

COMPLETE
COURSE GUIDE

Internet & Web Technology



Ramakrishna Mission Shilpamandira

Vivek Web School

Belur Math

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Introduction of Internet

Internet

In general Internet is a collection of inter -connected networks. A common form of Internet is a collection of LAN connected by WAN (World Area Network). The ancestor of Internet was “ARPANET”. It is a project supported by Department of Defense U.S.A. In order to link Department-of Defense (dod) and military research organizations. It was started with only three computers in California. With the time the ARPANET reached universities, research labs and military organizations.

Idea of linking the documents and images on multiple locations was given by Tim-berner-Lee. In September 1993 first Web browser that allowed graphics on the web was developed at Center for Super Computing Applications. The backbone of the Internet is made up of very high-speed communication links owned by companies like AT&T, Sprint or VSNL(India). Connections to backbone are made by Internet Service Provider (ISPs).Internet can be used for information collection, Online Banking, Online Exam, searching information etc. Overall It is a Decentralized system composed of billions of files which are dynamic in nature. Following are the major components that make the Internet Outline.

Anatomy of Internet

- Internet Services
- Elements of the Internet
- Uniform Resource Locators
- Internet Protocols

Internet Services

- 1 E-mail
- 2 FTP
- 3 TELNET
- 4 WWW(world wide web)

Elements of the Internet (*Internet client server Architecture*)

In client server mechanism client become interface to user while specific operations are performed by server. The user interacts with clients which forms the front end. The client request the server for certain services and the server provide these services. In this manner the server forms the back end and performs the various functions like creation, management and manipulation of databases.

Modem

Modem (Modulator-Demodulator) is a device which is used for connecting Internet through telephone lines. When digital data are to be sent over analog telephone lines, the digital signals must be converted into analog form (like in Internet). The technique by which a digital signal converted to its analog form is known as Modulation. The reverse process, that is conversion of Analog signal to digital form at the destination is called Demodulation. The process of modulation and demodulation is carried out by this device.

Elements of The Web

Web Browser

It is software for accessing Internet. We can view Internet pages using browser. Internet explorer, Netscape. Navigator, mosaic etc. are the examples of Internet browser. Browser fetches the requested page, interprets the text and commands that it contains and displays the page properly formatted on the screen.

Web Site and Web Page

The Web consist of vast world wide collection of documents usually called web pages. Each page may contain links, pointing to other related pages any where in the world. Users can follow a link which then take them to the page pointed to it.

Hypertext and Hyperlink

Web pages that points to other pages are said to as Hypertext pages. It is an idea to organizing text, navigating, distribute and publishing information electronically instead of reading text in rigid, linear structure. Here we can jump easily from one point to another and we get the right information in less time and in conventional manner.

Internet Protocols

Protocols are standards that specifies the details of how computers communicates, and how errors are handled during this communication. Protocols support communication between similar and dissimilar network both. Generally a protocol is a set of rules which is used by computers to communicate with each other across a network. A protocol is a convention or standard that controls or enables the connection, communication, and data transfer between computing endpoints. Some commonly used protocols for communication are Internet Protocol (IP), Transmission Control Protocol(TCP), FTP, HTTP etc.

Internet Applications

Internet has become populated by academic, government and industrial researchers. One can find many applications of the Internet.

Communication

We have lots of facilities available on Internet for communication. E-mail is one of the most important communication services available on the Internet. The concept of sending electronic text messages between parties in a way analogous to mailing letters or memos predates the creation of the Internet. Pictures, documents and other files can be sent as e-mail attachments. E-mails can be send to multiple e-mail addresses.

Internet telephony is another common communications service made possible by the creation of the Internet. VoIP stands for Voice-over-Internet Protocol, referring to the protocol that underlies all Internet communication.

Webcams can be seen as an even lower-budget extension of this phenomenon. While some webcams can give full-frame-rate video, the picture is usually either small or updates slowly. Internet users can watch animals around an African waterhole, ships in the Panama Canal, traffic at a local roundabout or monitor their own premises, live and in real time. Video chat rooms and video conferencing are also popular with many uses being found for personal webcams, with and without two-way sound.

Online shopping

One can sale and purchase Items on Internet. Online shopping is the process consumers go through to purchase products or services over the Internet. An online shop, eshop, e-store, internet shop, webshop, webstore or online store evokes the physical analogy of buying products or services. In order to shop online, one must be able to have access to a Internet inbuilt computer, a bank account and a debit card. Various other payment medium like credit card, Electronic money transfer etc can also be used for online shopping. We have number of sites which provides online shopping. Amazon.Com is an Online shopping website specially for books, music, DVDs, video electronic, computers etc.

Online Banking

Internet has changed the total scenario of banking. CBS (Centralized banking solution), ATM saves your lots of overheads and time. Now one can make payments and perform transactions while sitting in office. One can do transactions and fund transfer with the help of online facilities provided by bank on Internet. You can check your account status, do payments and transfer funds in other accounts through Internet Banking. Here a password and ill provided by the bank which can be used for accessing account and make transactions.

Online Registrations/Examinations

Many Institutions and colleges provide Online admissions/registrations. Now you can take admission while sitting at your home with the help of Internet enabled computer. Most of Universities and educational organizations display their exam result on Internet which can be viewed worldwide. It is easy to search, process, check and filter the data available online. It takes very less time to process the data available online.

Misuse of Internet

Like the two side of a coin Internet has a set of pros and cons too. While there is no denying the fact that Internet today has made the world a smaller and a connected world to live in, it also brought it with many drawbacks. Children are getting addicted to it and are sacrificing studies. Similarly growing incidents of cyber crime and asocial web activities bring to light the dark side of Internet.

Addiction

Most of today children are seen playing Internet games and have sacrificed physical activity and exercise in the process. The result growing number of obese children and increasing health problems. Playground games are replaced by play station games. When Internet becomes an addiction and starts interfering with our daily life, then it leads to a kind of psychological problem known as Internet addiction disorder.

Personal Information

If you use the Internet, your personal information such as your name, address, etc. can be accessed by other people. If you use a credit card to shop online, then your credit card information can also be 'stolen'.

Hacking

It is Use of a computer system without a specific, constructive purpose, or without proper authorization *Computer hacking* is the practice of modifying computer hardware and software to accomplish a goal outside of the creator's original purpose. People who engage in computer hacking activities are often called hackers.

QUESTIONS

MULTIPLE CHOICE

1. Internet is governed by –
 (a) I&B (b) IETF (c) interNIC (d) None of these
2. The first page that you normally view at a website is its:
 (a) home page (b) master page (c) first page (d) Banner page
3. The first network that planted the seeds of Internet was:
 (a) ARPANET (b) NSFnet (c) Vnet (d) inet
4. All web addresses start with which of the following?
 (a) htp (b) http:// (c) http:/ (d) www
5. The equipment needed to allow most home computers to connect to the Internet is called a
 (a) peripheral (b) monitor (c) device (d) modem

TRUE OR FALSE

1. Internet is not a commercial information service.
2. e-mail addresses are case sensitive.
3. A set of rules is known as protocol.
4. The URL specifies the Internet address of a file stored on a host computer connected to the Internet.
5. Most email accounts separate the name and the domain with an@symbol.

MATCH THE COLUMN

- | A | B |
|--|-------------------|
| 1. Netiquette | a. Hacking |
| 2. Crime through the Internet | b. Hyperlink |
| 3. Scrambling of a message for security | c. Encryption |
| 4. Unauthorized Access of personal Information | d. harsh language |
| 5. Inter Connecting Web pages | e. viruses |
| | f. phishing |

FILL IN THE BLANKS

- a. Home Page b. WebPages c. *Internet gateway* d. *Modem* e. *concentrator*
 f. Hyperlink g. Attachment h. Backbone
1. The central structure that connect element of a network is known as the_____
 2. _____ are the document that uses HTTP.
 3. Connecting to the Internet requires four things: PC, _____, telephone line ,browser.
 4. A(n)_____ is a document sent with email.
 5. _____ is the first document that users see when they enter a site on the World Wide Web.

SUBJECTIVE

1. Explain briefly why the Internet is called a "network of networks".
2. Explain Internet architecture.
3. There are many application areas of Internet. Identify four of them and describe two of them.
4. Illustrate by example some of the crimes which are easily performed through the Internet?

Answer

- Multiple Choice** : 1. (d) 2. (a) 3. (a) 4. (b) 5. (d)
True or False : 1. (F) 2. (T) 3. (T) 4. (T) 5. (T)
Match the Column : 1. (d) 2. (f) 3. (c) 4. (a) 5. (b)
Fill in the Blanks : 1. (h) 2. (b) 3. (d) 4. (g) 5. (a)

RKMVSVS

RKMSWS

UNIT - 02

Internet Technology & Protocols

In 1978 ISO proposed a model for standard network architecture. This model is called Open System Inter connection (OSI) reference model. It deals with connecting open system (means the system that are opened for communicate with other systems). It is an abstract description for layered communication and computer network protocol design. The OSI reference model consist of seven layers and each layer is the collection of related functions.

Each layer of as I model has different protocol associated with it. When more than one protocol is needed to complete a communication they are group together in the form of a stack. A protocol stack is TCP /IP.

Description of Osi Layers

OSI Model			
	Data unit	Layer	Function
Hostlayers	Data	7. Application	Network process to application
		6. Presentation	Data representation all d encryption
		5. Session	Interhost communication
	Segment	4. Transport	End-to-end connection reliability
		3. Network	Path determination and logical addressing
Medialayers	Frame	2. Data Link	Physical addressing
	Bit	1. Physical	Media, signal and binary transmission

Physical Layer

The *Physical Layer* is the first and lowest layer in the seven-layer OSI model of computer networking. This Layer consists of the basic hardware transmission technologies of a network. It is a fundamental layer underlying the logical data structures of the higher level functions in a network.

Within the semantics of the OSI network architecture, the Physical Layer translates logical communications requests from the Data Link Layer into hardware-specific operations to effect transmission or reception of electronic signals.

Physical layer protocols:

- DSL
- ISDN
- Firewire

Data Link Layer

This layer is responsible for handling the data which we want to send on the destination. Data link layer sends the data by breaking it into frames from the network layer to the physical layer. A data frame is an organized logical structure in which data can be placed. On the receiving end this layer packages raw bits from the physical layer into data frames. When the data link layer sends a frame it waits for acknowledgement from the recipient. The recipient data link layer detects any problem with the frame that may have occurred during the transmission. Frames that are not received or damaged during transmission are retransmitted.

Data Link Layer Protocols:

- ARP (Address resolution Protocol)
- SLIP (Serial Line Internet Protocol)
- PPP (Point to Point Protocol)

Network Layer

This layer is responsible for the source-to-destination delivery of a packet possibly across multiple networks. Main functions of this layer are:

- (a) It translates logical machine address (S/W Address) into physical machine address (H/W address).
- (b) It determines the route from the source to the destination.
- (c) It determines the priority of service.
- (d) It determines which path the data should take based on network conditions
- (e) It manages traffic problem on the network such as packet switching, routing etc.

Network Layer Protocols:

- **IP** (IPv4, IPv6) : Internet Protocol version 4 & 6
- **ICMP**: Internet control message protocol

Transport Layer

The basic function of this layer is to accept data from the session layer split into smaller unit. Pass these units to the network layer and ensures that all the pieces are arrived at the other end correctly. At the receiving end this layer reassembles the packets into message and typically send acknowledgement of receiving. Thus transport layer is responsible for process-to-process delivery of the entire message whereas the network layer oversees host to destination delivery of individual packets, it treat each packet independently. This layer also provides flow control and error handling. Thus major function of transport layer are :

1. Port Addressing
2. Segmentation and reassembly of packets
3. Connection Control
4. Flow control
5. Error control

Transport Layer Protocols:

TCP: Transmission Control Protocol *UDP*: User Data gram Protocol

Session Layer

The Session Layer provides the mechanism for opening, closing and managing a session between end-user application processes. The main functions of this layer are:

1. It helps in dialog control between communicating process by regulating which site transmitting, when, how long & so on.
2. It provides synchronization between user task by placing check points in the data stream.
3. It also provide security needed to allow communication over the network

Session Layer Protocols:

1. NetBIOS
2. SAP (Session Announcement Protocol)

Presentation Layer

It concerned with the syntax & semantics of information, means it determines the format that is used to exchange the data. So it is also called network translator. It performs following task:

1. At the sending end this layer transmits data from the format into a commonly recognized intermediately format.
2. At the receiving end this layer transmits the data from intermediately format into a format useful to this computer's application layer.
3. This layer is responsible for protocol conversion, encrypting the data etc.
4. This layer also manages data compression for fast transmission

Presentation Layer Protocols:

1. MIME (Multipurpose Internet Mail extension)
2. SSL (Secure Sockets Layer)

Application Layer

This layer contain variety of protocols that are commonly needed to provide services that directly support user application such as database access, e-mail, file transfer etc. It is a service layer that provides these services:

- Makes sure that the other party is identified and can be reached
- If appropriate, authenticates either the message sender or receiver or both
- Makes sure that necessary communication resources exist (for example, is there a modem in the sender's computer?)
- Determines protocol and data syntax rules at the. application level

Application Layer Protocol

- HTTP (Hyper Text Transfer Protocol)
- FTP (File Transfer Protocol)
- Telnet (Telecommunication Network)
- SMTP (Simple Mail Transfer Protocol)
- IMAP4 (Internet mail transfer protocol version 4)
- POP3 (Post office protocol version 3)

TCP/IP Model or Internet Model

TCP /IP is based on a four-layer reference model. All protocols that belong to the TCP /IP protocol suite are located in the top three layers of this model.

Network Access Layer (Link Layer)

This Layer is the networking scope of the local network connection to which a host is attached. This regime is called the link in Internet literature. This is the lowest component layer of the Internet protocols, as *TCP/IP* is designed to be hardware independent. As a result TCP/IP has been implemented on top of virtually any hardware networking technology in existence.

The Link Layer is used to move packets between the Internet Layer interfaces of two different hosts on the same link. The processes of transmitting and receiving packets on a given link can be controlled both in the software device driver for the network card, as well as on firmware or specialized chipsets.

Internet Layer

The Internet Layer solves the problem of sending packets across one or more networks. Internetworking requires sending data from the source network to the destination network. This process is called routing.

In the Internet Protocol Suite, the Internet Protocol performs two basic functions:

- Host addressing and identification
- Packet routing

Host to Host Layer

This layer is responsible for converting messages into structures required for transportation over the network. It has end-to-end message transfer capabilities independent of the underlying network, along with error control, segmentation, flow control, congestion control, and application addressing (port numbers).

Application Layer

Protocol at this layer provides application services on the network like FTP, Remote Login (Telnet) etc. Data originates from the application and this is fed to the transport layer in the form of string. Protocol of this layer provides services that directly support user applications like database access, email, file transfer etc. almost all protocols that can be used for Internet (WAN) can also be used for Intranet (LAN).

TCP/IP Protocol Suite

This suit consists of variety of protocols. These are as

1. TCP
2. Internet protocol(IP)
3. ARP
4. Point-to-Point Protocol(ppp)
5. SMTP
6. IMAP4/POP

TCP

Transmission control protocol provides a reliable end to end service over unreliable connection. TCP used with IP to send the data in the form of message units between computers over Internet. TCP gives track of each individual unit of data. Packets may also arrive from different routes at

destination even if they have same destination address. At the destination these packet are reassembled using TCP. The packet assembling and de-assembling is done by a specific portion of TCP called PAD (packet assembler and de-assembler) while transmitting any data gram TCP keeps track of multiple connection to a given system.

Internet protocol (IP)

IP provides the routes for packets. It is a connectionless protocol and works at network layer. It is responsible for sending data from one point to another. Every machine on the network has a unique IP address that gives an identity to that machine on the Internet. This address is used by IP for routing the packets. The Internet gateways decide where to send this packet base on this IP address. These packets keep traveling through gateways to small networks till it reaches to the destination. IP can be used over a heterogeneous network, i.e., a network connecting computers may consist of a combination of Ethernet, ATM, FDDI, Wi-Fi, token ring, or others.

ARP

Address resolution protocol is used for resolving IP address with Hardware address. On the typical physical network each device or machine is identified by a 6 byte hardware address (MAC address). This address is the address of network interface card of this machine. For communication, a host must have destination IP address as well as MAC address. For getting destination IP address it sends an ARP query packet which contains physical(MAC) and IP address of sender and IP address of receiver because the ~ender does not know the physical address of a receiver. So the ARP query is broadcast over the network and this query is received by intended destination over the network. Now the destination sends a response packet corresponding to the query containing recipients IP address and physical address. This packet is directly unicast to the enquirer (sending host). Thus ARP resolves software address to its corresponding hardware address (MAC address).

Point-to-Point Protocol (PPP)

In networking, the Point-to-Point Protocol, or PPP, is a data link protocol commonly used to establish a direct connection between two networking nodes. It can provide connection authentication, transmission encryption privacy, and compression. PPP is used over many types of physical networks including serial cable, phone line, trunk line, cellular telephone, specialized radio links, and fiber optic links such as SONET.

SMTP

It is a simple ASCII protocol that is used in TCP/IP based network for transferring mail, message between terminals. MS outlook also uses SMTP to transfer mail. The most notable aspect with SMTP is that, it works when both, the mail sender and receiver are ready to transact at the same time. Suppose if the receiver computer is not connected or available at the moment, then the message are stored in nearest getaway or HUB).

IMAP4/POP3

Interactive Mail Access Protocol/post office protocol is used for fetching the E-mail from the remote server. This protocol deliver all message stored on the sever to the user's E-mail account. A special application SIW is used for collecting mail from server using IMAP like MS outlook, Eudora, Netscape etc.

Network Architecture

Network is a collection of devices connected to each other for sharing its hardware and software resources and to communicate with each other like MTNL telephone network, computer networks etc. In computing, the network architecture is a characteristics of a computer network.

Advantages of networking

Resource Sharing: Network enable to users to share file with other. We can use only Printer and a single Hard disk space on all of computers which connected with networking.

Communication: one can communicate any other person which also having a computer on same network.

Reliability: In networking, communication is more reliable and accurate. Here is no Chance of message losing or changing.

Disadvantages

1. Good administration of networking is required. The user should be well known about networking basics.
2. If the connecting cable or any networking device fails, It, effects total network
3. Initial cost of networking is too high because we need various devices.

