then	A<B
>=	Greater then equal to	A>=B
<=	Less then equal to	A<=B

3. **Logical operator**

Operator	Description	Example

AND	AND Operator	A and B
OR	OR operator	A Or B
&&	Logical AND operator	A&& B
||	Logical OR operator	A|| B
!	Logical NOT Operator	! (A&&B)

4. Assignment operator

Operator	Description	Example
=	Simple assignment operator	C=A+B
+=	Add and assignment operator	C=C+A
-=	Subtract and assignment operator	C=C-A
*=	Multiply and assignment operator	C=C*A

5. Conditional operator

Operator	Description	Example
? :	Conditional expression	It checks wheater the condition is true or false

Conditional statements-

The if, elseif_else and switch statements are used to take decision based on different condition.

You can use conditional statements in your code to make your decisions. PHP supports following three decision making statements:

1. if .....else statement

If you want to execute some code if a condition is true and another code if a condition is false, the if ....else statement. Syntax:

If (condition)

Code to be executed if condition is true;

else

Code to be executed if condition is false;

2. Elseif statement

If you want to execute some code if one of several conditions are true use the elseif statement.

Syntax:

If (condition)

Code to be executed if condition is true;

Elseif (condition)

Code to be executed if condition is true;

else

Code to be executed if condition is false;

3. Switch statement

If you want to select one of many blocks of code to be executed, use the switch statement switch statement is used to avoid long blocks of if … elseif … else code.

Syntax:

```
Switch (expression)
 {
case label 1:
code to be executed if expression label 1;

Break;
case label2:
code to be executed if expression=label2;

Break;
 default:
code to be executed if expression is different from both label 1and label2;
}
```

Loops-

- Loops in PHP are used to execute the same block of code a specified number of times. PHP supports following four loop types:

    - For: Loops through a block of code a specified number of times. The for statement is used

- When you know how many times you want to execute a statement or a block of statements. Syntax:

```
For (initialization; condition; increment/decrement)
{

Code to be executed;
 }
```

Example:
The following example makes five iterations and changes the ansigned value of two variables on each pass of the loop.

```
<html>

<body>
<?php
$a = 0;

$b = 0;
for ($i = 0; $i < 5; $i++)

{
 $a += 10;

$b += 5;
 }
echo ("At the end of loop a = $a and b = $b");

</body>
</html
```

This will produce the following result.

At the end of loop a = 50 and b = 25

While Loop

Loops through a block of code if and as long as a specified condition is true. If the test expression is true then the code block will be executed. After the code has executed the test expression will again be evaluated and the loop will continue until the test expression is found to be false. Syntax:

```
While (condition)
{
code to be executed;
```

}

Example: This example decrements a variable value on each iteration of the loop and the counter increments until it reaches 10 when the evaluation is false and the loop ends.

```
<html>
<body>
 <?php
 $i = 0;
$num = 50;
while($ i<10)

{
$num – -;
$i++;
}
echo ("Loop stopped at i = $i and num =

Snum");

</body>

</html>
```

This will produce following result:

Loop stopped at i = 10 and num = 40

The do.....while loop statement:

It will execute a block of code at least once—it then will repeat the loop as loop as a condition is true.

Syntax:

```
do

{
code to be executed;

} while (condition);
```

Example:

The following example will increment the value of i at least once, and it will continue incrementing the variable i as long as it has a value of less than 10.

```
<html>
 <body>
 <?php
 $i = 0;
 $num = 0;
do
{

$i++;
 }
 while ($i < 10);
echo (“Loop stopped at i = $i”);
? >

</body>

</html>
```

This will produce following result

Loop stopped at i = 10

Syntax:

```
do

{ code to be executed;

} while (condition);
```

Example:

The following example will increment the value of i at least once, and it will continue incrementing the variable i as long as it has a value of less than 10.

```
<html>
 <body>
 <?php
$i = 0;
$num = 0;
do
```

```
{

$i++;
}
while ($i < 10);
echo (“Loop stopped at i = $i”);

</body>

</html>
```

This will produce following result

Loop stopped at i = 10

The foreach Loop Statement

The foreach statement is used to loop through arrays. For each pass the value of the current array element is assigned to $value and the array pointer is moved by one and in the next pass next element will be processed. Syntax:

```
foreach(array as value)
{

code to be executed;
}
```

Example:

```
<html>

<body>
<?php
$array = array (1, 2, 3, 4, 5);
 foreach($ array as $ value)
{
echo "value is $value <br/>";
}

</body>

</html>
```

This will produce following result:

value is 1

value is 2
value is 3
value is 4
value is 5

PHP arrays

- Array is a data structure that store one or more simiklar type of values in a single value.
- **For example**: If you want to store 100 numbers then instead of denining 100 variables, its easy to define an array of 100 length.
- There are three different kind of array and each array value is accessed using an IDs which is called array index.

1. Numeric Array

- An array with a numeirc index. Values are stored and accessed in linear fashion. These array can store numbers, strings and any object but their index will be presented by numbers. By default array index starts from zero.

Example: Here we have used array ( ) function to create array.

```
<html>
<body>

<? php

1* first method to create array */
 $ numbers = array (1 2 3 4 5);

foreach($number as $value)
 {
echo "value is $value <br/>";

}
/* second method to create array */

$numbers[0] = "One";
Snumbers(1) "Two";
Snumbers121 - "Three";
Snumbers 01 - "Four";

Snumbers(4) "Five";
foreach (Snumbers as $value)
```

```
echo "value is Svalue <br/>";

</body>
</html>
```

This will produce following result:

```
Value is 1
Value is 2
Value is 3
Value is 4
Value is 5
Value is one
Value is two
Value is three
Value is four
Value is five
```

2. Associative Arrays

- An array with strings as index. This stores element value in association with key values rather than a strict linear index order.
- These arrays are very similar to numeric arrays in term of functionality but they are different in terms of their index. Associative array will have their index as string so that you can establish a strong association between key and values.

