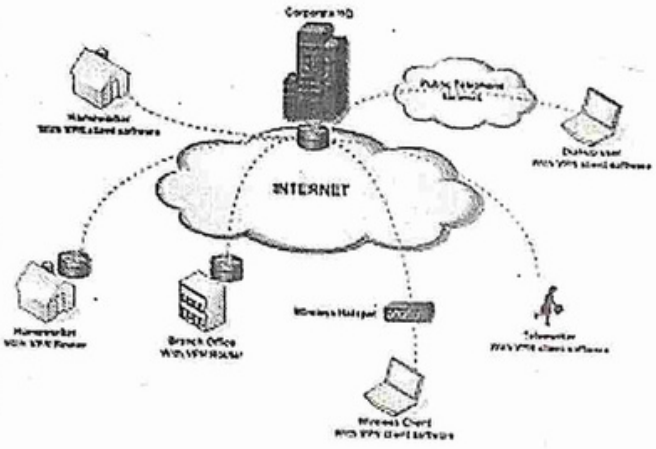
Unit-I

Chapter 1

Internet and Word Wide Web

1. Introduction of Internet

The Internet is a network of networks that connects computers all over the world. Another definition of the Internet is all the computers that pass packets to each other by using Internet pr col (IP). Computers connected to the Internet communicate by using the Internet Protocol (IP), which slices information into packets that is chunks of data to be transmitted separately and routes them to their destination.



The Internet has its roots in the U.S. military, which funded a network in 1969, called the ARPANET, to connect the computers at some of the colleges and universities where military research took place. As more and more computers connected, the ARPANET was replaced by the NSFNET, which was run by the National Science Foundation. By the late 1980s, the Internet had shed its military and research heritage and was available for use by the general public. Internet service providers (ISPs) began offering dial-up Internet accounts for a monthly fee, giving users access to e-mail, discussion groups, and file transfer. In 1989, the World Wide Web (an Internet-based system of interlinked pages of information) was born, and in the early 1990s, the combination of e-mail and Web. Each computer on the Internet is called a host computer or host. The computers on the Internet-and there are now millions of Internet host which are connected by cables, phone lines, and satellite connections.

2. Servers, Clients and Ports:

Many of the host computers on the Internet offer services to other computers on the Internet. Computers that provide services for other computers to use are called servers. The software run by server computers is to provide services is called server software.

On the other hand many of the computers on the Internet use servers to get information. For example, when your computer dials into an Internet account, your e-mail program downloads your

incoming messages from your ISP's mail server. Programs that ask servers for services are called clients. Here are some types of servers and clients that you may encounter.

For more information about what each of these services is used for:

- Mail servers: Handle incoming and outgoing mail. Specifically, Post Office Protocol (POP) servers (or POP3 servers) store incoming mail, while Simple Mail Transfer Protocol (SMTP) servers relay outgoing mail. Mail clients get incoming messages from, and send outgoing messages to, a mail server, and enable you to read, write, save, and print messages.
- Web servers: Store Web pages and transmits them in response to requests from Web clients, which are usually called browsers.
- FTP servers: Store files that you can transfer to or from your computer if you have an FTP client.

3. Numeric Computer (IP) Addresses:

Each host computer on the Internet has a unique number, called its IP address. IP addresses identify the host computers, so that packets of information reach the correct computer. IP addresses are in the format xxx.xxx.xxx.xxx, where each xxx is a number from 0 to 255. You may have to type IP addresses when you configure your computer for connection to the Internet.

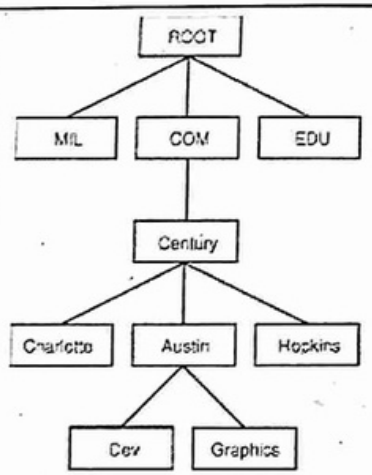
If you connect to the Internet by using a dial-up account, your ISP (Internet Service Provider) assigns your computer an IP address each time that you connect. This system enables your ISP to get along with fewer IP addresses, because it needs only enough IP addresses for the number of users who are connected simultaneously.