Type of Networks

LAN (Local Area Network)

A Local Area Network (LAN) is a computer network covering a small physical area, like a home, office, or small group of buildings, such as a school, or an airport. Current wired LANs are trios likely to be based on Ethernet technology. Here Connecting media is co-axial, twisted pair cable etc. Usually LAN provides higher data rates as compared to WAN. It can be connected by WAN (like Internet) with the help of interconnecting devices (Like router etc.).

MAN (Metropolitan Area Network)

It is enhancement of LAN and can cover multiple localities or a complete city (50 km approx). Here communication media is cable media, telephone lines etc. Eg:- MTNL, Telephone network or cable T.V network. Campus Area Network (CAN) is a form of MAN which is made up of an interconnection of local area networks (LANs) within a limited geographical area. A campus area network is larger than a local area network but smaller than a wide area network (WAN). The main aim of a campus area network is to facilitate students accessing Internet and university resources. This is a network that connects two or more LANs but that is limited to a specific and contiguous geographical area such as a college campus, industrial complex, office building, or a military base. Routers, switches and hubs are connected to create metropolitan area network.

WAN (Wide Area Network)

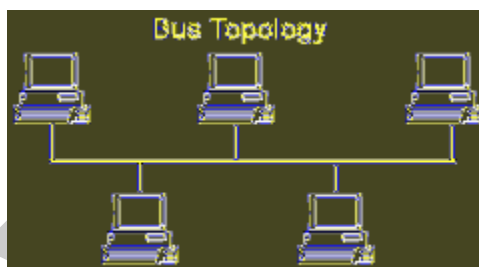
This network can support a complete city, a complete country, a particular geographical region or Even complete world and different planets. There is no geographical distance limitation in this network. Eg:- Internet, Railway Reservation system, Banking Network etc. Internet is the largest WAN which rovers millions of organizations and individuals.

Networking Topologies

Topologies are the way of connecting devices (Like computer etc) for sharing resources. Topologies determines complexity of connected computers, cost of network and cable installation etc. Actually it is a physical arrangement of computers. Any particular network topology is determined only by the graphical mapping of the configuration of physical and/or logical connections between nodes. Topologies can be of different types:

Bus or Linear Topology

Here computers are arranged in a linear fashion. Here all the computers are connected with the main cable that circulates through the whole network. This cable has a terminator at each end. It is a simplest and widely used networking topology.



Advantages

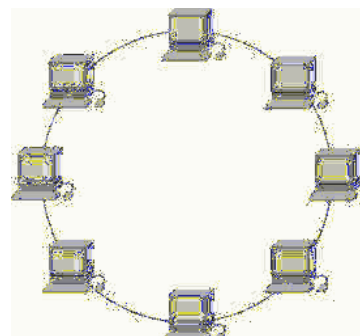
- 1. Simplest, reliable, easy to use and understand.
- 2. Easy to install and less expensive.

Disadvantages:

- 1. Here only one computer can transmit a message. So heavy network traffic can slow down the speed of transmission.
- 2. Difficult in fault finding and maintenance cost is high.

Ring Topology

Here computers are arranged in a closed loop or ring fashion. Each machine or computer has a unique address that is used for identification purposes. The signal passes through each machine or computer connected to the ring in one direction.



Ring Topology

Advantages

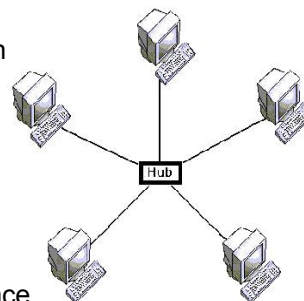
- 1. It is relatively easy to design and reconfigure.

Disadvantages

- 1. Difficult in troubleshooting, maintenance cost is high.
- 2. Traffic is uni-directional (Token Ring) if any segment of network disables that will affect the complete network but this problem can be solved by a dual ring

Star Topology

In this type of topology computers are arranged in star fashion. In contrast to the bus topology, the star topology allows each machine on the network to have a point to point connection to the central hub. All of the traffic which transverses the network passes through the central hub.



Star Topology

Advantage

- 1. Easy to modify and reconfigure.
- 2. Easy to fault finding, high transmission and less maintenance cost.

Disadvantage

If HUB or server fails it affect the total Networking. initial cost is high.

Examples of Bus Topology**Ethernet**

Ethernet is most common topology for implementing LANS. Ethernet was created in 1976 at Xerox Palo Alto Research Centre (PARC) with data rate of 10 Mbps. It was based on IEEE standard called 802.3 (CSMA/CD). It provides base to manage crazy situations that occur when many computer tried to transmit on one wire simultaneously.

Example of Ring Topology**FDDI (Fiber Distributed Data Interface)**

FDDI is a ring based network runs on optical fiber cable instead of usual copper cabling. Due to OFC this network is very fast and reliable. FDDI is a fiber optic token ring LAN running at 100 Mbps. FDDI network that uses multimode fiber supports transmission up to 200 Km with 1000 of stations . Here data rate is in giga bits per second(gbps).

FDDI consist of two fiber rings. One transmitting clock wise and second transmitting anti-clock wise. If either one breaks other can be used for backup. If both breaks at the same point then both rings can be joined into a single ring approximately. FDDI is very fast but expensive to install and operate. It is widely used in those networks where transmission rate is high and information is reliable.

Examples of Star Topology**ATM (Asynchronous transfer mode)**

ATM networking is newest topology that can support audio, video & textual data over the network. ATM is implemented as star topology where one or more interconnected switches forms a central hub to which all computers attached. Unlike bus or ring topology a star network does not propagate data to any other computer other than the communicating pair.

Here HUB receives incoming data directly from the sender and transmits outgoing data directly to receiver. Thus the star topology makes an ATM network less dependent on the connection to individual computers as in a ring topology. ATM can provide simultaneous transmission of audio, video and textual data. ATM provides extremely high routing of packets. ATM networks can support high data rates up to gigabits per second (gbps). For this ATM is implemented using OFC instead of copper cable.

DOMAIN NAME SYSTEM (DNS)

SUN Microsystems developed the DNS in early 1980 as an easier way to keep track of network addresses. In DNS we use a hierarchical domain based naming scheme and a distributed database system for implementing this scheme. It was primarily used for mapping host name and e-mail destination to IP addresses. DNS server contains the database of domain name and their corresponding IP address. This database is used in resolving domain name into IP address. Domain names are not case sensitive means "RKMSCC" or "rkmscc" both are same.

For example: In doeacc.org.in, Org forms the second level domain under the top level domain in and doeacc is sub sub domain.

Domain names cannot be duplicated. Once domain name have been created or registered it can create sub domain. The second level domain assigned and managed by NCST in India.

IP Address

An IP address in made up 32 bits of information. These bits are divided into four sections containing 8 bits each. These four sections are called octets and separated by periods (dots) This 32 bits IP address contains network address as first part and node (host) address as second part. The network address uniquely identifies each network. Every machine on the same network shares the network address as part of its IP address. The host address uniquely identifies each machine on the network. This part of IP address must be unique because it identifies a particular machine as an individual. The value in each octet ranges from 0 to 255 decimal, or 00000000 - 11111111 binary.

<u>Label</u>	<u>Description</u>
.Com	Commercial
.edu	Education
.org	Organization
.in	India
.uk	United Kingdom
.us	United State
.Gov	Government
.Int	International

Connecting Internet

We can connect Internet by using:

1. Dial-up connection
2. Through a leased line

While accessing Internet using Dial-up connection we must have a phone terminal and a modem. Using phone line we can dial-up in our ISP computers. VSNL is ISP in India. Dial-up connection is made using two protocols

1. SLIP
2. PPP (Described in earlier section)

We can also get Internet connection using a dedicated or leased line. This line connects to our computer with our local ISP computer. Usually leased line is an ISL line. It has high speed than a conventional phone line.

Extending Lans

We can extend LAN using various special devices Repeater:

It regenerates incoming signals and can be of two types:

- (a) Amplifier
- (b) Signal regenerating devices (repeater)

Amplifier simply amplifies the signals whereas signal regenerating repeaters can also filter the signals. It works at physical layer of OS I model.

Router

Routers are some special devices containing a special software for routing of packets. It maintains a routing table which is helpful in fast routing of data packets. It works at network layer. It is the basic building block of an Internet It is a combination of H/W & S/W that is used to connected heterogeneous networks. It operates at network layer. It performs I.P. Routing.

Hub

It is a central connecting device can be of different types:

- (a) Active Hub
- (b) Passive Hub
- (c) Smart Hub
- (d) Switching Hub

Passive Hub simply used for connecting whereas active hub and smart hub can also amplify the signals. The switching Hub are capable for inspecting the data packets and operate at data link layer.

Bridge

Bridge is a device that connects two LANs or two segments of LAN. These can be used to connect LANs of dissimilar protocols. Whereas all other options are LAN topologies

Gateways

It is a device containing a special software which provides connection to different types of network. It provides communication between a LAN and WAN. Gateways are also used for connecting with mainframe computer gateways works at application layer.

Concentrator

Concentrator is a multiplexer that combines large number of individual data lines into a single line. Concentrator works at 2 & 3 layer (data link layer & network layer).

QUESTIONS**MULTIPLE CHOICE**

- For connection of the internet, you will need –
 - An IP address
 - a tcp/ip connection
 - an isp
 - all of these
- A user can get files from another computer on the internet by using
 - FTP
 - UTP
 - HTTP
 - both (a) and (c)
- In Modems
 - several digital signals are multiplexed
 - digital signal is amplified
 - digital signal changes some characteristic of a carrier wave
 - none of the above
- Computer on the internet owned and operated by education institution form part of the
 - com domain
 - edu domain
 - mil domain
 - none of these
- For a small web site, one need to buy space from the –
 - network administrator
 - telephone exchange
 - ISP
 - none of these
- A host on the internet finds another host using its
 - postal address
 - electronic address
 - IP address
 - none of the above

TRUE OR FALSE

- In a work group, users are defined locally on the machine that hold the resource. In a domain, user accounts are defined locally on the machine that holds the resources.
- Client server architecture is a special form of distributed processing -Cooperative processing.
- The first three bytes of a class B network are dedicated to the network portion of the address, with only one byte remaining for the nodes address.
- The RCFs core topics are internet and the *TCP/IP* protocol suites.
- The domain with an extension .com describes a company or commercial organization.

MATCH THE COLUMN**A**

- Best known TCP/IP network
- PPP
- ARP
- MODEM
- Domain name

B

- the Arpanet
- used for internet connection
- more feature than SLIP
- map ip address on to Ethernet addresses
- procedure for boot -strapping disk less client
- org

FILL IN THE BLANKS

- | | | |
|-----------|---------------|--------------|
| a. Client | b. 45.55 kbps | c. 33.3 kbps |
| d. ARP | e. Token Ring | f. Domain |
| g. Slip | h. ppp | i. hyperlink |
- Netscape navigator web browser software is a _____
 - Fastest connection will be possible on the internet with the *help of* _____ *modems*
 - The text containing connection within it to other document is called _____
 - _____ LAN access method uses the right to transmission by a special bit pattern.
 - _____ is a collection of sites that are related in some sense.

SUBJECTIVE

- Describe all layers of OSI Model with their functioning and associated protocols.
- What is Protocol Suite? Describe all protocols of TCP/IP protocol suite with their functioning.
- Compare IBN token ring and FDDI.
- Describe various Ethernet standards.
- How coaxial cables differ from optical cable? Which is used in LANs?
- That are IP address and domain name of a machine? how are the two related and the resolved in internet?

Answer

- Multiple Choice** : 1. (d) 2. (d) 3. (d) 4. (b) 5. (c) 6. (c)
- True or False** : 1. (F) 2. (T) 3. (F) 4. (F) 5. (T)
- Match the Column** : 1. (a) 2. (c) 3. (d) 4. (b) 5. (f)
- Fill in the Blanks** : 1. (a) 2. (b) 3. (i) 4. (e) 5. (f)

UNIT - 03

World Wide Web

Introduction

It is a huge collection of hypertext pages on the Internet. The concept of WWW was developed in Switzerland at European particle research centre (known as CERN in 1989). In the year 1993, the first web browser, MOSAIC that supports graphics was launched. The web is one of the most flexible and exciting tools for surfing the Internet. Using a browser the www made it possible for viewing the web site.

Web Browser

It is a platform for accessing Internet. Actually it is a software using that you can view web pages and navigate the information on web. Browsers are often referred to as web clients or Internet navigation tools. A browsers accept the URL (Website address) and access the information corresponding to that URL using a protocol like HTIP. Web browser also provide platform for accessing e-mails from mail servers.

Most browsers are freeware means we can download it from Internet. For eg: - we can update an older version of Internet explorer through Internet. Browsers are also available with various operating system. For eg- Internet explorer 5.0 comes free as part of window 98.

Search Engines

It is a well executed search facility provides to search a particular content over web. A user enters the queries (searching contents) in the search page of search engine. In response search engine displays the list of various links from the web reference to that query.

Working of Search Engine

When user enters the queries in the search page of search engine first a large number of pages are gathered of a website using a process called spidering. The next step that a search engine takes is attempt to determines what the page is about. This is usually called INDEXING. Basically an indexer looks at various components of a page possibly its titles, comment text, link titles, text headlines etc. The position & frequency of different words are taken from the glance of indexing.

Searching consist of three Steps

Formulate a query: A query may be vary and depends on the search facility. A simple Query may include only keywords like "DOEACC results".

Execute the search and wait for the results: After that user click on search button search engine wait for network round trip time plus the time required for search engine to run the query and displaying the results.

Review the results: Now the results corresponding to that query will be listed on screen. During review stage the user may sort or filter the result to get the actual information.

Google, Magellan, Lycos, Excite are also important search engines. Many websites and web portals also provide searching facility like yahoo, rediff, msn etc.

Uniform Resource Locator (URL)

It is a uniform (same throughout the world) way to locate a resource (file or document) on the Internet. The URL specifies the address of a file and every file on the Internet has a unique address. Web software, such as your browser, use the URL to retrieve a file from the computer on which it resides. To identify a web page on Internet we use its URL. URL depicts the page location on the Internet. The actual URL is a set of four numbers separated by periods. An example of this would be 112.119.26.6 but as these are difficult for humans to use, addresses are represented in alphanumeric form that is more descriptive and easy to remember. Thus, the URL of a site which is 209.164.80.192 ' can also be written as www.simplygraphix.com. The Internet Domain Name 'System translates the alphanumerical address to numeric.

The general form of URL is PROTOCOL//COMPUTER NAME/FOLDER NAME/FILE NAME <http://www.nice.org.in/exam/iwpd.html>

Thus URL contains the information needed by the browser to retrieve the page on Internet. URL can be of two types:

1. **Absolute URL:** It contains all the information, necessary to identify documents on the Internet.
Ex: <http://www.nice.org.in/exam/iwpd.html>
2. **Relative URL:** It contains only the folder name and file name. We can use these URL's when we are pointed to a file that is located within the same folder or on the same server as the originating file.
Ex: [exam/iwpd.html](#)

QUESTIONS**MULTIPLE CHOICE**

- The WWW standard allow programmers on many different computer platforms to show the information on a server. Such programs are known as:
 - ISP
 - web server
 - Web browser
 - none of these
- Which of the following protocol is used by internet mail?
 - HTTP
 - TCP/IP
 - FTP
 - SMTP/POP3
- The server on the Internet is also known as a
 - repeater
 - host
 - gateway
 - none of these
- A user can get Files from another computer on the Internet by using
 - FTP
 - HTTP
 - UTP
 - (a) and (b) above
- Take the odd item out.
 - yahoo
 - Lycos
 - HotBot
 - win2000

TRUE OR FALSE

- All the web server on the internet are collectively refer to as the world wide web.
- WWW is a large scale implementation of client server architecture.
- HTTP is used for creating home pages for the world wide web.
- Indexing is the process of a document representation by assigning content description or terms to the document.
- A Cache stores web pages permanently that one has visited.

MATCH THE COLUMN

- | A | B |
|---------------------------------------|-----------------------------|
| 1. Web pages are archived here | a. web server |
| 2. Lynx | b. uniform resource locator |
| 3. URL | c. Text mode browser |
| 4. A program that catalogs Web sites | d. Dynamic Web sites |
| 5. Frequently changes can be possible | e. Indexer |
| | f. Spider |

FILL IN THE BLANKS

- | | | | |
|---------------------|------------------|------------------|---------------|
| a. Browser | b. Default route | c. Search engine | d. IP address |
| e. Physical Address | f. Home Page | g. Main Page | |
- Address 0.0.0.0 is called the _____.
 - A(n) _____ is an application that displays Web pages.
 - _____ is the first document that users see when they enter a site on the World Wide Web.
 - A computer on the Internet only needs to know one _____.
 - _____ tools help users to find a set of pages that contain information related to a given topic

SUBJECTIVE

1. Explain the features of WWW.
2. What is browser? Give the name of 4 browsers?
3. What is search engine? Describe the searching process. Give the name of four search engines.
4. Write Short Notes –
 - (a) Static and Dynamic web sites
 - (b) Home Page
 - (c) URL
 - (d) WWW

Answer

- Multiple Choice** : 1. (d) 2. (d) 3. (c) 4. (d) 5. (d) 6. (b) 7. (c)
True or False : 1. (T) 2. (T) 3. (F) 4. (F) 5. (F)
Match the Column : 1. (f) 2. (c) 3. (b) 4. (e) 5. (d)
Fill in the Blanks : 1. (b) 2. (a) 3. (f) 4. (d) 5. (c)

Browsers

Introduction

Web Pages are viewed with a program called a *Web browser*. Internet explorer, Netscape are two popular web browsers. The browser fetches the page requested, interprets the text and formatting commands that it contains, and displays the page properly formatted on the screen. Thus “web browser is a program that works as a platform for accessing Internet pages”.

Web Cookies

Cookie is a small value that a web server passes to a browser in reply to help the server identify the user. A browser return the cookies when sending subsequent requests from the user to server that issued the cookie. Actually it is a small text file created on our hard disk while visiting website.

Bookmarks

Bookmark are primary place to store URLs (web sites) that we want to revisit.

Using a single click we can return to any web site listed as bookmark, thus it allows quick access. All modern web browsers include bookmark features. Bookmarks are called favorites or Internet shortcuts in Internet Explorer. It lets you place in an online document so that you can return to it quickly and easily.

History

In a web browser History list makes it easy to find and return to Web sites and pages you've visited in the past. Whether it's today or a few weeks ago, the History list can record every page you visit, so it's easy to go back later on. This list show you all the pages that you have visited sequentially from the -, starting point. You can also refresh the contents of history by using clear history button.