Example:

```
<html>
 <body>

<?php
 /*First method to associate create array*/
 $salaries = array
(
"Mohammad"=> 2000,
"Zara"=> 1000;
"Paakhi" => 10000;
 "Vinay"=> 50000

);
echo “Salary of mohammad is”. $salaries ['mohammad') . "<br/>";
echo "Salary of Zara is".$salaries[Zara'). "<br/>";
echo "Salary of Paakhi is".$salaries ['Paakhi'). "<br/>";
echo "Salary of Vinay is”.$salaries ['Vinay']."<br/>";
```

/* Second Method to create array */

```
$Salaries ['Mohammad'] = "medium";
$Salary ['Zara'] = "Very low";
$Salary ['Paakhi'] = "High";

$ salaries ['Vinay'] = "Very light";
echo "Salary of mohammad is".$salaries ['mohammad']."<br/>";
 echo "Salary of Zara is".$salaries ['Zara']."<br/>";
 echo "Salary of Paakhi is".$salaries ['Paakhi']."<br/>";
echo "Salary of Vinay is".$salaries ['Vinay'). "<br/>;

?>
</body>

/html
```

This will produce following result:

```
Salary of mohammad is 2000
Salary of Zara is 1000
 Salary of Paakhi is 10000
Salary of Vinay is 50000
 Salary of Mohammad is medium
Salary of Zara is very low
Salary of Paakhi is high
Salary of Vinay is very high
```

3. Multidimensional Array

- An array containing one or more arrays and values are accessed using multiple indices.
- A multidimensional array each element in the main array can also be an array. And each element in the subarray can be an array, and so on. Values in the multi-dimensional array accessed using multiple index.

Example: In this example, we create a two dimensional array to store marks of three students in

three subjects:

```
<html>
 <body>
 <?php
$marks = array(
```

```
"Mohammad" => array (
"Physics" => 35
"Maths" => 30
 "Chemistry" => 39
 );
"Paakhi" => array
(
 "Physics" => 40
 "Maths" => 42
"Chemistry" => 45
 );
"Vinay" => array
(
"Physics" => 41
"Maths" => 42
"Chemistry" => 49
)

);
/*Accessing multi-dimensional array values* /
echo "Marks for mohammad in physics:";
echo "$Marks ['mohammad') I'physics'). "<br/>";
echo "Marks for Paakhi in Maths:";
echo "Marks ['Paakhi'] ['Maths'). "<br/>";
echo "Marks for Vinay in Chemistry:";
echo "$marks['Vinay'] ['Chemistry'). "<br/>";

</body>

</html>
```

This will produce result:

Marks for Mohammad in Physics: 35
Marks for Paakhi in Maths : 42
Marks for Viney in Chesmitry: **49**

PHP GET AND POST METHODS

There are two ways the browser client can send information to the web server.

- The GET method
- The POST method

Before the browser sends the information, it encodes it using a scheme called URL encoding. In this) scheme, name/value pairs are joined with equal signs and different pairs are separated by the ampereand,

GET Method

The GET method sends the encoded user information appended to the page request. The page an the encoded information are separated by the ? character.

http://www.test.com/index.htm?name1=value1&name2=value2

* The GET method produces a long string that appears in your server logs, in the browser's location box.

The GET method is restricted to send upto 1024 characters only. *Never use GET method if you have password or other sensitive information to be sent to the

server.

* GET can't be used to send binary data, like images or word documents, to the server. * The data sent by GET method can be accessed using QUERY_STRING environment variable. * The PHP provides $_GET associative array to access all the sent information using GET

method.

Example:

```
<?php
If ($_GET ["Name"] || $_GET['age"])

{

echo "Welcome". $_GET['name']."<br/>";
echo "you are". $_GET['age'). "years old";

exit()
}
? >
<html>

<body>
 <form action = "<?php $_PHP_SELF ?>" method = "GET">
Name : <input type = "text" name="name"/>
Age : <input type = "text" name = "age"/>

<input type = "submit" />
```

```
</form>
</body>
</html>
```

POST Method

The POST method transfers information via HTTP headers. The information is encoded as described in case of GET method and put into a header called QUERY_STRING.

The POST method does not have any restriction on data size to be sent. The POST method can be used to send ASCII as well as binary data. The data sent by POST method goes through HTTP header so security depends on HTTP

protocol. By using secure HTTP you can make sure that your information is secure. * The PHP provides $-Post associative array to access all the sent information using POST

method. Example:

```
<?php
 If ($_POST ["name"] || $_POST["age"];
{
 {
echo "Welcome". $_POST['name'] "<br/>";
echo "you are. $_POST['age'). “years old";

exit( ),
}
 ?>
<html>

<body>
 <form action = "<?php $_PHP_SELF?>" method = "POST">
Name: <input type = "text" name = "name" />
Age: <input type = "text" name = "age"/>
<input type = "Submit" />
 </form>
</body>
</html>
```

Session-

- An alternative way to make data accessible across the various page of an entire website is to use a PHP session.
- A session creates a file in a temporary directory on the server where registered session variables and their values are stored.
- This data will be available to all pages on the site during that visit.