4. Domain and Host Names:

As we know human memory works less on number as compares to words. So that people don't have to remember strings of numbers that is numerical IP address, host computers also have names. The name of each host computer consists of a series of words separated by dots. The last part of the domain name is called the top-level domain (TLD), or zone, and is either two or three letters long. The three-letter zones are used mainly in the U.S., and indicate the type of organization that owns the domain. Show in figure.

The last two parts of a host computer name constitute the domain. The second-to-last part of the name (the second-level domain) is chosen by the organization that owns the computer, and is usually some variant of the organization's name.

For example, computers at the school have the domain myschool.gov. Computers at of University have names that end with myuniversity.edu etc.



Domain Structure of the Internet

Domain	Example	Description
com	ibm.com	Commercial organizations, as well as individuals
net	att.net	Internet service providers and other network-related companies
org	npr.org	Noncommercial (often nonprofit) organizations
gov	senate.gov	U.S. government agencies
mil	army.mil	U.S. military
edu	yale.edu	Educational domains

5. Internet Services:

The Internet provides a mechanism for millions of computers to communicate. Many services are available over the Internet, and the following are the most popular ones:

- E-mail: Enables people to send private messages, as well as files, to one or more other people.
- Mailing lists: Enables groups of people to conduct group conversations by e-mail, and provide a way of distributing newsletters by e-mail
- Usenet newsgroups: Enable ongoing group discussions to occur, using a system of news servers to store messages to any of over 10,000 newsgroups that are identified by topic.
- Online chat: Provides a way for real-time online chatting to occur, whereby participants read each other's messages within seconds of when they are sent.
- Voice and video conferencing: Enable two or more people to hear and see each other, share a whiteboard, and share other applications.
- The World Wide Web: A distributed system of interlinked pages that include text, pictures, sound, and other information.
- File transfer: People may download files from public file servers, including a wide variety of programs.

6. Introduction of Word Wide Web:

The World Wide Web is a collection of millions of files stored on thousands of computers (called Web servers) all over the world. These files represent text documents, pictures, video, sounds, programs, interactive environments, and just about any other kind of information that has even been recorded in computer files. The Web is probably the largest and most diverse collection of information ever assembled.

- WWW is a World Wide "web" of hypertext linked pages with vast database resources.
- World Wide Web system of pages of electronic information linked together across the internet. The web allows us to communicate in rich way, by displaying text, color, photos, sounds and even videos.
- World Wide Web consists of large number of web sites that contains a number of webpages maintained by the various web servers around the world. Web sites are collection of web pages.
- A web page is a HTML document.

6.1 Origin of the WWW

The World Wide Web ("WWW" or simply the "Web") is a global information medium which users can read and write via computers connected to the Internet. The term is often mistakenly used as a

synonym for the Internet itself, but the Web is a service that operates over the Internet, just as e-mail also does.

In 1980, Tim Berners-Lee, contractor at the European Organization for Nuclear Research (CERN), built ENQUIRE, as a personal database of people and software models, but also as a way to play with hypertext, each new page of information in ENQUIRE had to be linked to an existing page.

In 1984 Berners-Lee returned to CERN, and considered its problems of information management physicists from around the world needed to share data, yet they lacked common machines and any shared presentation software.

In keeping with its birth at CERN, early adopters of the World Wide Web were primarily university-based scientific departments or physics laboratories. By January 1993 there were fifty Web servers across the world.

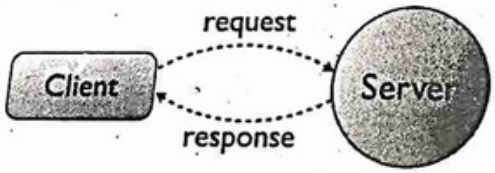
By the end of 1994, the total number of websites was still minute compared to present figures, but quite a number of notable websiteswere already active.

By 1996 it World Wide Web became much popular and people saw the possibilities of free publishing and instant worldwide information, increasing familiarity with two-way communication over the "Web" led to the possibility of direct Web-based commerce (e-commerce) and instantaneous group communications worldwide.

6.2 Web elements: Following are the hardware, software, and protocols that make up the Web.

6.2.1 Client/Server

Information is very dynamic and keep changing and re-changing all the time. A change in information requires the content of books, manuals, and so on, to change. This will in turn require complete reprinting of the books and manuals. Reprinting always results in time and cost overheads. Reprinting also results in outdated books and manuals being held in inventory, unable to use.