Search Button

In Internet Explorer, Search Assistant has been replaced by the search box, which is located in the. Upper-right corner next to the Address bar.

Type the topic or phrase you want to find on the web into the search box, and then press ENTER. If you don't find the results you want, click the arrow to the right of the Search button, and choose a different search provider.

Progress Indicators

When a user requests a web page, (by typing its URL in the address bar, by clicking on a hyperlink or by opening a favorite,) Internet Explorer displays a progress bar in the status bar, to give the user feed back on how the page is being loaded.

Saving And Printing Web Pages

If you have accessed a long text file on the net, you may want to save it for later to read off-line (especially if you're paying per minute for connection time!). You can also print it out later as well.

First, check to make sure that the WHOLE file is loaded. Watch the indicator at the bottom of your browser, or hit CONTROL +END to take you to the bottom of the document to see if it is all there.

To Save a Web Page

From the MAIN MENU at the top of your browser, click FILE. Then, from the drop-down menu click SAVE AS...

Here a dialog box opens, give a proper name and location to save the file finally click save button.

To Print the Saved Text

The easiest way to print a Web page is to click the Print button on the toolbar or select PRINT under the FILE Menu, Here print dialog box appears. Select the printer, pages, and number of copies you want.

Popular Web Browsers

Internet Explorer

Explorer runs on all versions of windows , macintosh operating system (which supports Internet). It can be free download from Microsoft website www.microsoft.com.

Mozilla Firefox

The best web browser available for Windows computers, Firefox has many new features that make it the best choice on Windows. Tabbed browsing, better security and privacy controls, and maybe the most significant feature. no spyware or adware. What makes Firefox stand out, and far ahead of Internet Explorer is that it is an Open Source product, meaning that the source code for the browser is freely available online, as well as a strongly supported extension system that allows developers to build their own custom add-ons to the browser to make for a custom browsing experience for any user.

NetScape Navigator

Netscape Navigator and Netscape are the names for the proprietary web browser popular in the 1990s, the flagship product of the Netscape Communications Corporation and the dominant web browser in terms of usage share, although by 2002 its usage had almost disappeared. It can be used in windows, Macintosh and different versions of UNIX system.

Mosaic

Mosaic was the first full color graphical browser developed by ncSA at the university of illinois. It is free for personal use and can support different versions of Windows, Macintosh and Unix (x-window system). The mosaic comes with various operating system called as WIN Mosaic, MAC Mosaic and X Mosaic respectively.

Lynx

It is a text only browser which doesn't supports to view graphical document. It was developed by university of Kansas. The document that runs on Linux contains only textual information and text links. It is fast and enables us to get the information instantly.

There are quite a few other browsers available, but most of them will display web sites in the same manner as the browser mentioned above. Some of them include **Flock, Konqueror, OmniWeb, Sunrise Browser, SeaMonkey, apple safari, camino, opera etc.**

QUESTIONS

MULTIPLE CHOICE

1. Which one of the following is a “Web browser”?
(a) Netscape (b) World Wide Web (c) Launcher (d) E-mail
2. World Wide Web pages can be described as multimedia pages. This means that the pages may contain.
(a) Text and pictures only (b) text, pictures, sound
(c) Video clips, sound, text, pictures (d) none of these
3. Voice mail, E-mail, Online chat, the Internet and the WWW, are all examples of
(a) Computer categories (b) telecommuting
(c) Connectivity (d) teleshopping
4. The equipment needed to allow most home computers to connect to the Internet is called a—
(a) Peripheral (b) monitor (c) device (d) modem
5. What is a cookie?
(a) Computer code used to show animations and play sound.
(b) Information sent to your computer that is used later to give information back to a visited web site.
(c) Computer code that automatically records all purchases and payments you make from your computer.
(d) An advertisement that will at some time be displayed on your computer screen

TRUE OR FALSE

1. A Cache stores web pages permanently that one has visited
2. The term “thumbnail”, in relation to a Web site on the Internet, refers to a small version of a larger graphical image that you usually can click to display the full-sized image.
3. Software that may be used to help you locate Web pages on topics that you do not know the addresses for is called search engines.
4. Download means to copy a file from your computer to another.
5. Launcher is a Web browser.

MATCH THE COLUMN

- | A | B |
|---|----------------------|
| 1. When someone visits a web site, the server-asks His browser to store as small amount of data so the server can identify him on the next visit. | A. CGI |
| 2. Movable indicator on computer screen | B. Pixel |
| 3. Basic unit of an on-screen image | C. Cursor |
| 4. View Information on Internet | D. Cookies |
| 5. Software that allow you to explore the Internet | E. Pixel |
| | F. Browser |
| | G. Internet Explorer |

FILL IN THE BLANKS

- a. Bookmarks b. Automated search c. encryption d. W97
 e. home Page f. System Administrator g. Server

- _____ is the first document, users see when they enter a site on the World Wide Web
- _____ are shortcuts to sites that you have marked for quick access.
- The process of translating information from its original form into an encoded Incomprehensible form is called _____.
- _____ tools help users to find a set of pages that contain information related to a given topic.
- _____ is an individual responsible for maintaining a multi-user computer system. Typical duties include; Adding and configuring new workstations, setting up user accounts, installing system-wide software.

SUBJECTIVE

- What is a 'Browser'? List the major browsers available. Also list the main features on which the browsers can differ from each other.
- What is a Web Server? How does it function?
- Write short notes from the following:
 (i) Cookies (ii) History Button (iii) Favorites (iv) Bookmark
- What is HTTP? What are the four basic operations specified by a browser that HTTP supports?

Answer

- Multiple Choice** : 1. (c) 2. (c) 3. (c) 4. (d) 5. (b)
True or False : 1. (F) 2.(T) 3. (T) 4. (F) 5. (T)
Match the Column : 1. (d) 2. (c) 3. (e) 4. (f) 5. (g)
Fill in the Blanks : 1. (e) 2. (a) 3. (c) 4. (b) 5. (f)

Electornic Mail

Introduction

It is a method of electronically passing of message from one computer to another typically over computers network. It allow to passing messages to remote terminal instantly By a communication network like Internet. Email is very popular because it is cheaper, more reliable and takes much less time in sending & receiving messages than any other communication services.

Working Of E-mail

Most of persons do not have a computer that is always connected to the Internet, even it, they get the mail. Server is able to accept e-mail at any time (whether the client computer is on/off) and store it until you delete it. If we are not connected to the Internet our messages are stored in a mail box on a mail server. We can download e-mail to our computer from mail server. We can configure our e-mail program to fetch our e-mail automatically eg- (once in a day etc). Mail server receive and store e-mail messages in mail box by using a protocol called post office protocol, Internet message access protocol etc. We have some commonly used e-mail programs like outlook express, Eudora, Netscape mails etc. E-mail client work in connection with the server. A mail server collect our e-mail and our mail client enable us to read it.

A mailing list is one of the most exciting uses of e-mails. It connects a group of people who are interested in same topic. When one person sends email to the mailing list that mail is send to everyone in the mailing list. When you want to subscribe a mailing list you send a message to a computer known analyst server which reads your e-mails and automatically subscribe you to the list. You can also Unsubscribe to the list in the same way. For routing mails to the member of mailing list a special program runs on the Internet computer called mail reflector.

E-mail Protocols

1. SMTP (Simple mail transfer protocol)
2. POP3 (Post office protocol)
3. IMAP4 (Internet message access protocol)
4. UUCP (UNIX to UNIX copy protocol)
5. MIME (Multipurpose Internet Mail Extensions) 6. X, 400

Structure Of Email Message

An email message is made up of binary data usually is ASCII text format. There are five sections on an e-mail:

1. Email address
2. Header
3. Body
4. Signature
5. Attachments

Attachments and signature sections are optional.

Email address

An email address is composed of two part separated by @ sign, these are domain name of the mail Server and user name on the mail server.

For example: doeacc@nice.org.in

Here 'doeacc' is the user name and 'nice.org.in' is the server name.

Header

The header of e-mail message is the uppermost section as per the RFC 822. The main fields in header are given below:

- (a) *From:* The e-mail address, and optionally the name of the author(s).
- (b) *To:* It contains email address of primary recipient.
- (e) *Cc:* Cc stands for carbon copy and contains the address of secondary recipient.
- (d) *Bee:* Blind carbon copy is the address of secondary recipient but here primary recipient; will not know about the dispatch of mails to these address.
- (e) *Subject:* In this heading we specifies the subject (topic) regarding to mail like "Birthday Wishes", "Reminder Notes", "Exam Date Sheet" etc.

Body

It contains the contents of the message. There is no limit to the size of an e-mail message but many ISP provide limited size of mails.

Signature

Which specifies personal information like name, email address, phone number etc which automatically appears at the bottom of the outgoing message. If any person writes his signature in a message, then the, signature of that person is stored in a file (In binary form) called signature file.

Attachments

Here we can attach various files to our message. An attachment may be one or more audio, text or video file. Attaching files to an email message is the easiest way to exchange files with someone. Sending file by email is easier & cheaper.

Mail Programs (Email Clients)

Outlook Express

Microsoft outlook express is included in various versions of windows and provide facilities for easy manipulation of mails. It was included With Internet Explorer versions 4.0 through 6.0. it was also I bundled with several versions of Microsoft Windows, from Windows 98 to Windows XP, and was available for Windows 9S and Mac OS 9. In Windows Vista, Outlook Express was replaced with Windows Mail.

Netscape Mail

Netscape Mail and Newsgroups, commonly known as just Netscape Mail, is an email and news client produced by Netscape Communications Corporation as part of the Netscape series. It was previously two separate programs known as Netscape Messenger and Netscape Collabra. Netscape Mail & Newsgroups features support for relevant protocols such as- IMAP, POP3 and SMTP, a built-in Bayesian spam filter, support for multiple accounts, etc

Email programs can perform following functions:

1. Manage Multiple Mails.
2. Browse Message Quickly
3. Keep Mail On a Server
4. Provide Address Book
5. Send and Receive Secure Messages.
6. Download News group Messages for Office Reading

Web Based Email

Webmail (or Web-based e-mail) is an e-mail service intended to be primarily accessed via Internet, as opposed to through a desktop e-mail client ~such as Microsoft Outlook). Very popular webmail providers include Gmail, Yahoo! Mail, rediffmail, Hotmail etc. When we send the message from e-mail service to someone's system, the message will travel across the internet to reach the destination. We have given only the address of the message properly so that the internet knows where to deliver the message.

A major advantage of webmail over application-based e-mail is that a user has the ability to access their inbox from any Internet-connected computer around the world. However, the need for Internet access is also a drawback, in that one cannot access old messages when not connected to the Internet. On the other hand, if one uses the !MAP protocol through an application-based e-mail client, all contents of the mailbox will be consistently displayed in both the webmail and the PC e-mail client contexts.

QUESTIONS

MULTIPLE CHOICE

1. SMTP is a simple –
(a) TCP protocol (b) TCP/IP protocol (c) IP protocol (d) none of these
2. A simple protocol used for fetching email from a mailbox is –
(a) POP3 (b) SNMP (c) POP2 (d) none of these
3. The email component of internet explorer is called
(a) messenger mail box (b) message box
(c) outlook express (d) none of these
4. The convenient place to store contact information for quick retrieval is –
(a) message box (b) address book
(c) address box (d) none of these
5. Which one of the following is a valid email address?
(a) enquiries.guilds.co.@.uk (b) sales@enquiries.guilds.co.uk
(c) @Sale.enquiries@guilds.co.uk (d) sales.enquiries.guilds.co.uk

TRUE OR FALSE

1. The email component of internet explorer is called "outlook express".
2. Email message are usually addressed and delivered to only one or two people.

3. Most email accounts separate the name and the domain with an@Symbol.
4. Email Addresses are unique.
5. A feature of using e-commerce is that consumers can make purchases directly from the businesses on the Internet, saving time for both parties

MATCH THE COLUMN

- | A | B |
|--|---|
| 1. Bounded mail | a. Returned to sender |
| 2. Mail bombing | b. Flooding an email account /server |
| 3. IMAP | c. Access email without downloading |
| 4. Scrambling of a message for security | d. POP |
| 5. A protocol used to access a mailbox and download e-mail that is often used by ISPs that offer dial-up access. | e. Encryption |
| | f. MIME |
| | g. Unicast |
| | h. A mail Accessing Protocol available in TCP/IP suite. |

FILL IN THE BLANKS

- | | | |
|--------------------|---------------|-----------------|
| a. Outlook Express | b. Attachment | c. Pine |
| d. Spam | e. Bulk | f. Address Book |
1. A(n)_____ is a document that is sent along with an email
 2. Unsolicited commercial e-mail is called _____
 3. Messenger allows you to store e-mail addresses in its _____
 4. _____ is a email program provided by VSNL in India.
 5. An email address must have _____ Sign.

SUBJECTIVE

1. Write short notes on the following protocols used for email
A. UUCP B. SMTP C. IMAP D. POPE X.400
2. What is the need of MIME? What are the five different headers specified in MIME?
3. What is email header? What does it contents?
4. Define electronic mail? what protocol is responsible to handle the incoming mail?

Answer

- Multiple Choice** : 1. (b) 2. (a) 3. (d) 4. (b) 5. (b)
True or False : 1. (F) 2. (F) 3.(T) 4.(T) 5.(T)
Match the Column : 1. (g) 2. (b) 3. (h) 4. (e) 5. (d)
Fill in the Blanks : 1. (b) 2. (d) 3. (f) 4. (a) 5. (c)

File Transfer Protocol

One of the most popular uses of Internet is to download files from a computer. FTP is a protocol that is widely used for exchanging files over Internet. It uses a client server system in which files are stored at central computer and transfer to that computer to other computers. The central computer runs a software called FTP server. Other computer runs software called FTP clients or FTP program. Using FTP, clients requests server to file transfer. Thus the client and server exchange the data.

FTP is an interactive system. The FTP clients that comes with WINDOWS NT is a character base client means it support only textual documents for transfer. Numerous FTP servers all over the world allow users to download files.

FTP Servers

Many organization use FTP server to handle the distribution of files. When a user links to download something, the links actually redirects to FTP instead of HTTP. Some file in the FTP server may be accessible to general public while other are accessible to authenticate users. FTP servers can be of two types:

1. *Anonymous Servers*

FTP sites that allow anonymous FTP do not require any authentication code like password etc. Here we only have to log in using a valid e-mail address as password. This is the recent version of FTP.

2. *Non-Anonymous Servers*

Most of early FTP servers uses the password (authentication) for accessing the server. Here only authenticate persons which have the password can access FTP servers. These servers are non anonymous FTP servers.

FTP Clients

FTP runs on a client server model. for using FTP you must have a FTP client software to run on your PC. This FTP client software interacts with FTP server for accessing various files on FTP server. FTP uses TCP to handle communication and creates a session between two computers. When we log in to FTP server a connection called a command link is open between computer and server. This link is used to sending commands to the server from your computer and sending information back from server to your computer.

Different Ftp Connection Types

There are three basic ways:

- **Anonymous FTP access:** this is the easiest connection method. You do not need to include any user information. Some common examples are software companies (Microsoft) or government sites (IRS.GOV) where you can download forms.
- **User name required:** in this instance the organization wants you to have an account to Access the site. Schools tend to use this type of access.

- **User name + password:** this is the most restrictive as the user has to have an account and password to gain access to the site. Many websites use this method for people to upload files to the server.

Regardless of your connection type, you can use your web browser to gain access in most situations. There are some cases where browser access is disabled by organizations.

FTP Commands

The basic FTP command is :

This command written at the DOS prompt and it opens an interactive FTP session. When you want to run FTP in a script the available switches are:

FTP [-v] [-d] [-i] [-n] [-g] [-s: filename] [-a] [-w: window size] [Host]

-v : Turn on the display of remote host responses.

-d : Turn on debugging mode, which displays all commands passed between the client and server.

-i : Turn off prompting during multiple file transfers.

-n : Disable auto-logon upon initial connection.

-g : Turn off file name globbing. This permits the use of wild car characters in local file and

Host : Tells FTP the computer name of IP address of the remote host to which it should connect.

-w: Window size : allows the use of a window size other than the default transfer buffer size of 4096.

-a : Directs FTP to use the specified text file as a script; the commands automatically run after FTP starts.

-s : Filename: tells FTP to use the specified text file as a script; the command s automatically run after FTP starts.

ls [*remote-directory*] [*local-file*]

Print a listing of the contents of a directory on the remote machine. The listing includes any system dependent information that the server chooses to include; for example, most UNIX systems will produce output from the command 'ls' -l.

Mdelete [*remote-files*]

Delete the remote-files on the remote machine.

mdir *remote-files local-file*

Like dir except multiple remote files may be specified. If interactive prompting is on, ftp will prompt the user to verify that the last argument is indeed the target local file for receiving mdir output.

mkdir *directory-name*

Make a directory on the remote machine

mode [*mode-name*]

Set the file transfer mode to mode-name the default mode is stream mode.

open *host* [*port*]

Establish a connection to the specified host FTP server. An optional port number may be supplied,

in which case, ftp will attempt to contact an FTP server at that port. If the auto-login option is on (default), ftp will also attempt to automatically log the user in to the FTP server .

pwd

Print the name of the current working directory on the remote machine.

Uses of FTP

One use of FTP is to back up files and the second use of FTP is to transferring data. One can send a copy of a document from one computer to another using FTP very fast.

TCP /IP protocols include two files transfer services. FTP and TFTP (Triable FTP). Both FTP and TFTP uses client server procedure. The basic differences between these two are a TFTP client and server uses UDP to communicate while an FTP client and server uses TCP.

TFTP (TRIBAL FILE TRANSFER PROTOCOL)

TFTP is a protocol that can used only in those environments where UDP is available. It has fast speed and can be used for transferring files between hardware devices. But it does not provides any security feature.

Due to its simple design, TFTP could be implemented using a very small amount of *memory*: It was therefore useful for booting computers such as routers which did not have any data storage devices.

TFTP is designed to be small and easy to implement, therefore, lacks most of the features of a regular FTP. TFTP only reads and writes files (or mail) from/to a remote Server. It cannot list directories, and currently has no provisions for user authentication

Windows NT's Remote Installation Services use TFTP to load a basic kernel that performs the actual installation.

QUESTIONS

MULTIPLE CHOICE

1. All web addresses start with which of the following?

(a)htp	(b)	http://	(c)	http:/	(d)	www

2. mget command is found in

- (a) Telnet
- (b) TCP/IP
- (c) FTP
- (d) MAC

3. FTP is

- (a) A person
- (b) A fi1e
- (c) A program for copying files from one computer to another
- (d) An Operating System

4. The method of transferring files with roots in Unix is
(a) Bin Hex (b) Unencoding (c) FTP (d) Telnet
5. FTP is used for
(a) Uploading files only (b) downloading files only
(c) both a and b (d) none of these

TRUE OR FALSE

1. Archie is a tool to help you find files on anonymous FTP servers
2. FTP moves files between devices
3. FTP is a connection oriented protocol
4. When logging into an FTP set as anonymous, always enter your real password.
5. TFTP works in UDP environment

MATCH THE COLUMN

A	B
Protocols used for transferring files on the Internet	A. FTP
2. ASCII Mode	B. Opens an Interactive ftp session
3. FTP [hostname]	C. Used for sending text files
4. Transfer files in binary code	D. HTTP and FTP
5. UnReliable connection	E. TFTP

FILL IN THE BLANKS

- A. Browsing B. FTP C. TFTP D. Client E. Virus
1. _____ is an active document technology.
 2. _____ Protocol is used for remote terminal connection service
 3. _____ is a tool to help you find files on anonymous FTP servers.
 4. To run FTP, you will need _____ software to run on your computer.
 5. The principal source of entry for computer _____ is downloading of files on the internet.

SUBJECTIVE

1. What are the two main purpose for which FTP is used ?
2. Write short notes on –
A. FTP client B. FTP server C. TFTP D. Cute FTP
3. Explain the 5 FTP commands.
4. Differentiate http and ftp.

Answer

Multiple Choice :	1. (b) 2. (c) 3. (c) 4. (c) 5. (b)
True or False :	1. (F) 2. (F) 3. (T) 4. (F) 5. (T)
Match the Column :	1. (d) 2. (C) 3. (b) 4. (a) 5. (e)
Fill in the Blanks :	1. (b) 2. (c) 3. (a) 4. (d) 5. (e)

TELNET & USENET

TELNET

Introduction

It is remote terminal protocols that provide facility to log in remote host. Using TELNET we can log into any other machine on which we haven't account. It is described in RFC 854. Communication with remote host during TELNET is handled by a TELNET server program. TELNET protocol uses various commands that control the method and various details of interaction between the client and server. TELNET is used for various task like remotely configuring routers or running applications on different host on the network

Establishing A Telnet Connection

To use Telnet you must have the address of the host whose resources you want to use. A telnet client 'contacts the host using its Internet address. When a client and a server communicate they use the Telnet protocol. While working on Telnet your IP address is also send so that information can be routed back to you. When we type the command it will take time for getting results because data packets follows different routes in between your computer and host.

Telnet Working

Telnet command allows you to communicate with the remote computer using Telnet protocol. We can create a Telnet session with the host by typing the IP address of host on the command prompt.

For example : \$ Telnet 17.118.21.119

Now the computer will ask for enter your login name at this prompt and then the password to gain access to the remote machine. As long as we are logged in, all the commands that we type is sent to, the remote machine. Any file that we use will always be on the remote machine. For example, if we type "dir" and press enter key, the distant computer will execute that command and the results of running that command on the distant computer are displayed on our computer screen. Thus our computer is just act as a dumped terminal.

USENET

Usenet stands for user network. One of the popular application of computer networking is the World Wide system of news groups called NET NEWS, often netnews is referred to as USENET. It is world's largest electronic discussion forum and provides a way for messages to be sent among computers from allover the world. Participants discuss on thousands of topic in specific areas of interest called news groups. It is an international non-commercial network linking thousands of unix sites. Duke University graduate students Tom Truscott and Jim Ellis given the idea in 1979. Users read and post public messages (called articles or posts, and collectively termed news) to one or more categories, known as newsgroups. People interested in the subject can subscribe to the news group. Subscribers can use a special kind of user agent, a news reader, to read all the articles

(messages) posted to the newsgroup. People can also post articles to the news group. Each articles posted to a newsgroup is automatically delivers to all the subscribes, wherever they may be in the world. Delivery typically takes between a few seconds and a few hours, depending on the path distance between the sender and receiver and load.

Components of Usenet

The Usenet on Internet is like electronic bulletin board. Usenet works on client server concept Therefore the two main components of Use net are

1. News Server
2. News Reader

The articles posted in news groups are distributed over the Internet by **news server**. A news server is a set of computer software used to handle Usenet articles. It may also refer to a computer itself which is primarily or solely used for handling Usenet. The news server store and forward articles to the user. A user needs client software called news reader to read these articles. News server and news reader communicates by using NNTP (Network news transfer protocol). Microsoft outlook express is a news reader software package. The available list of news groups can be used by news readers to subscribe and unsubscribe to newsgroups. News readers also handles posting. The user composes an article and then sends it to the server. Within a day, it will search almost everyone in the world subscribing to the newsgroup to which it was posted. An articles can be sent to multiple! newsgroups (cross-post). It's also possible to restrict the geographical distribution of a postage.

Concept of Chatting

Chat is a facility permitting two or more computer network users to enter into interactive, Two-way, text-based live communication over an Internet channel. It is quite similar to talking on phone. The basic difference is that, here we communicate (chat) through text messages entered through keyboard. Here entered messages are instantly received by the person with whom you are online. Here you can chat with multiple persons or groups at a time and send a message to multiple persons simultaneously. There are number of web sites which provides this facility. Some of them are given below –

- a. www.yahoo.com
- b. www.rediffinail.com
- c. www.sify.com

IRC (INTERNET RELAY CHAT)

IRC is the way to transfer and receive message instantly through Internet. In Internet relay chat there are number of channels through which you can chat with many persons all over the world In IRC client communicate with IRC server on the Internet Here you log on to the server and pick a channel on which you want to chat. When we type a message on your keyboard that messages are sent to the server and from the server the messages are sent for the destination. The destination person can read the message in the same way and can response to you.

Working of IRC

For IRC you must be on Internet. Many IRC servers are located allover the world. They are connected together on a network when you connect to a server we use a specific channel to chat. Your messages are sent from the client software on your pc to the IRC server to which you are connected.

These messages are forward to other servers where people on your channel are connected. Message gets transferred from server to server and finally received by the intended person or client computer. Most IRC servers do not require users to register an account but a user will have to set a nickname before being connected IRC or instant messaging provides interactive web chat. Usually these sites are referred to as chat rooms. We can find two categories in these chat systems. Some has basically textual in nature we type Something and what we type that appear on the screen of the people around the world, who are connected to the same site. Others use graphics and even 3D animations to provide visual online representations in the chat rooms. Most chat rooms are written in Java. To access a java -based chat room, we need a web browser that can run java applications.

NET Meeting

A product developed by Microsoft Corporation that enables groups to teleconference using the Internet as the transmission medium. NetMeeting supports VoIP, chat sessions, a whiteboard, and application sharing. It's built into Microsoft's Internet Explorer Web browser.

In net meeting one can perform following operations

1. Communicate to other persons.
2. Meet face to face with other persons.
3. Send and receive messages among many people.
4. Share your whiteboard drawing, applications etc.

QUESTIONS

MULTIPLE CHOICE

1. A telnet session is established by:
(a) Word for Windows (b) Outlook Express
(c) Telnet Client Software (d) None of these
2. The World Wide Web integrates which of the following:
(a) E-mail, Telnet, Usenet (b) Sound and movies files
(c) (a) and (b) (d) All Internet communication tools
3. Name of the software which comes with a basic telnet client packages:
(a) Windows 98 (b) Unix
(c) Both (a) and (b) (d) None of these
4. Usenet discussion group have their own system of organization to help you find thing just as
(a) Internet excel (b) Gopher
(c) Archie (d) None of these
5. The backbone of IRC is :
(a) IRC server (b) IRC network
(c) IRC client (d) None of the above

TRUE OR FALSE

1. Internet service allowing one computer to log onto another is known as TELNET.
2. Telnet cannot be used through a World-Wide Web browser

3. Telnet is the basic Internet service that was designed to transfer files from one computer System to another.
4. Usenet and internet are the same thing.
5. Usenet has no central governing body.

MATCH THE COLUMN**A**

1. A common name for government Site is
2. Pppd
3. Network Virtual Terminal
4. Command used to check the connectivity of a live network is
5. A utility that is used to verify the existence of a host or network gateway

B

- a. Ping
- b. gov
- c. point to point Daemon
- d. NVT
- e. Telnet Emulation
- f. Ping

FILL IN THE BLANKS

- | | | |
|---------------------------|-----------|-------------|
| a. Telnet client software | b. four | c. Telnet |
| d. Delete name | e. Delete | f. Webforms |
| g. Internet | | |
1. An IP Address is always a set of numbers.
 2. _____ is normally located in the Windows directory on your computer
 3. _____ provides a convenient way to access your email server from anywhere in the world.
 4. _____ give you the ability to upload information in to a web site from anywhere in the world
 5. _____ the file from FTP server.

SUBJECTIVE

1. How can we Login in remote host?
2. What is telnet? What is available with telnet? How does telnet works?
3. Describe the working and components of Use Net?
4. Give the steps to perform online chat?

Answer

- | | | | | | | |
|---------------------------|---|--------|--------|--------|--------|--------|
| Multiple Choice | : | 1. (c) | 2. (a) | 3. (d) | 4. (c) | 5. (a) |
| True or False | : | 1. (T) | 2. (F) | 3. (F) | 4. (T) | 5. (F) |
| Match the Column | : | 1. (b) | 2. (f) | 3. (a) | 4. (c) | 5. (e) |
| Fill in the Blanks | : | 1. (b) | 2. (a) | 3. (g) | 4. (f) | 5. (c) |

UNIT - 08

Hyper Text Markup Language

Introduction

Hypertext is an idea to organizing the text, navigating distributing and publishing information electronically instead of reading text in rigid, linear structure. Here we can jump easily from one point to another and get the right information about a particular topic in less time and conventional manner.

Markup means that specific portions of a document are marked up to indicate how they should be displayed in the browser. Markup refers to the sequence of characters or other symbols that you insert at certain places in a text or word processing file to indicate how the file should look when it is printed or displayed or to describe the document's logical structure. The markup indicators are often called "tags."

Markup languages are designed for the processing, definition and presentation of text. The language specifies code for formatting, both the layout and style, within a text file. HTML is an example of a widely known and used markup language.

Hyper/inks are navigational anchors in hypertext documents that allows us to navigate to another part of the same document. Hyperlinks are strings of text that has connection other pages or on the same page. Hyperlinks are underlined or highlighted in a special color. To follow a link, the user places the cursor on the highlighted area (using mouse or arrow keys) and select it (by hitting the enter key or mouse click). A single hypertext document can contain multiple links. Hypertext makes the information relatively easy to navigate using a universal software application called a web browser (as Internet Explorer). The most common example of hypertext document is help of Window operating system.

HTML is a language which runs in a web browser. It is collection of styles (tags) that is used for designing various components of a web document. These documents are system independent. HTML documents can be created by using a word processor like notepad etc. These documents are saved with extension .html.

Web Pages are viewed with a program called a browser. Microsoft Internet Explorer, Netscape are two popular web browsers. The browser fetches the page requested, interprets the text and Formatting commands that it contains, and displays the page properly formatted on the screen. A html document is consist of various tags. HTML tags provide structure for the documents. A tag is bracketed by '<' and '>' symbol :

Example: <tagname>

Most of all HTML tags have their corresponding closing tag. A closing tag has the form </tagname>. A HTML document starts with the tag <html>. The pair of tags <head> and </head> bracket the head, while the pair of tags <body> and </body> bracket the body. In the head, the tags <title> and </title> bracket the text that forms the document title. the above code is the general standard form of an HTML document.

```

<html>
  <head>
    <title>
      text that forms the document title
    </title>
  </head>
  <body>
    body of the document appears here
  </body>
</html>

```

Different HTML Tags

<HTML>

Any HTML document start with this tag. The <HTML> tag is the container that contains all other HTML elements.

<HEAD> and <TITLE>

The <head> identifies the first part of the HTML document such as title, description, keywords etc, <TITLE> tag is used for declaring the title of the HTML document. Most of this information is not displayed in the browser (although the title usually appears in the browser's title bar) but can be useful for search engines etc.

<BODY>

The HTML body tag is used for indicating the main content section of the HTML document the body tag is placed between the </head> and the </html> tags.

The main Attributes of <BODY> tag are given below.

Attribute	Description
Background	Specifies the name of background image.
text	Specifies the text color. This attribute is now deprecated.
bgcolor	Specifies the Background color of the HTML page.

Example 1:

```

<html>
<head>
<title>HTML tags</title>
</head>
<body Text=green bgcolor=orange">
Here is my first HTML page
</body>
</html>

```

Section Headings

There are 6 levels of headings (h1 - h6). Browsers typically render the various headings in different sizes - with h1 being the largest and h6 being the smallest.

Example2:

```
<HTML>
  <HEAD>
    <TITLE> HEADING IN HTML</TITLE>
  <BODY>
    <H1> Level 1 Heading </H1>
    <H2> Level 2 Heading </H2>
    <H3> Level 3 Heading </H3>
    <H4> Level 4 Heading </H4>
    <H5> Level 5 Heading </H5>
    <H6> Level 6 Heading </H6>
  </BODY>
</HTML>
```

Paragraph and Line breaks

The HTML <p> tag is used for defining a paragraph. Whereas HTML
 tag for creating a line break within a paragraph. You can customize the alignment of a paragraph by including the “ALIGN” attribute with <p> tag.

Example3:

```
<HTML>
<HEAD>
<TITLE>CREATING PARA</TITLE> </HEAD> <BODY>
  Hello, Welcome to DOEACC Society.
  <P> DOEACC Head Office Address is given below
  <BR>Electronics Niketan <BR> 6 CGO Complex <BR> Lodhi Road <BR> New
  Delhi
  <P Align=Center> WwW.DOEACC.EDUJN
  </BODY>
</HTML>
```

Drawing Lines

<HR> tag is used for creating a horizontal rule. Main attributes of this tag are given below.

Attribute	Description
align	Alignment (left, center, right).
size	Specifies the height of the horizontal rule.
width	Specifies the width of the horizontal rule.

Example 4:

```
<HTML>
  <HEAD>
    <TITLE>CREATING Horizontal Rule</title> </HEAD>
  <BODY>
    <HRAlign=center width =100 size= 10> </BODY>
</HTML>
```

Text Styles

Here we have 3 common text styles.

BOLD is represented by tag,

Italic is represented by <I> tag,

Underline is represented by <U> tag;

Example 5:

```
<HTML>
  <HEAD>
    <TITLE> FACE STYLE</TITLE>
  </HEAD>
  <BODY>
    <CENTER>
      <B>THIS IS BOLD.FACE</B>
      <BR>
      <I> THIS IS ITALIC FACE</I> <BR>
      <U> THIS IS UNDERLINE FACE</U> </CENTER>
    </BODY>
</HTML>
```

Font Size and Color

Attribute	Description
Size	Specifies the font size.
color	Specifies the font color.
<u>face</u>	Specifies the font face

Example 6:

```
<HTML>
  <HEAD>
    <TITLE> DETAILS OF FONTS TAG</TITLE>
  </HEAD>
  <FONT FACE="ARIALBLACK"SIZE=3 COLOR =RED>
    HELLO! WELCOME TO INTERNET AND WEB DESIGN CONCEPTS
  </BODY>
</HTML>
```

LISTs in HTML

You can create two types of list in html

1. Bulleted lists or unnumbered list
2. Numbered Lists

Bulleted lists or unnumbered list: tag is used for creating a bulleted list. In this list each item is prefaced with a bullet. Here is an example of Bulleted list.

Example 7:

```
<HTML>
<HEAD>
<TITLE>LIST OF DOEACC COURSES </TITLE> </HEAD>
<CENTER><H1 >LIST OF COMPUTER COURSES </Hi> </CENTER>
<UL>
<LI TYPE=DISC> 0 LEVEL </LI>
<LI> A LEVEL </LI>
<LI> B LEVEL </LI>
</UI>
</BODY>
<IHTMI>
```

TYPE specifies the style of the bullet. Possible values:

- Disc
- Circle
- Square

Numbered List: tag is used for creating a numbered list. The browser applies the appropriate number to each line when it opens the page.

Example 8:

```
<HTML>
<HEAD>
<TITLE> ORDERED LIST </TITLE> </HEAD>
<BODY>
<OL SIZE=5>DOEACC COURCES
  <LI> 0 LEVEL </LI> <LI> A LEVEL </LI>
  <LI> B LEVEL </LI> <LI> C LEVEL </LI>
</OL>
</BODY> </HTML>
```

Superscript and Subscript

Superscript element makes the enclosed text in superscript (a bit higher than the regular text). <SUP> tag is used for this purpose. This element is widely used in mathematics formulas

Ex: E = MC² will he written as

E = MC<SUP> 2 </SUP >

A subscript tag puts the enclosed tag in subscript (a bit lower than the regular text) <Sub> tag is used for this purpose this element is widely used in chemical formulas.

Ex: H₂O will be written in html as.

```
H<SUB> 2 </SUB> O
```

<OBJECT> Tag

The HTML object tag is used for embedding an object within an HTML document. These objects can be images, movies and multimedia files in your documents.

<BDO> Tag

This tag is used for overriding the text direction. This can be useful when displaying hebrew, arabic, and other languages/scripts that are written from right to left.

 and <DIV> tags

The HTML span tag is used for grouping and applying styles to inline elements whereas the HTML <div> tag is used for defining a section of your document. The difference between the <div> tag~ the tag is that the <div> tag is used with block -level elements whilst the tag is used with inline elements.

<BIG> tag

The HTML big tag is used for specifying large text.

<SMALL> tag

The HTML small tag is used for specifying small text. IT has the same effect as

<TT>Tag

This tag makes the enclosed text in teletype font. It means the text will be monospaced to look like Typewriter font.

HYPERLINKS in HTML

The HTML <a> tag is used for creating a hyperlink another document, or somewhere within the current document. You can also create a link with a URL. These links are made up of four parts.

1. Link tag <A>
2. An attribute 'HREF' which is located within the opening anchor tag, like
3. An address (called URL) which tells the browser about the file to link to
4. Hyperlink object, by clicking the corresponding URL will open.

Internal Hyperlinks

Sometimes you have to make links in the same HTML document. Here jump has to be done to a specific location of the same document. Various help programs of application software like word, Excel or Windows OS help is the common example of Internal Hyperlinks.