To resolve this problem, information needs to be stored in such a manner that whenever the information changes can be incorporated with least cost and time. A tried and tested method that allows this is to store the information in form computer based files. These files could be stored at the central location. Once stored at central location the files can be accessed when required for reference.

Since these files are stored at central location on computers together. Their access will also require a computer and some sort of network that connects these two computers together.

Thus to provide information to the users:

- *Files holding information must be created.*
- *These files must be stored at a central location on a computer.*
- *When required the users should be allowed to access these to access these files using their desktop computers.*
- *A Network link must be established between the desktop computers and the computers serving*

information at a central location.

This introduces CLIENT/SERVER terminology wherein

- The desktop computer requesting for information is termed as the client.
- The computer serving information from a central location is termed as server.

A Web server is a computer connected to the Internet that runs a program and takes responsibility for storing, retrieving, and distributing some of the Web's files. A Web client or Web browser is a computer that requests files from the Web. (The word client generally refers to a program that causes a computer to request files-a Web browser, for example.) When a client computer wants access to one of the files on the Web, the network directs the request to the Web server that is responsible for that file. The server then retrieves the file from its storage media and sends it to the client computer that requested it.

6.2.2 Web Pages and Web sites:

Files that travel across the largest network in the world, the internet and carry information from a Server to client that requested them are called Web pages. Web pages are all the same;they are files on Web servers and are denoted by URLs. Similarly, all Web sites are interlinked groups of Web pages that have certain similarities in their URLs.

Home Pages

A home page is the front door of a Web site. The home page is just one of the pages on a Web site. The home page introduces the rest of the Web site and provides links that lead to the other pages on the site. Home page and the Web site that it introduces are used interchangeably. When we says "My Web site is at www.mysite.com the URL to which we refer is the URL of the site's home page

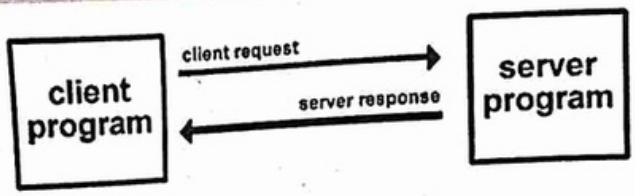
6.2.3 Web Server

Web pages are created using HTML syntax. The organization of Web pages into directories and files stored on hard disk of central computer is called web site creation. Computer which store web pages in the form of directories and files and provide these files to be read are called servers. They act like service providers that need for information. These server computers runs special software called Web Server software that allow:

- Web site management.
- Accepts the client request for information.
- Response to client's request by providing the page with the requires information.

Examples of web server software

- Tomcat:-A web server software used for advance java website. This software is made by Apache foundation
- XAMPP:-A web server software used for PHP website. This software is also made by Apache foundation
- IIS:- A web server software used for ASP dot Net website. This software is made by Microsoft.



6.2.4 Web Browser

A Web browser is a program that your computer runs to communicate with Web servers on the Internet, which enables it to download and display the Web pages that you request. At a minimum, a Web browser must understand HTML and display text.

To access information stored in form of web pages, users must connect to web server. Once connected an interface that displays the contents of web page is required.

Web browser are interpreter of HTML language. As we disused earlier that web pages are HTML document send by server on client request and after reaching this document to client side web browser interprets this HTML document in Graphical interface.

So all web browser software are interpreter of HTML language.

Computers that offer the facility to read information stored in web pages are called Web Clients.

Web Clients run special software called a browser that allows them to:

1. Connect to an appropriate server.
2. Query the server for the information to be read.
3. Provided and interface to read the information returned by the server.

Web Browsers are software installed on your PC. To access the Web you need a web browsers, such as Netscape Navigator, Microsoft Internet Explorer or Mozilla Firefox.

There are four leading web browsers: Explorer, Firefox, Netscape and Safari but there are many others browsers available. Now we will see these browsers in bit more detail.

While developing a site, we should try to make it compatible to as many browsers as possible. Especially site should be compatible to major browsers like Explorer, Firefox, Netscape, Opera etc.

- Internet Explorer (IE) is a product from software giant Microsoft. This is the most commonly used browser in the world. This was introduced in 1995 along with Windows 95 launch and it has passed Netscape popularity in 1998
- Netscape is one of the original Web browsers. This is what Microsoft designed Internet Explorer to compete against. Netscape and IE comprise the major portion of the browser market. Netscape was introduced in 1994.
- Mozrilla is an open-source Web browser, designed for standards compliance, performance and portability. The development and testing of the browser is coordinated by providing discussion forums, software engineering tools, releases and bug tracking. Browsers based on Mozrilla code is the second largest browser family on the Internet today, representing about 30% of the Internet community.