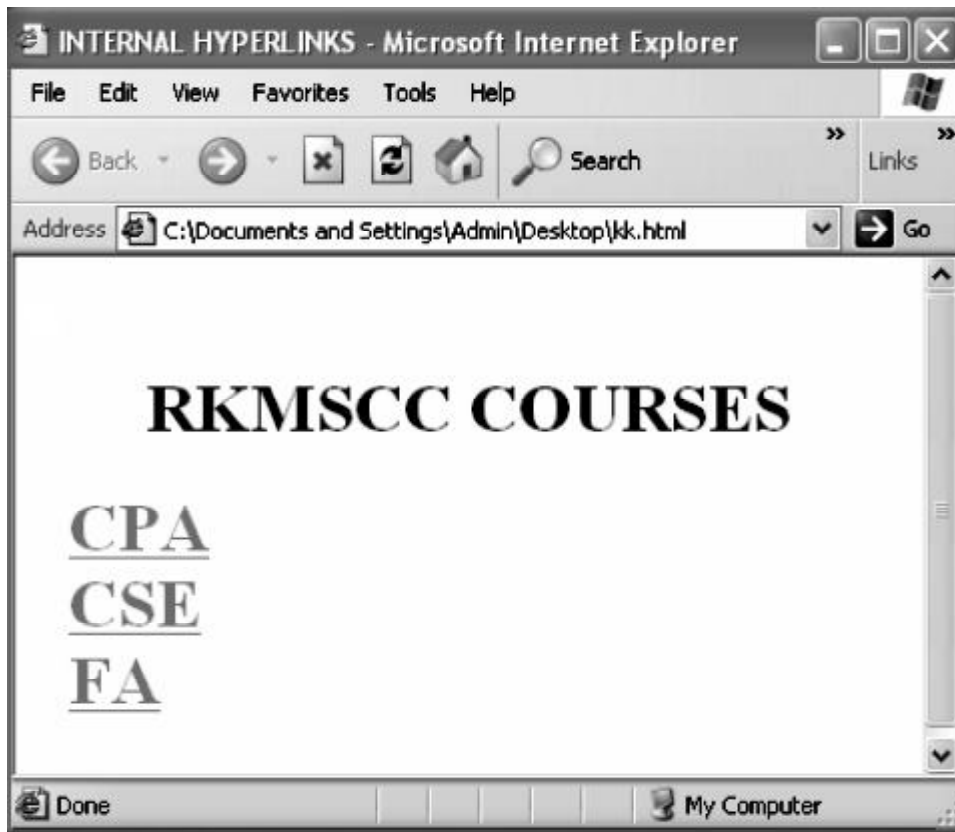
Example: 9

```
<HTML>
<HEAD>
<TITLE> INTERNAL HYPERLINKS </TITLE> </HEAD>
<BODY>
<H1> <CENTER> RKMSCC COURSES </CENTER></H1>
<a HREF="#OL">CPA </a> <BR>
```



```
<a HREF="#AL">CSE </a><BR>
<a HREF="#BL">FA </a><BR> <BR>
<BODY>
</HTML>
```

Program Output



External Hyperlinks

These links can connect an object (may be a string or picture etc.) to other documents, URLs etc.

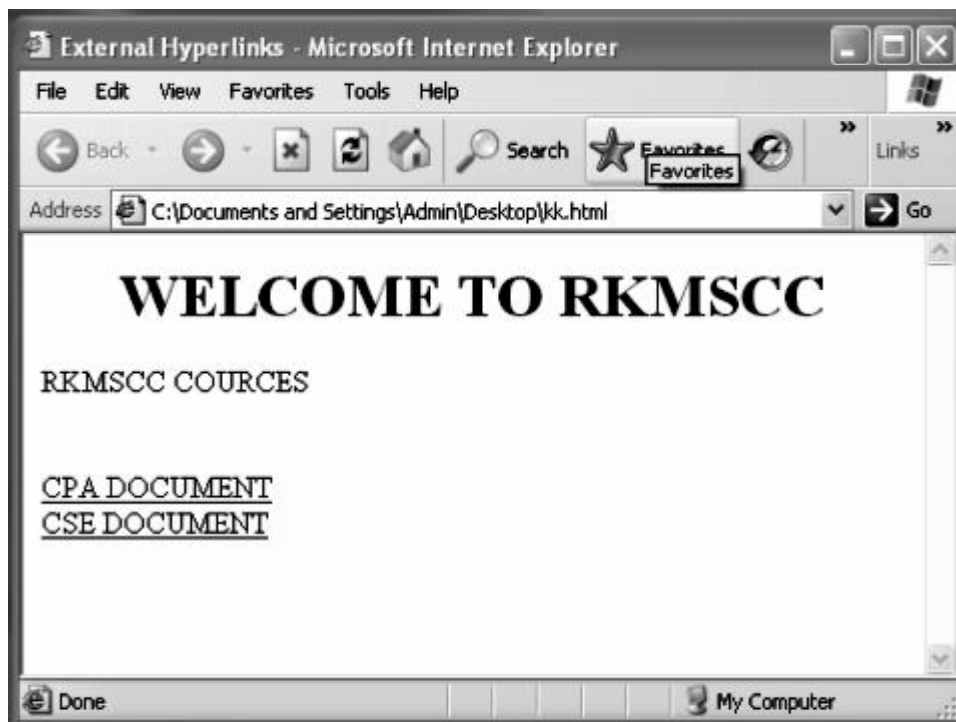
Example 10:

```
<HTML>
<HEAD>
<TITLE>External Hyperlinks</TITLE>
</HEAD>
<BODY>
<CENTER><H1> WELCOME TO RKMSCC </H1></CENTER>
<P>RKMSCC COURSES</P><BR>
```

```
<A HREF="c:\CPA.DOC">CPA DOCUMENT</A><BR>  
<A HREF="c:\CSE.DOC">CSE DOCUMENT </A><BR>  
</BODY>  
</HTML>
```

Here in the given example when you click “hello” the hyperlinked file (Cpa.Doc) will get opened you can give any object name or URL on the place of this file

Program Output



IMAGES (Tag)

HTML allows placing of static and animated images in a web page. HTML accepts picture file formats .gif and .jpg. An image can be inserted into a web page using the tag . This tag takes the name of the image file as an attribute.

The attributes associated with tag are given:

1. Align Controls alignment of the text that appears the image.
2. Border Specifies the size of the border to place around the image.
3. Width Specifies the width of image in Pixels.
4. Height Specifies the height of the image in Pixels.
5. Hspace Indicates the amount of space to the left and right of the image.
6. Vspace Indicates the amount of space to the top and bottom of the image.

7. ALT Indicates the text to be displayed in case the browser is unable to display the image or, if the cursor moves the image (as tooltip)

Example 11:

```
<HTML>
<HEAD>
<TITLE> EXAMPLE OF IMG TAG</TITLE>
</HEAD>
<BODY BACKGROUND='BLUE'>
<CENTER><IMG SRC="C:\Sunset.jpg" ALT=" ROSE" WIDTH='300' HEIGHT='200' BORDER='4'>
</CENTER>
</BODY>
</HTML>
```

This HTML code will display the image (Sunset.jpg) with the specified attributes.

Program Output



HTML STYLE SHEETS

The HTML <style> tag is used for declaring style sheets within the head of your HTML document. Each HTML document can contain multiple <style> tags. Each tag must be located between the <head> tags.

Example 12:

```

<HTML>
<head>
<style type="text/css">
h1{color:#000099}
</style>
</head>
<Body>
<h1> This IS HTML style tag </h1 >
</body>
</HTML>

```

Here in the given example we have declare a HTML style with the specified color code (blue). Now <H1 > will work as tag for level 1 heading as well as specified color.

HTML TABLES**Designing Tables**

Table is a two dimensional structure consisting of rows and columns. All table related tags are included between the <TABLE> </TABLE> tags. Each row is described between the <TR> </TR> tags. A table header columns are defined using <TH> </TH> (Now the contents of header automatically centered and appears in boldface). For Creating Cells (columns) of table row <TD> tag is used.

Common Table Attributes are: .

1. **Align** It set visual Alignment of the Table. It can be set to LEFT, CENTER or RIGHT.
2. **WIDTH** Sets the width to a specific Number of Pixels or to a percentage of the available screen width.
3. **BORDER** Controls the border to be placed around the table. The border Thickness is specified in Pixels.
4. **CELL PADDING** This attribute controls the distance between the data in a cell and the Boundaries of the cell.
5. **Cell Spacing** Controls the spacing between adjacent cells
6. **Col Span** This attribute specifies the number of columns the cell spans
7. **Row Span** This attribute specifies the number of rows the cell spans.

Example 13 :

```

<HTML>
<HEAD>
<TITLE> TABLE DESIGNING</TITLE> </HEAD>
<BODY BGCOLOR=GREEN>
<TABLE BORDER=5 WIDTH=50% ALIGN=CENTER>
<TR>
<TH> NAME </TH>

```

```

<TH> CLASS </TH>
<TH> CITY </TH>
</TR>
<TR>
<TD> RAHUL</TD>
<TD>X<SUP>TH</SUP></TD>
<TD>AGRA</TD>
</TR>
</TABLE>
</BODY></HTML>

```

Program Output**Example 14 :****Example of ROW SPAN and COL SPAN**

```

<HTML>
<HEAD>
<TITLE> ROW SPAN AND COL SPAN
</TITLE>
</HEAD>
<BODY BGCOLOR='RED'>
<H1> <CENTER> ROWSPAN AND COLSPAN </CENTER></H1>
<TABLE BORDER=10 WIDTH=50% ALIGN=CENTER>
<TR>
<TH ROWSPAN=2>NAME</TH>

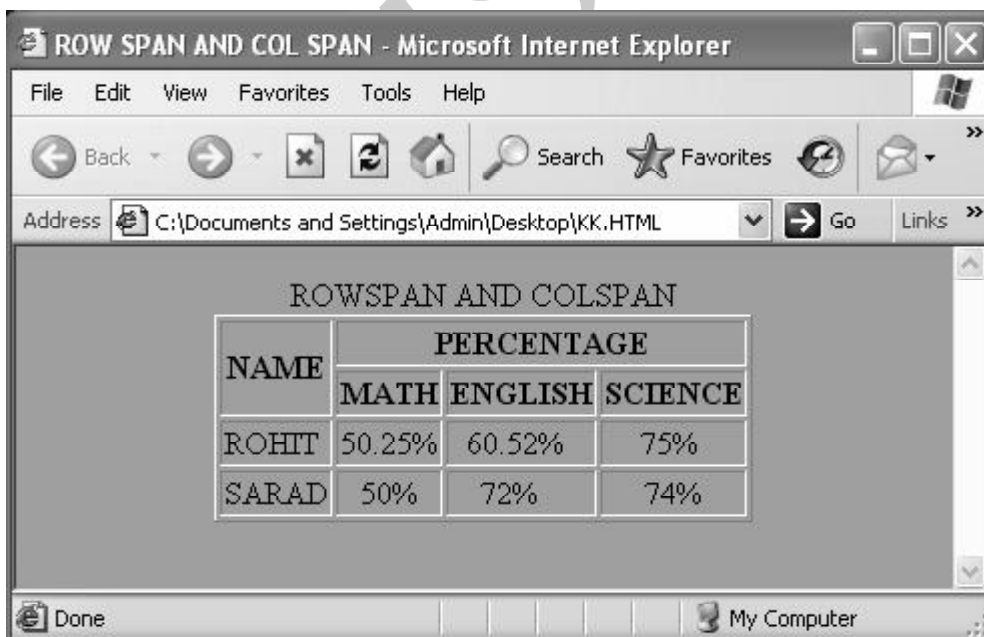
```

```

<TH COLSPAN=3>PERCENTAGE</TH>
</TR>
<TR>
<TH>MATH</TH>
<TH>ENGLISH</TH>
<TH>SCIENCE</TH>
</TR>
<TR ALIGN=CENTER>
<TD>ROHIT
<TD>50.25%
<TD>60.52%
<TD>75%
</TD>
<TR ALIGN=CENTER>
<TD> SARAD
<TD>50%
<TD>72%
<TD>74% </TD> </BODY> </HTML>

```

Program Output



HTML FRAMES

The browser screen can be split into separate (unique) sections called “frames”. FRAMES are designed through <FRAMESET> TAG. This tag requires two following attributes.

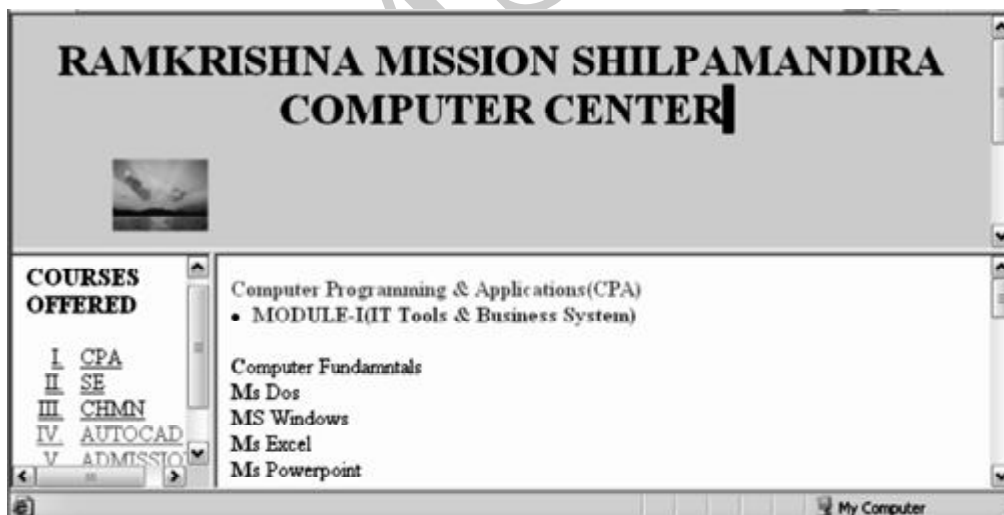
1. Rows This attribute is used to divide the screen into multiple rows.
 2. Cols This attribute is used to divide the screen into multiple columns.
- `<frameset Rows = "40%, *">` divides the screen into 2 rows, one occupying 40% of the screen and the other occupying remaining space of the screen (60%).
- `<frameset Cols = "50%, 50 %">` Divides the 1st row into 2 equal columns, each 50% of the screen.
- `<frame Src = "C:\NICEDETAIL.HTM">` Load the 1st frame with 'NICEDETAIL.HTML'.
- `<frame Src = "C:\Courses.HTML">` Load the 2nd frame with courses.HTML.
- `<FRAMESET Cols = "40%, 60 %">` Divides the row into 2 columns of 40% and 60%

Example 15 :

```

<html>
<frameset rows="50%,*">
<frame src ="Firstpage.html">
<frameset cols="20 %,*">
<frame src="link.html">
<frame name="Cpa.html">
</frameset>
</frameset>
</html>

```

Program Output**HTML FORMS**

The HTML form tag is used for designing a form.

The `<form>` tag is used in conjunction with form-associated elements. To create a form, you can nest form-associated elements inside the opening/closing `<form>` tags.

Form-Associated Elements

Here are the elements that you can use with your forms.

- <input>
- <textarea>
- <button>
- <select>
- <option>
- <optgroup>
- <fieldset>
- <label>

<Input> Tag

The HTML input tag is used within a form to declare an input element - a control that allows the user to input data.

Attribute	Description
Type	Specifies the type of control. Possible values: <ul style="list-style-type: none"> o text o password o checkbox o radio o submit o reset o file o hidden o image o button
Name	Assigns a name to the input control.
Value	Specifies the initial value for the control. If type="checkbox" or type="radio" this attribute is required.
Size	Specifies the width of the control. If type="text" or type="password" this refers to the width in characters. Otherwise it's in pixels.

<textarea>

The HTML <textarea> tag is used within a form to declare a textarea element - a control that allows the user to input text over multiple rows

Attribute	Description
Name	Assigns a name to the input control
Rows	Specifies the height of the textarea based on the number of visible lines of text. If there's more text than this allows, users can scroll using the textarea's scrollbars.
Cols	Specifies the width of the textarea based on the number of visible character widths.

<Button> Tag

The HTML button tag is used for creating a button within forms.

Attributes specific to this tag:

Attribute	Description
Name	Assigns the name of the button control.
Value	Assigns an initial value to the button.
Type	Specifies the type of button. Possible values: <ul style="list-style-type: none"> • submit (default) • reset • button

<SELECT> TAG

The HTML select tag is used for defining a select list. <Select> tag is used with an element, OPTION to delimit the choices for selection

Attributes specific to this tag:

Attribute	Description
Name	Assigns a name to the select list.
Size	Specifies the number of rows to be visible at the same time.
Multiple	Specifies that multiple selections can be made.

<LABEL> Tag

The HTML label tag is used for adding a label to a form control.

If you use the label tag, in some browsers, users can select a radio button or checkbox option by clicking on its label.

Attribute	Description
For	Specifies the input control that this label is for. This value must be the same as the value in the input control's "id" attribute.

Example 16 :

```
<html>
<body bgcolor="pink">
<center><h1>APPLICATION FORM</center></h1>
<hr>
<form>
STUDENT'S NAME:<input type=text name=text1 size=30><p>
PASSWORD:<input type=password name=pass size=30><p>
ADDRESS:<textarea rows=5 cols=30></textarea></p>
GENDER:<input type=radio name=gender checked>Male
      <input type=radio name=gender>Female<p>
```

```

QUALIFICATION:<input type=checkbox name=quali>MADHAYAMIK
<input type=checkbox name=quali>H.S
<input type=checkbox name=quali>GRADUATE<P>
CITY:<select name=city>
<option value=KOL>Kolkata
<option value=DEL>Delhi
<option value=MUM>Mumbai
<option value=ASS>Chennai
</select><p>
STATE:<select name=state=3>
<option>West Bengal
<option>Bihar
<option>Orissa
<option>Assam
</select><p>
<center>
<input type=Submit
name=button1
value="Submit">
<input type=Reset
name=button2
value="Cancel"
</center>
</form>
</body>
</head>
</html>

```

Program Output

The screenshot shows a web browser window displaying an application form. The browser's address bar shows the file path: C:\Documents and Settings\Admin\Desktop\FORM example.html. The form is titled "APPLICATION FORM" and contains the following elements:

- STUDENT'S NAME:** A text input field.
- PASSWORD:** A text input field.
- ADDRESS:** A large text area with a scroll bar.
- GENDER:** Radio buttons for "Male" and "Female".
- QUALIFICATION:** Three checkboxes for "MADHAYAMIK", "H.S", and "GRADUATE".
- CITY:** A dropdown menu currently showing "Kolkata".
- STATE:** A dropdown menu currently showing "West Bengal".
- Buttons:** "Submit" and "Cancel" buttons at the bottom.

MOVING OBJECT (<MARQUEE TAG>)

You can move or apply 2D animation in objects (string, images etc.) using <Marquee> tag. This tag uses various option.

1. Direction Objects can move left, right, up and down direction.
2. Bgcolor You can specify background color to the text while animation.
3. Behaviour Change the behavior of Animation like alternate etc.

Example 17 :

```
<HTML>
<HEAD>
<TITLE> MOVING OBJECTS USING MARQUEE</TITLE>
</HEAD>
<BODY TEXT=RED>
<MARQUEE DIRECTION=DOWN> <H1> HELLO NICE </H1> </MARQUEE> <MARQUEE DIRECTION=
UP> <H1> HELLO NICE </H1></MARQUEE></CENTER>
<CENTER><MARQUEE DIRECTION=LEFT WIDTH =200> <H1> HELLO NICE </ H1> </MARQUEE>
<MARQUEE DIRECTION=RIGHT WIDTH=200> <H1> HELLO NICE </H1>
</ MARQUEE><BR><BR><MARQUEE BGCOLOR=BLUE BEHAVIOR=ALTERNATE> <H1> HELLO NICE </
H1>
</BODY></HTML>
```

Program Output

QUESTIONS

MULTIPLE CHOICE

1. Hypertext is text that
 - (a) Appears as superscript
 - (b) contains links to other documents
 - (c) Appears above normal text
 - (d) has images embodied in the text
2. Markup tags, such as <H1>, are used in HTML to
 - (a) tell the browser how to display the document
 - (b) tell the server how to send the document to the client
 - (c) tell the network that the hypertext transfer protocol (http) is being used
 - (d) add unnecessary complexity to what should be a simple operation
3. The M in HTML stands for
 - (a) markup
 - (b) machine
 - (c) modeling
 - (d) margin
4. A HTML file starts with the tag
 - (a) <TITLE>
 - (b) <BODY>
 - (c) <HEAD>
 - (d) <HTML>
5. Find the only statement in the following that is correct.
 - (a) JavaScript interpreter processes programs written in Java.
 - (b) JavaScript interpreter processes the commands in a script written in JavaScript
 - (c) Java and JavaScript are almost similar.
 - (d) JavaScript cannot be embedded in HTML

TRUE OR FALSE

1. HTML documents cannot be created using a word Processor.
2. In HTML, the tag <H 1 > is used to indicate that http is being used.
3. HTML does not allow a web page to include an image
4. JPEG is a lossless compression technique.
5. A modem operating at 300 bps can transmit about 30 characters per second.

MATCH THE COLUMN

- | A | B |
|--|--------------------------|
| 1. | A. Front Page |
| 2. Caption Element | B. Label figure or Table |
| 3. RS 232 | C. ASP |
| 4. <OR> | D. Horizontal line |
| 5. A technology for Web Page Designing | E. Unordered list |
| | F. Serial Port |
| | G. Connector |

FILL IN THE BLANKS

- | | | | |
|---------------|-----------------|--------|-----------|
| a. Empty Tags | b. Methods Tags | c. MTU | d. JPEG |
| e. BMP | f.
 | g. <P> | h. Header |

1. HTML tags for which no corresponding close-tag exists are called_____
2. The maximum size of datagram that can be processed by that particular piece of hardware is called_____
3. _____ is a compressed image file format that stores many more colors than the GIF format and yields a higher, photographic-quality image
4. HTML tag for creating a line break is_____
5. In an object oriented system, a class is a collection of data and _____ that operate on that data.

SUBJECTIVE

1. What is a standard layout of any basic HTML page? Your answer should include suitable HTML code fragments.
2. Write HTML code for creating the following layout using frames. The underlined words/phrases are hyperlinks and they should always open on clicking.
3. Give the HTML program segment for collecting information using forms. Information are name and Comment.
4. What are different images file supported by HTML? How image files can be implemented in HTML documents? Give a suitable example?

Answer

- Multiple Choice** : 1. (b) 2. (a) 3. (a) 4. (d) 5. (b)
True or False : 1. (F) 2. (F) 3. (F) 4. (T) 5. (T)
Match the Column : 1. (e) 2. (b) 3. (g) 4. (d) 5. (a)
Fill in the Blanks : 1. (a) 2. (c) 3. (d) 4. (f) 5. (b)

RKMSWS

Internet Security

Internet Security Threats

When we are surfing the internet several threats can penetrate our security. The computer is exposed to the wild Internet where many types of threats might cause the computer to function incorrectly. Unlike a large scale network infrastructure of a corporate that has proper information security management, your computers might be vulnerable to the threats.

Programmed Threats

Computers are designed to execute instructions one after another. These instructions usually do something useful—calculate values, maintain databases, and communicate with users and with other systems. Sometimes, however, the instructions executed can be damaging or malicious in nature. When the damage happens by accident, we call the code involved a software bug. Bugs are perhaps the most common cause of unexpected program behavior. But if the source of the damaging instructions is an individual who intended that the abnormal behavior occur, we call the instructions malicious code, or a programmed threat. There are many different kinds of programmed threats. Experts classify threats by the way they behave, how they are triggered, and how they spread.

Example of Programmed Threats

Trojan horses

Programs that appear to have one function but actually perform another function. Analogous to their namesake, modern-day Trojan horses resemble a program that the user wishes to run—e.g., login, a game, a spreadsheet, or an editor. While the program appears to be doing what the user wants, it actually is doing something else unrelated to its advertised purpose, and without the user's knowledge. For example, the user may think that the program is a game. While it is printing messages about initializing databases and asking questions such as "What do you want to name your player?" and "What level of difficulty do you want to play?", the program may actually be deleting files, reformatting a disk, or posting confidential documents to a web site. All the user sees, until it's too late, is the interface of a program that the user is trying to run.

Viruses

A true virus is a sequence of code that is inserted into other executable code so that when the regular program is run, the virus code is also executed. The virus code causes a copy of itself to be inserted in one or more other programs. Viruses are not distinct programs—they cannot run on their own, and some host program, of which they are a part, must be executed to activate them.

Worms

Worms are Programs that propagate from computer to computer on a network, without necessarily modifying other programs on the target machines. Worms are programs that can run independently and travel from machine to machine across network connections; worms may have portions of themselves; running on many different machines. They do not change other programs, although they may carry other code that does (for example, a true virus).

Data Interception: The observation of user data during a communication by an unauthorized user.

Identity Interception: The identity of one or more of the users involved in a communication is observed for misuse.

Firewalls

Firewalls are procedures for protecting a local system or network of systems from network based security threats while at the same time of accessing to the outside world via wide area networks and the Internet. These are hardware and software combinations that are built using routers, servers and variety of software. They are established at the most vulnerable point between a corporate network and the Internet. Actually it is a system or group of system that enforces an access control policy between two networks, which is the most important thing that is to be recognized in a firewall.

A firewall can be thought of as a pair of mechanisms, one of which exists to block traffic and the other which exists to permit traffic.

1. Service Control.
2. Direction Control.
3. User Control
4. Behavior Control

Service Control determines the types of internet services that can be accessed inbound or outbound. The firewall may filter traffic on the basis of IP address and TCP Port number. It provides proxy software that receives and interprets each service request before processing it.

Direction Control determines the direction in which particular service request may be initiated and allowed to flow through the firewall.

User control controls access to a service, according to which user is attempting to access it. This feature is typically applied to user's, inside the firewall perimeter. It may also be applied to incoming traffic from external user which requires some form of authentication procedures.

Behavior Control determines how particular services are used. For ex: it may filter the e-mails to eliminate spam or it may enable access to only a portion of the information on a local web server.

Types Of Firewalls

- (a) Application Gateways or Proxy Server
- (b) Packet Filtering Firewalls
- (c) Hybrid Systems

Application Gateways

These are sometimes known as Proxy Servers. This software runs at the Application Layer of OSI Reference Model. Traditionally, these have been the most secure, because they don't allow anything to pass by default, but need to have the programs written and turned on in order to begin passing traffic.

Packet Filtering

Packet filtering is a technique whereby routers have ACLs (Access Control Lists) turned on. By default, a router will pass all traffic sent it, and will do so without any sort of restrictions. Employing ACLs is a method for enforcing your security policy with regard to what sorts of access you allow the outside world to have to your internal network, and vice versa.

Hybrid Systems

In an attempt to marry the security of the application layer gateways with the flexibility and speed of packet filtering, some vendors have created systems that use the principles of both.

In some of these systems, new connections must be authenticated and approved at the application layer. Once this has been done, the remainder of the connection is passed down to the session layer where packet filters watch the connection to ensure that only packets that are part of an ongoing (already authenticated and approved) conversation are being passed.

Authentication And Authorization

Authentication is any process by which you verify that someone is who they claim they are. This usually involves a username and a password, but can include any other method of demonstrating identity, such as a smart card, retina scan, voice recognition, or fingerprints. Authentication is equivalent to showing your driving license at the ticket counter at the airport.

Authentication Methods**Passwords**

Passwords are the most widely used form of authentication. Users provide an identifier, a typed in word or phrase or perhaps a token card, along with a password. In many systems the passwords, on the host itself, are not stored as plain text but are encrypted. Password authentication does not normally require complicated or robust hardware since authentication of this type is in general simple and does not require much processing power.

Digital Signatures

A digital signature is an electronic signature that can be used to authenticate the identity of the sender of a message or the signer of a document, and possibly to ensure that the original content of the message or document that has been sent is unchanged. Digital signatures are easily transportable, cannot be imitated by someone else, and can be automatically time-stamped. The ability to ensure that the original signed message arrived means that the sender cannot easily repudiate it later. A digital signature can be used with any kind of message, whether it is encrypted or not, simply so that the receiver can be sure of the sender's identity and that the message arrived intact. A digital certificate contains the digital signature of the certificate-issuing authority so that anyone can verify that the certificate is real.

Biometric

In this authentication process Users may biometrically authenticate via their fingerprint, voiceprint or iris scan using provided hardware and then enter a PIN or password. However, while this type of authentication is suitable in limited applications, this solution may become unacceptably slow and comparatively expensive when a large number of users are involved. In addition, it is extremely vulnerable to a replay attack: once the biometric information is compromised, it may easily be replayed unless the reader is completely secure and guarded.

Magnetic Cards

Credit cards, debit cards, ATM cards, etc combined with secure, encrypting card readers provide a possible solution for two-factor/strong authentication. Each magnetic stripe card has unique characteristics much like the card's own fingerprint called a magnetic fingerprint. The advantage is

that a magnetic fingerprint already exists on every magnetic stripe card because it is an intrinsic characteristic and no cards would need to be re-issued. Each swipe of the card provides a correlative number called a dynamic digital identifier that can be scored and “matched” to the originating value to determine the cards authenticity. Since the number changes each time, it cannot be re-used as long as all processing is authenticated. It does require a special reader that can read the magnetic fingerprint value.

Smart Card or Chip Card

It is a pocket-sized Integrated circuit card (ICC) with embedded integrated circuits which can Process Data. This implies that it can receive input which is processed and delivered as an output. There are two broad categories of these cards. Memory cards contain only non-volatile memory storage Components, and perhaps some specific security logic. Microprocessor cards contain volatile Memory and microprocessor components. The card is made of plastic, generally PVC, but some times ABS. Using smart cards is also a form of strong security authentication for single sign-on within large companies and organizations.

Other commonly used authentication methods are USB Tokens, Mobile Signatures, Digital Certificates etc.

Cyber Crime

Cyber crime is an evil having its origin in the growing dependence on computers in modern life.

Defining cyber crimes, as “acts that are punishable by the Information Technology Act” would be unsuitable as the Indian Penal Code also covers many cyber crimes, such as email spoofing and cyber defamation, sending threatening emails etc. A simple yet sturdy definition of cyber crime would be “unlawful acts wherein the computer is either a tool or a target or both”.

All the acts wherein the computer is a tool for an unlawful act. This kind of activity usually involves a modification of a conventional crime by using computers. Some examples are:

(I) Financial crimes

This would include cheating, credit card frauds, money laundering, phishing etc.

(II) Cyber pornography

This would include pornographic websites; pornographic magazines produced using Computers

(III) Sale of illegal articles

This would include sale of narcotics, weapons and wildlife etc., by posting information on websites, auction websites, and bulletin boards or simply by using email communication.

(IV) Online gambling

There are millions of websites; all hosted on servers abroad, that offer online gambling.

(V) Intellectual Property crimes

These include software piracy, copyright infringement, trademarks violations, that of computer source code etc.

Furthermore, Computer crime, cybercrime, e-crime, hi-tech crime or electronic crime generally refers to criminal activity where a computer or network is the source, tool, target, or place of a crime. These categories are not exclusive and many activities can be characterized as falling in one or

more. Additionally, although the terms computer crime and cybercrime are more properly restricted to describing criminal activity in which the computer or network is a necessary part of the crime, these terms are also sometimes used to include traditional crimes, such as fraud, theft, blackmail, forgery, and embezzlement, in which computers or networks are used. As the use of computers has grown, computer crime has become more important.

QUESTIONS

MULTIPLE CHOICE

1. The method of transferring files with roots in Unix is
 (a) Bin Hex (b) Unencoding (c) FTP (d) Telnet
2. A web publishing tool developed by Microsoft is
 (a) Netscape Navigator (b) Front Page
 (c) Page Mill (d) Hot Metal
3. In time division multiplexing (TDM)
 (a) Several signals are sent on separate channels
 (b) Several signals are sent in time slotted mode on a channel
 (c) One signal is sent to several users
 (d) None of the above
4. What product did Amazon first sell?
 (a) Online Advertising (b) Books
 (c) Music (d) DVDs and Video
5. Which of the following is related to Internet Security?
 (a) MIT (b) Firewall (c) DSL (d) W3C

TRUE OR FALSE

1. Portal is another word for search engine.
2. The replacement, insertion, deletion or disordering of user data during a communication by an unauthorized user does not form part of internet Security.
3. Confidentiality, Integrity and availability are basic requirements of internet Security.
4. A datagram is an independent, self-contained message sent over the network whose Arrival, arrival time and content are not guaranteed.
5. Asynchronous communication is slower than synchronous communication.

MATCH THE COLUMN

- | A | B |
|--|--------------------|
| 1. Scrambling of a message for security | a. Bandwidth |
| 2. A method used to send authenticated information over web. | b. Home page |
| 3. Rearranging of connection between computers | c. Robust Security |
| 4. Data carrying capacity of a channel | d. T-Switch |

5. Application Gateway and packet Filtering firewall
 e. Encryption
 f. Digital Certificate

FILL IN THE BLANKS

- a. *Source IP address*
 b. *Network Administrator*
 c. *Hacker* d. *Modem*
 e. *Callback*
- Device for translating digital signals into analog signals and vice versa is called a(n)_____
 - _____is an individual responsible for maintaining a multi-user computer system. Typical duties include; adding and configuring new workstations, setting up user accounts, installing system-wide software.
 - _____is a computer enthusiast or expert who gains unauthorized access to computer Systems for the purpose of stealing and corrupting data.
 - _____ key field is tested in packet filtering.
 - _____ is a security feature.

SUBJECTIVE

- What is Firewall? Describe different types of firewalls?
- What are the Internet security threats? What constitutes a good firewall system?
- What is Software Piracy?
- What is encryption? Explain the Public Key Encryption technique.

Answer

- Multiple Choice** : 1. (c) 2. (b) 3. (b) 4. (b) 5. (b)
True or False : 1. (F) 2. (F) 3. (T) 4. (T) 5. (F)
Match the Column : 1. (e) 2. (f) 3. (d) 4. (a) 5. (c)
Fill in the Blanks : 1. (d) 2. (b) 3. (c) 4. (a) 5. (e)

UNIT - 10

Intracive Tools**Web Programming Technologies**

It can be divided in two categories:

1. Client Side Technologies
2. Server Side Technologies

Client Side Technologies

Client side technologies are those that runs on the client computer generally within the context of the browser and connects to a server as necessary. Whereas server side technologies handles the server side of web communication For eg. When we are filling a form on website here database entries are handled by client side whereas putting the data in the main database available on server is handled by server side technology.

The main Client Side Technologies are :

Active X

Active X or a Plug-in is Internet portion of component object model (com). It is Microsoft component technology for creating small components for control within a web page. The components, which are Known as ActiveX controls are roughly equivalent to Java applets. One of the main advantages of ActiveX components is that they can be re-used by many application's (referred to as component containers). Now a day Active X comes with various application like Visual Basic 6.0 etc. Here Active X allows to create web based applications called Active X executables. When we searching the web, we may click a link that requires browser to have a plug-in. Adobe acrobat reader, Real One Player are commonly used plug-ins.

It was introduced in 1996 by Microsoft as a development of its Component Object Model (COM) and Object Linking and Embedding (OLE) technologies and it is commonly used in its Windows operating system.

Programmers can write ActiveX controls in any of the following languages/environments:

- MFC
- ATL
- c++
- C#
- Borland Delphi
- Visual Basic

Java Script

It is a premier Client side scripting language used in web browsers. It is an object-oriented scripting language used to enable programmatic access to objects within both the client application and other applications. It is originally developed by Netscape for Navigator 2.0 and supported by all major browsers. Java script is used for active pages that does not contain large or complex code.

Java script provides a scripting Language and arranges for a browser to read and interpret a script in source form. Java Script can also be integrated with HTML. An HTML page can contain a java Script function that provides simple interaction with users. For example a java script function can request a user to enter information and then verify that the information is in an acceptable form before communicating with the server. A java script function can also perform an action such as playing audio file. Java Script has become more useful with HTML for performing functions like data Validation etc. One of the best example of java script code implemented in a web page is email password check. Usually while creating an email we must have password with minimum 6 characters (in yahoo mail).If we enter less then six characters as password while opening mail, then this is an error message .for avoiding server side load such type of validation checks are done on client side using java script.

Uses of Java Script in Web Pages

The primary use of Java Script is to write functions that are embedded in or included from HTML pages and interact with the Document Object Model (DOM) of the page. Some simple examples of these uses are:

Opening a new window with programmatic control over the size, position, and attributed of the new window: (e.g. whether the menus, toolbars, etc. are visible).