- Safari Safari is a web browser developed by Apple Inc. and included in Mac OS X. It was first released as a public beta in January 2003. Safari has very good support for latest technologies like XHTML, CSS2 etc.
- Opera is smaller and faster than most other browsers, yet it is full- featured. Fast, user-friendly, with keyboard interface, multiple windows, zoom functions, and more. Java and non Java-enabled versions available.Ideal for newcomers to the Internet, school children, handicap and as a front-end for CD-ROM and kiosks.
- Lynx is a fully-featured World Wide Web browser for users on Unix, VMS, and other platforms running cursor-addressable, character-cell terminals or emulators.

6.2.5 Default Browser:

When the icon represents a Web page, a local HTML file, or even an image file in a format such as JPEG that Web browsers display well, the operating system runs a Web browser to display the file. Because your click does not specify a browser, the operating system must have a default browser listed in its settings. The default browser doesn't have to be the only Web browser installed on your system, and you may use another Web browser to open Web pages, by choosing it specifically. But the default browser is used whenever you specify a Web page without specifying a browser.

Internet Explorer is the default browser in newly installed Windows 98 systems, and in most new home computers of any kind. When you install a new browser, the installation program usually asks whether this browser should be the default. It may even set up the new browser as the default without asking. Whenever you run IE or Navigator, it checks whether it is the default browser, and if it isn't, it asks whether you want to make it the default browser

7. BROWSER'S HOME PAGE AND START PAGE:

Your browser's start page is the Web page that the browser loads when you open the browser without requesting a specific page. Your browser's start and/or home page can be a file on your own computer. This gives you complete control over the content, and provides very fast browser startup. A simple page with links to your favorite Web sites may be more useful to you than any outside page.

Many browsers have a Home button on their toolbars, and this has yet another meaning. In a Web browser, "Home" is that place where we return when we get lost or tired of browsing-our browser home page comes. It is a place or the page where we come at starting, before rendering on any other web site or venturing out again.

A good home page for our browser is one that loads quickly, contains information that we want to check regularly such as headlines in your area of interest or a local weather forecast, and links to a wide variety of other pages so that you can quickly go where you want. By default, Internet Explorer's Home button points to Microsoft's portal site http://home.microsoft.com, and Navigator's Home button points to Netscape's Net Center portal http://home.netscape.com.

7.1 Viewing Pages with a Browser

The purpose of a Web browser is to display Web pages, which may either arrive over the Internet or already be on your computer system. You can use your Web browser to view files of an common Web format such as HTML,VRML, JPEG, and so on) that are stored on your hard drive elsewhere on your system.

7.2 Steps Viewing Pages on the Web:

You can open a Web page by using any of the following methods:

- Enter web site's URL into the Address or Location box of a Web browser. You can type the URL or cut-and-paste it. All browses have an auto-complete feature that the browser tries to guess what URL you are typing and finishes it for you, by guessing similar URLs that you've visited before.
- Select web site from the list that drops down from the Address or Location box. All browsers are remembering the last URLs that you have typed into the Address or Location box.
- Link to web site from a mail message or newsgroup article. Many e-mail and news reading programs are able to notice when a URL appears in a mail message or newsgroup article. Clicking the URL opens a Web browser, which displays the Web page.
- Select web site from the Bookmarks list, the History folder, or open an Internet shortcut.

8. URLs and Transfer Protocols:

8.1 URL

Each file on the Internet has an address, called a Uniform Resource Locator (URL). For example URL for any college web site is http://mycollege.in.

The first part of a URL specifies the transfer protocol that means method that a computer uses to access this file. Protocols are nothing. just some rules and regulation to communicate through internet and to access data from internet.

Most Web pages are accessed with the Hypertext Transfer Protocol (http), the protocol of Web communication. therefore Web addresses typically begin with http or its secure version, https or the Secure Hypertext Transfer Protocols.

The http:// at the beginning of a Web page's URL is so common that it often goes without saying. If you simply type mycollege.ininto the address window of the browser fills in the http:// for itself. In common usage, the http:// at the beginning of a URL often is left out.

The next part of the address denotes the host name of the Web server. The URL doesn't tell you where the Web server is actually located.

The domain name system (DNS) routes your Web page request to the Web server regardless of its physical location. As users, you don't need to deal with this level of detail, and that's a good thing.

Some URLs contain information following the host name of the Web server. This information specifies exactly which file you want to see, and what directory it is stored in. If the directory name and filename aren't specified, you get the default Web page for that Web server. For example, the URL http

/mycollege.in takes you to the home page. The URL http://mycollege.in/addmissiondisplays the admission page of college.

8.2 Protocols:

Set of rules and regulation to communicate with internet or to access file from internet is known as protocols. Now these days the common protocol for application communication is HTTP, Hypertext Text Transfer Protocol. It is a connection less protocol.

TCP/IP, Transmission Control protocol /Internet Protocol is a low level connection oriented protocol. It provides end to end connectivity specifying how data should be formatted, addressed, transmitted routed and received at destination. It provides process-to-process communication.

FTP, a File Transfer Protocol used to transfer files from one host to another host over network. It often used to upload web pages and other document from a private development machine to public web hosting.

9. Search Engine:

Search engines are programs that search documents for specified keywords and returns a list of the documents where the keywords were found. A search engine is really a general class of programs; however, the term is often used to specifically describe systems like Google, Bing and Yahoo! Search that enable users to search for documents on the World Wide Web.

So a web search engine is a software system that is designed to search for information on the World Wide Web. The search results are generally presented in a line of results often referred to as search engine results pages (SERPs). The information may be a mix of web pages, images, and other types of files. Some search engines also mine data available in databases or open directories.

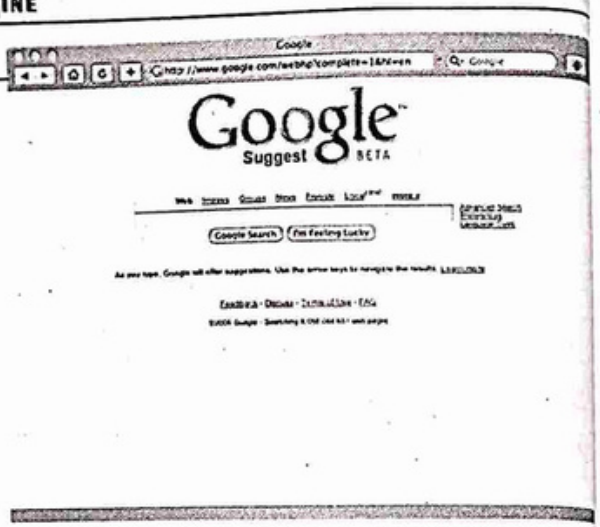
In other words a search engine is a database application that retrieves information, based on words or a phrase that you enter. A Web search engine employs a search agent (also called a spider) that goes out and looks for information on Web pages. This information is indexed and stored in a huge database. When you conduct a search, the search engine looks through its database to find entries that match the information you entered. Then, the search engine presents to you a list of the Web pages that it determines are most relevant to your search criteria.

Dozens of search engines are available on the Web. Each search engine gathers information a little differently. Some engines scan the entire Web page, others focus on the page title, while still others read keywords and information included in META tags, tags that include keywords about the page, on the Web page. That is why you can get different results from different search engines.

While the way each search engine gathers information is unique, all search engines share a common purpose-to find quickly the information that you're looking for.

DIFFERENT TYPES OF SEARCH ENGINE

9.1 Google Search Engine



Google Search, commonly referred to as Google Web Search or just Google, is a web search engine owned by Google Inc. It is the most-used search engine on the World Wide Web, handling more than three billion searches each day.

The order of search on Google's search-results pages is based, in part, on a priority rank called a "PageRank". Google Search provides many different options for customized search, using Boolean operators such as: exclusion ("-xx"), alternatives ("xx OR yy OR zz"), and wildcards. The same and other options can be specified in a different way on an Advanced Search page.

The main purpose of Google Search is to hunt for text in publicly accessible documents offered by web servers, as opposed to other data, such as image or database search. It was originally developed by Larry Page and Sergey Brin in 1997.

Google Search provides several features beyond searching for words. There are special features for numbers, dates, and some specific forms, including ranges, prices, temperatures, money and measurement unit conversions, calculations, package tracking, patents, area codes, and language translation.