Validation of web form input values to make sure that they will be accepted before they are submitted to the server.

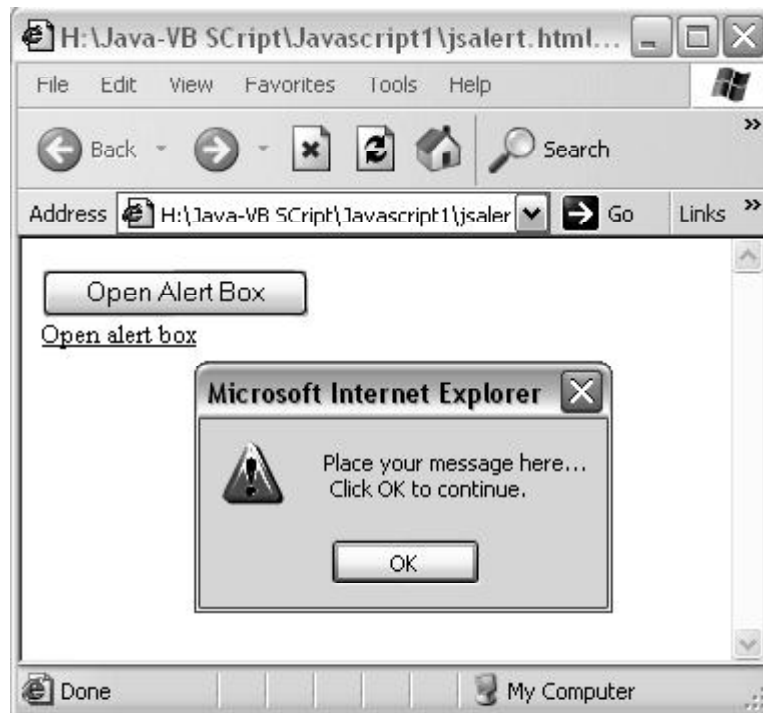
Changing images as the mouse cursor moves over them: This effect is often used to draw the user's attention to important links displayed as graphical elements.

Because JavaScript code can run locally in a user's browser (rather than on a remote server) it can respond to user actions quickly, making an application feel more responsive .Furthermore, Java script code can detect user actions which HTML alone cannot, such as individual keystrokes .Applications such as Gmail take advantages of this: much of the user-interface logic is written in java script, and Java script dispatches requests for information (such as the content of a e-mail message)on the server.

Insert here JAVA Script example

Example 1 :

```
<html>
<head>
<body bgcolor="yellow">
<form>
<input type="button" value="Open Alert Box" onclick='alert("Place your message
here...\n Click OK to continue.")'>
</form>
<p>
<a href='javascript:onClick=alert("Place your message here...\n Click OK to
continue.")'>
Open alert box</a>
</body>
</html>
```

Output of the program**Example 2 :**

```
<html>
<head>
<Script language="JavaScript">
function example(a,b)
{
    alert('You have chosen:'+a);
}
</script>
</head>
<body>
<form name="selectform">
<p><b>Click the button below:</b>
<br>
<p><input type="button" value="Click" onclick="example(1,'house')">
</form>
</body>
</html>
```

Output of the program**Example 3 :**

```

<html>
<head>
<Script language="JavaScript">
function func(s)
{
str="You have clicked the mouse cursor on the alphabet-";
str+=s;
document.form1.message.value=str;}
function func1()
{
document.form1.message.value="Place mouse cursor over any alphabet";}
</script></head>
<body bgcolor="LIMEGREEN">
<center>
<a href="" onclick='return false' onMouseOver='func("A")' onMouseOut='func1()>A</a>
<a href="" onclick='return false' onMouseOver='func("B")' onMouseOut='func1()>B</a>
<a href="" onclick='return false' onMouseOver='func("C")' onMouseOut='func1()>C</a>
<a href="" onclick='return false' onMouseOver='func("D")' onMouseOut='func1()>D</a>

```

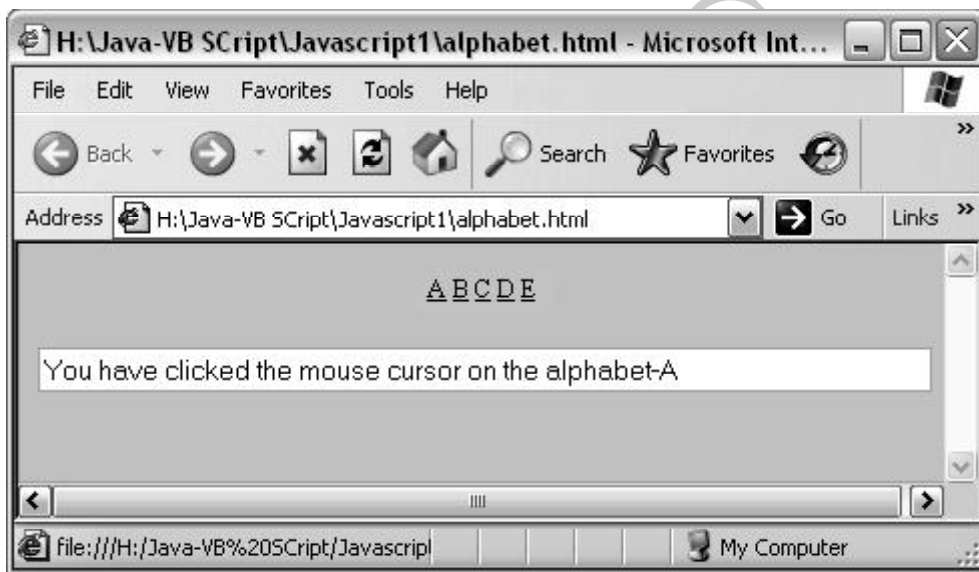


```

<a href="" onclick='return false' onMouseOver='func("E")' onMouseOut='func1()>E</a>
<br><br><br>
<form name="form1">
<input type="text" name="message" size="70" value="Place mouse over any alphabet">
</form>
</center>
</body>
</html>

```

Output of the program



Example 4 :

```

<html>
<head>
<title>A Webpage</title>
<script language="JavaScript">
function change()
{document.all.bod.style.background="green";}
</script>
</head>
<body id="bod">
<p onmousedown="change()">Click to change the background to green
</p>
</body>
</html>

```

Output of the program**Example 5 :**

```

<html>
<head>
<title>prime or composite</title></head>
<body bgcolor=lightblue>
<form name=frm1>
<p>
Enter any number:<input type="text" name="txtno">
<p>
<INPUT TYPE="BUTTON" VALUE="prime" onclick="check_prime()">
</form>
<script language="JavaScript">
function check_prime()
{
  var n,i,flag=0;
n=parseInt(document.frm1.txtno.value);
for(i=2;i<n;i++)
  {
    if (n%i==0)
    {
      flag=1;
      break;
    }
  }
}

```

```
}  
}  
if(flag==0)  
alert(n+"is prime");  
else  
alert(n+"is not prime");  
}  
</script>  
</body>  
</html>
```

Output of the program



Example 6 :

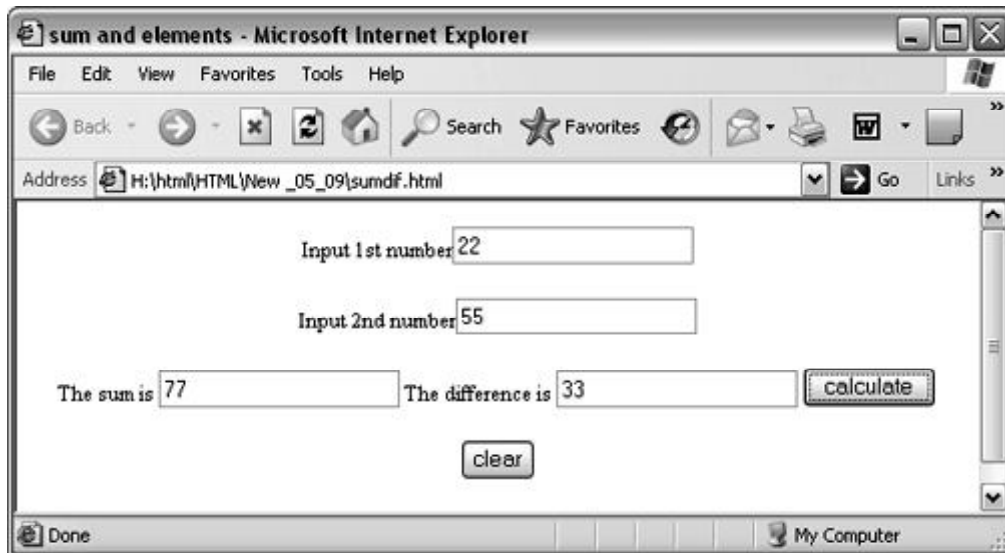
```
<html>  
<head>  
<title>sum and elements</title>  
</head>  
<script language="vbscript">  
<!--  
sub cmdchange_onClick()
```

```
dim a,b,c,d,e,f
a=cint(document.frmForm.box1.value)
b=cint(document.frmForm.box2.value)
c=a+b
if a>b then
d=a-b
else
d=b-a
end if
document.frmForm.box3.value=c
document.frmForm.box4.value=d
end sub

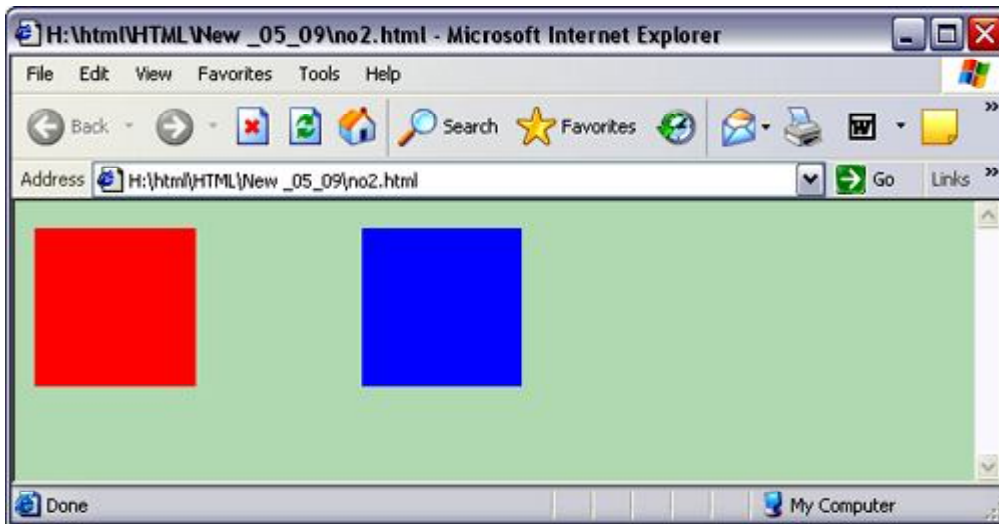
sub cmdclear_onClick()

document.frmForm.box1.value=""
document.frmForm.box2.value=""
document.frmForm.box3.value=""
document.frmForm.box4.value=""
end sub
</script>

<body>
<center>
<form name="frmForm">
Input 1st number<input type="Text" name="box1" size="20"><p>
Input 2nd number<input type="Text" name="box2" size="20"><p>
The sum is <input type="Text" name="box3" size="20"><p>
The difference is <input type="Text" name="box4" size="20"><p>
<input type="button" name="cmdchange" value="calculate"><p>
<input type="button" name="cmdclear" value="clear"><p>
</form>
</center>
</body>
</html>
```

Output of the program**Example 7 :**

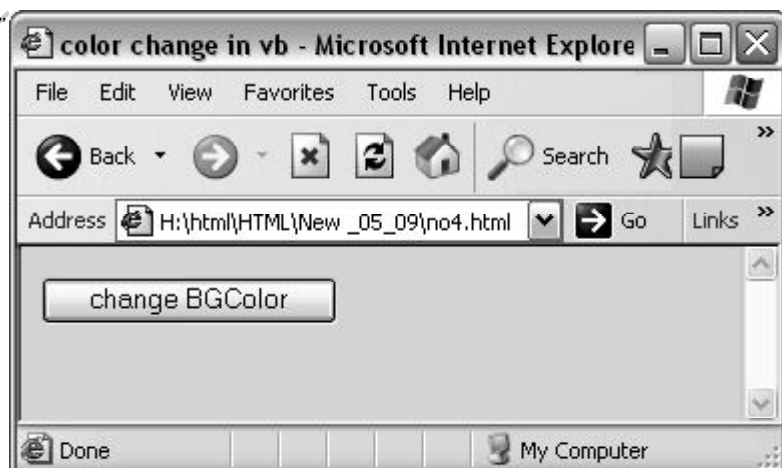
```
<html>
<head>
<script language="javascript">
function bgchange(bg)
{
  document.body.style.background=bg
}
</script>
</head>
<body>
<table width="300"height="100">
<tr>
<td onmouseover="bgchange('red')"bgcolor="red"></td>
<td onmouseover="bgchange('green')"bgcolor="green"></td>
<td onmouseover="bgchange('blue')"bgcolor="blue"></td>
</tr>
</table>
</body>
</html>
```

Output of the program**Example 8 :**

```

<html>
<head>
<title>color change in vb </title>
</head>
<body>
<form name="f1">
<input type="button" value="change BgColor" onClick="bg()">
</form>
<script language="VBScript">
sub bg()
document.bgcolor="pink"
end sub
</script>
</body>
</html>

```

Output of the program

Example 9 :

```
<html>
<head>
<title>status bar preview</title>
</head>

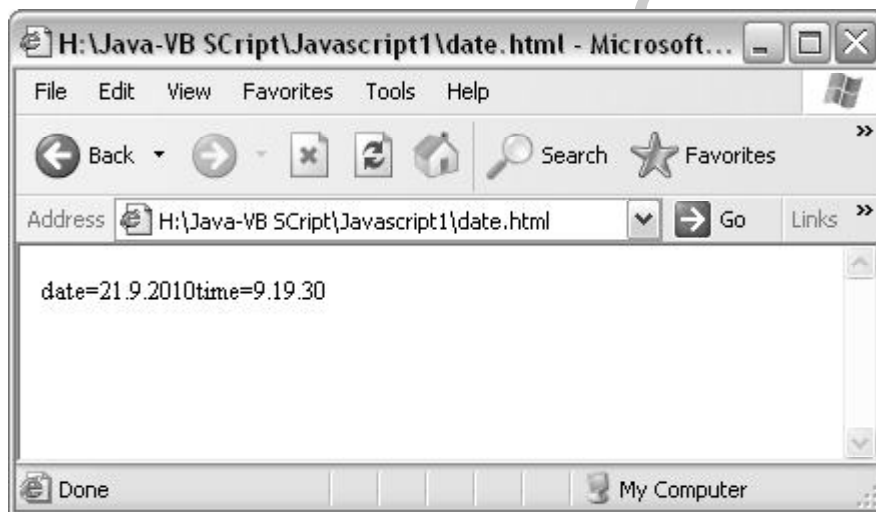
<Script language="JavaScript">
window.status="Welcome to RKMCC"
</script>
</head>
<h1>"Look at the status bar"</h1>
</html>
```

Output of the program**Example 10 :**

```
<html>
<body>
<Script language="JavaScript">
var d=new Date()
document.write("date=")
document.write(d.getDate())
document.write(".")
document.write(d.getMonth()+1)
document.write(".")
document.write(d.getFullYear())
```

```
document.write("time=")
document.write(d.getHours())
document.write(".")
document.write(d.getMinutes()+1)
document.write(".")
document.write(d.getSeconds())
</script>
</body>
</html>
```

Output of the program



VB Script

It is the light weight version of visual Basic. It is designed with to compete with java script in web browsers. By using VB script you can design web document. VB script is not so useful as visual basic language. Because visual Basic can be widely used for designing application software. VB script prevents your downloaded file from virus. Thus provide security and it is interpreted rather than compiling.

VBScript began as parts of the Microsoft Windows Script Technologies, which were launched in 1996, initially targeted at web developers.

VBScript is an interpreted script language and designed for interpretation by Web browsers. VBScript can be compared to other script languages that can be used on the Web, including:

- Netscape's JavaScript
- Sun Microsystem's Tcl
- The UNIX-derived Perl
- IBM's Rexx

In general, script languages are easier and faster to code in than the more structured, compiled languages such as C and C++ and are ideal for smaller programs of limited capability or that can reuse and tie together existing compiled programs.

Uses of VB Script

- When employed in Microsoft Internet Explorer, VBScript is similar in function to Java Script, as a language to write executable functions that are embedded in or included from HTML pages and interact with the Document Object Model (DOM) of the page, to perform tasks not possible in HTML alone. Other web browsers such as Firefox , and Opera do not have built-in support for VBScript
- VBScript Can also be used to create applications that run directly on a person's computer running Microsoft Windows.
- Another employment of VBScript is the HTML Application, or HTA (file extension .hta). In an HTA, HTML is used for the user interface, and a scripting language such as VBScript is used for the program logic.

VB Script example

Example 1 :

```
<HTML>
<head>
<title>Test Button Events</title>
</head>
<body>
<form name="form1">
<input type="button" name="button1" value="click">
<script for="button1" event="onClick" language="VBScript">
Msgbox "Button Pressed"
</script>
</form>
</body>
</html>
```

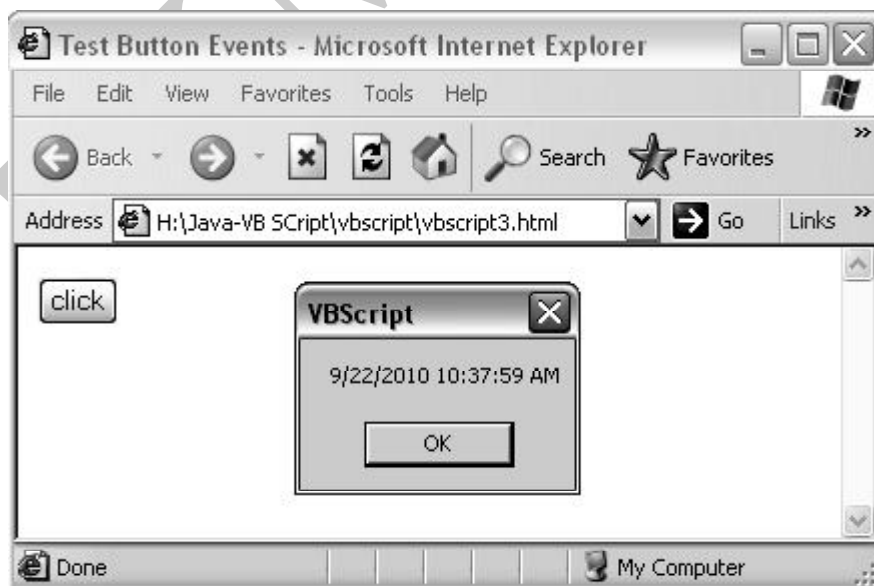


Output of the program

Example 2 :

```
<HTML>
<head>
<title>Test Button Events</title>
</head>
<body>
<form name="form1">
<input type="button" name="button1" value="click">
<script language="VBScript">
<!--
Sub button1_OnClick
Dim myDate
myDate=#2/13/95#
if myDate<Now Then MyDate=Now
Msgbox MyDate
End Sub
-->

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

Output of the program

Example 3 :

```
<HTML>
<head>
<title>Test Button Events</title>
</head>
<body>
<form name="form1">
<input type="button" name="button1" value="Fact" onclick="show()">

<script language="VBScript">
<!--

Sub show()
n=InputBox("Please enter a No.")
MsgBox "The factorial is " & fact(n)
End Sub

Function fact(n)
  Dim i
  if n<=0 Then
  fact=0
  Exit Function
  End If
  fact=1
  for i=2 To n
  fact=fact*i
  Next
End Function

-->

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

Output of the program

Example 4

```
<HTML>
<head>
<title>Forms and Elements</title>
</head>

<script language="VBScript">

<!--
Sub cmdChange_OnClick
Dim a,b,c,d,e,f
a=cint(document.frmForm.box1.Value)
b=cint(document.frmForm.box2.Value)
c=a+b
if a>b then
    d=a-b
    else
    d=b-a
end if
e=a*b
f=a/b
document.frmForm.box3.Value=c
document.frmForm.box4.Value=d
document.frmForm.box5.Value=e
document.frmForm.box6.Value=f
end sub

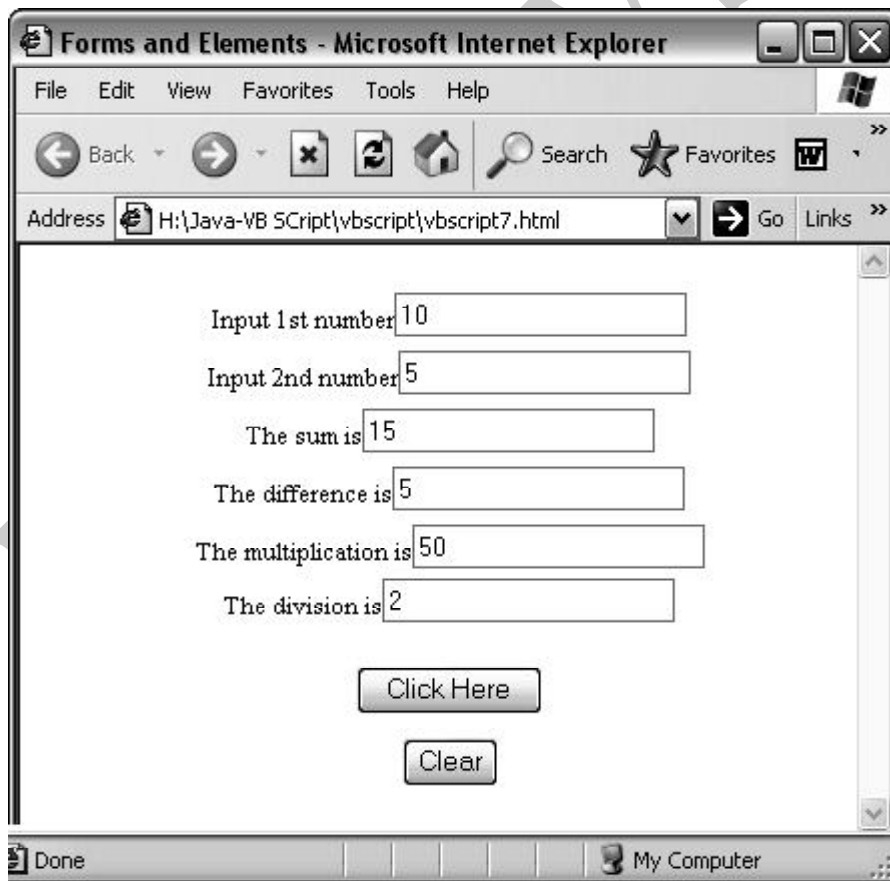
Sub cmdClear_OnClick
document.frmForm.box1.Value=""
document.frmForm.box2.Value=""
document.frmForm.box3.Value=""
document.frmForm.box4.Value=""
document.frmForm.box5.Value=""
document.frmForm.box6.Value=""
end sub
-->
</script>
<body>
<center>

<form name="frmForm">

Input 1st number<input type="Text" name="box1" size="20"><p>
```

```
Input 2nd number<input type="Text" name="box2" size="20"><p>
The sum is<input type="Text" name="box3" size="20"><p>
The difference is<input type="Text" name="box4" size="20"><p>
The multiplication is<input type="Text" name="box5" size="20"><p>
The division is<input type="Text" name="box6" size="20"><p>
<input type="button" name="cmdChange" Value="Click Here"><p>
<input type="button" name="cmdClear" Value="Clear"><p>
</form>
</center>
</body>
</html>
```

Output of the program



Example 5 :

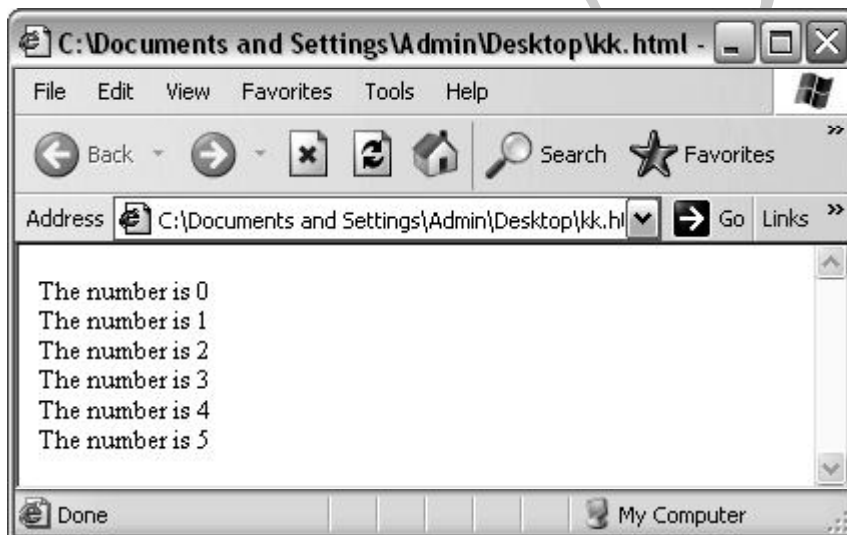
```

<html>
<body>

<script type="text/vbscript">
For i = 0 To 5
document.write("The number is " & i & "<br />")
Next
</script>

</body>
</html>

```

Output of the program**Example 6 :**

```

<html>
<body>
<script type="text/vbscript">
document.write("<h1>Hello World!</h1>")
</script>

</body>
</html>

```

Output of the program

Example 7 :

```

<html>
<body>

<script type="text/vbscript">
Dim famname(5)
famname(0)="Jan Egil"
famname(1)="Tove"
famname(2)="Hege"
famname(3)="Stale"
famname(4)="Kai Jim"
famname(5)="Borge"
For i=0 To 5
    document.write(famname(i) & "<br />")
Next
</script>

</body>
</html>

```

Output of the program**Example 8 :**

```

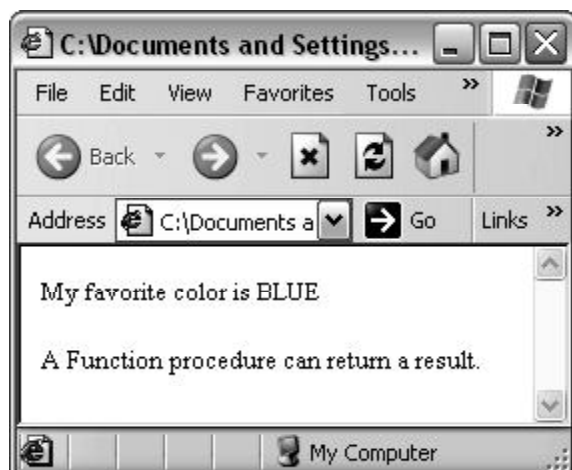
<html>

<head>
<script type="text/vbscript">
Function myFunction()
    myFunction = "BLUE"
End Function
</script>
</head>

<body>
<script type="text/vbscript">
document.write("My favorite color is
" & myFunction())
</script>
<p>A Function procedure can return a
result.</p>
</body>

</html>

```

Output of the program

Example 9 :

```

<html>
<head>
<script type="text/vbscript">
Sub mySub()
    MsgBox("This is a Sub procedure")
End Sub
</script>
</head>
<body>
<script type="text/vbscript">
Call mySub()
</script>
<p>A Sub procedure does not return a
result.</p>
</body>
</html>

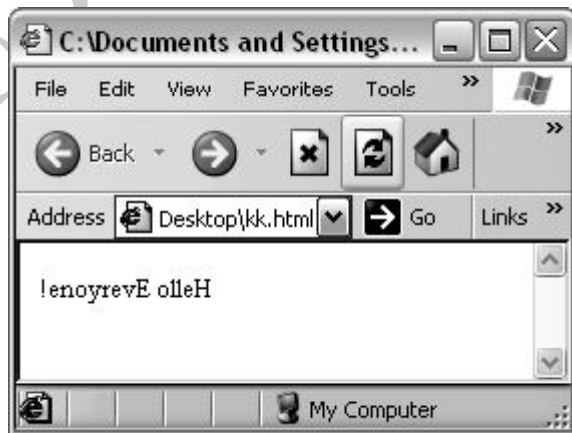
```

Output of the program**Example 10 :**

```

<html>
<body>
<script type="text/vbscript">
sometext = "Hello Everyone!"
document.write(StrReverse(sometext))
</script>
</body>
</html>

```

Output of the program**Example 11 :**

```

<html>
<head>
<script type="text/vbscript">
Function greeting()
i=hour(time)
If i = 10 Then
    document.write("Just started...!")

```



```
ElseIf i = 11 Then
    document.write("Hungry!")
ElseIf i = 12 Then
    document.write("Ah, lunch-time!")
ElseIf i = 16 Then
    document.write("Time to go home!")
Else
    document.write("Unknown")
End If
End Function
</script>
</head>

<body onload="greeting()">
</body>
</html>
```

Output of the program



Server Side Technologies

The web server handles the server side of communication medium. It response to various http request made to it. The web server is the combination of both hardware and software. The major issue with hardware is capability of handling memory and various input/output requirements. Whereas web server is closely related to various performance like security etc. Some important server side technologies are as given below

Common Gateway Interface (CGI)

CGI is a widely used technology for building dynamic web documents. Originally developed by national center for super computer applications (NCSA). The CGI standards specify how a server interacts with an application program that implements a dynamic document. The application is called a CGI program. CGI doesn't specify a particular programming language. Instead, CGI standards permit a programmer to choose an appropriate language for each dynamic document.

Output from a CGI program is not restricted to HTML. The standard permits CGI applications to generate arbitrary document types for ex. A CGI program can generate plain text or a digital image. To distinguish among various document types, the standard allows a CGI program to place a header on it's output. The header consist of text that describes the document type.

After it runs a CGI program, a server examines the header before returning the document to the browser that issued the request. Thus, a CGI program can use the header to communicate with the server when necessary.

Active Server Pages (ASP)

ASP is a server side dynamic content technology that implements a scripting host like visual basic or Jscript as an ISAPI filter DLL. ASP, also known as Classic ASP or ASP Classic, was Microsoft's first server-side script engine for dynamically-generated web pages.

An Active Server Page (ASP) is an HTML page that includes one or more scripts (small embedded programs) that are processed on a Microsoft Web server before the page is sent to the user. An ASP is somewhat similar to a server-side include or a common gateway interface (CGI) application in that all involve programs that run on the server, usually tailoring a page for the user. Typically, the script in the Web page at the server uses input received as the result of the user's request for the page to access data from a database and then builds or customizes the page on the fly before sending it to the requestor.

Pearl Hypertext Preprocessor (PHP)

PHP is a dynamic web page technology that uses the pearl programming language. Originally it is called pearl helper pages. Whenever a PHP page is requested the web server invokes the PHP preprocessor to run a script usually written in pearl programming and we get the final output of the page.

PHP is a scripting language originally designed for producing dynamic web pages. It has evolved to include a command line interface capability and can be used in standalone graphical applications. PHP is an HTML-embedded scripting language. Much of its syntax is borrowed from the programming languages C, Java and Perl, with a couple of unique PHP-specific features thrown in. The goal of the language is to allow web developers to write dynamically generated pages quickly. While PHP was originally created by Rasmus Lerdorf in 1995, the main implementation of PHP is now produced by the PHP Group and serves as the *de facto* standard for PHP as there is no formal specification. PHP is free software released under the PHP License, however it is incompatible with the GNU General Public License (GPL), due to restrictions on the usage of the term. PHP is a widely-used general-purpose scripting language that is especially suited for web development and can be embedded into HTML. It generally runs on a web server, taking PHP code as its input and creating web pages as output. It can be deployed on most web servers and on almost every operating system and platform free of charge.

JAVA

It is a simple platform-independent object-oriented programming language used to create Dynamic web pages. It is originally developed by James Gosling at Sun Microsystems and released in 1995 as a core component of Sun Microsystems' Java platform. The language derives much of its syntax from C and C++ but has a simpler object model and fewer low-level facilities. Java applications are typically compiled to bytecode (class file) that can run on any Java Virtual Machine (JVM) regardless of computer architecture. Sun Microsystems released the first public implementation as Java 1.0 in 1995. It promised "Write Once, Run Anywhere" (WORA), providing no-cost run-times on popular platforms. Fairly secure and featuring configurable security, it allowed network- and file-access restrictions. Major web browsers soon incorporated the ability to run Java *applets* within web pages, and Java quickly became popular. Java is compiled language means a java program will run using a compiler.

Microsoft Front Page

It is a Microsoft tool used for developing web pages. Front page is a package that enables non-programmers to develop professional quality web sites. You can quickly create websites by using the wizards & template that are provided in front page. FrontPage provides the features, flexibility, and

functionality to help you build better Web sites. It includes the professional design, authoring, data, and publishing tools needed to create dynamic and sophisticated Web sites. FrontPage advances your Web development in three key areas.

Designing: Use enhanced design tools to produce better looking Web sites. New layout and graphics tools make it easier to design exactly the site you want

Coding: Use design tools to generate better code, or expand your code skills. Use built-in scripting tools for interactive results and with professional coding tools, you can write code faster, more efficiently, and with greater accuracy.

Extending: Connect with people and information in new ways by building Extensible Markup Language (XML) data-driven Web sites using the first commercially available, completely WYSIWYG (“what you see is what you get”) Extensible Stylesheet Language Transformations (XSLT) editor. The enhanced publishing features and options help you get your Web pages online more quickly.

QUESTIONS

MULTIPLE CHOICE

1. The term CGI script is used as a generic term for
 - (a) Come and Get It scripts
 - (b) Programs that help you create HTML documents
 - (c) Programs that allow you to obtain information from WWW servers
 - (d) Programs that process information that comes from focus
2. Which of the following technologies doesn't help in creating dynamic Web Pages?
 - (a) ASP
 - (b) JAVA
 - (c) PERL
 - (d) HTML
3. What is SSL?
 - (a) The IP Protocol to dynamically assign IP addresses
 - (b) It is a Web authoring tool
 - (c) It allows secure connection
 - (d) It is a scripting language
4. World Wide Web pages can be described as multimedia pages. This means that pages may contain.
 - (a) text and pictures only
 - (b) text, pictures, sound
 - (c) video clips, sound, text, pictures
 - (d) none of these
5. Find the only statement in the following that is correct.
 - (a) JavaScript interpreter processes programs written in Java.
 - (b) JavaScript interpreter processes the commands in a script written in JavaScript
 - (c) Java and JavaScript are almost similar.
 - (d) JavaScript cannot be embedded in HTML

TRUE OR FALSE

1. In copyright only expressions are protected, not facts or ideas
2. Asynchronous communication is slower than synchronous communication.
3. Download means to copy a file from your computer to another.
4. The term “thumbnail”, in relation to a Web site on the Internet, refers to small version of a larger graphical image that you usually can click to display the full-sized image.
5. JavaScript has no facilities for communicating between the Web browser and the HTTP server.

MATCH THE COLUMN

- | A | B |
|--|----------------|
| 1. CGI programs run on | a. ASP |
| 2. To shrink store data in less space | b. Server Side |
| 3. Basic unit of an on-screen image | c. Archie |
| 4. A small program that can be embedded in another application | d. Servlet |
| 5. Important benefit being independent of the Web Browser | e. Client Side |
| | f. Compress |
| | g. applet |
| | h. Pixel |

FILL IN THE BLANKS

- | | | | |
|---------------|----------------------|-----------------|-----------|
| a. Attachment | b. Dynamic Web Pages | c. Static Pages | d. Archie |
| e. Plugin | f. CGI | g. Java | h. C++ |
| i. PKZIP | | | |
1. Real Player and Adobe Acrobat are browser _____
 2. PHP is a scripting language to create _____
 3. A (n) _____ program is used to archive and compress files.
 4. One special kind of link that makes it easier for people visiting the web site to send you email is called a(n) _____ link.
 5. _____ is a simple object oriented language which is widely used in web development

SUBJECTIVE

1. Differentiate Client side and Server Side Technologies?
2. Write Short Notes on
(a) ASP (b) PHP (c) Java Script (d) VB Script

Answer

- | | | | | | | |
|---------------------------|---|--------|--------|--------|--------|--------|
| Multiple Choice | : | 1. (a) | 2. (d) | 3. (c) | 4. (c) | 5. (b) |
| True or False | : | 1. (T) | 2. (F) | 3. (F) | 4. (T) | 5. (F) |
| Match the Column | : | 1. (b) | 2. (f) | 3. (h) | 4. (g) | 5. (d) |
| Fill in the Blanks | : | 1. (e) | 2. (b) | 3. (i) | 4. (a) | 5. (g) |