In June 2011 Google introduced "Google Voice Search" to search for a spoken, rather than typed, word. In May 2012 Google introduced a Knowledge Graph semantic search feature in the U.S.

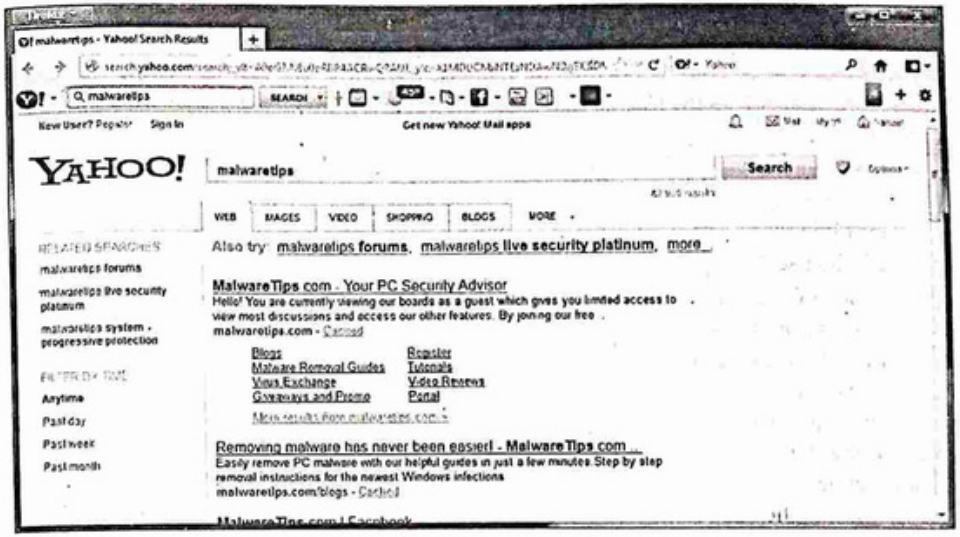
Analysis of the frequency of search terms may indicate economic, social and health trends. Data about the frequency of use of search terms on Google have been shown to correlate with outbreaks and unemployment levels, and provide the information faster than traditional reporting methods and surveys.

9.2 Yahoo:

Originally, "Yahoo Search" referred to a Yahoo-provided interface that sent queries to a searchable index of pages supplemented with its directory of sites. The results were presented to the user under the Yahoo brand. Originally, none of the actual web crawling and storage/retrieval of data was done by Yahoo itself. In 2001, the searchable index was powered by Inktomi and later was poweredby Google until 2004, when Yahoo Search became independent.

On July 29, 2009, Microsoft and Yahoo announced a deal in which Bing would power Yahoo Search.

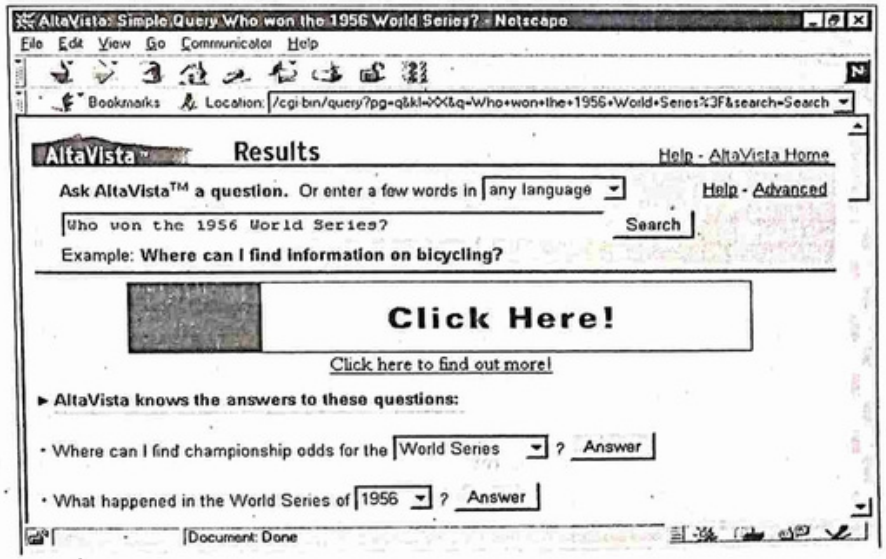
Yahoo Search is a web search engine owned by Yahoo! Inc., and was, as of January 2014, the second largest search directory on the web by query volume, at 5.45%, after its competitor Google at 71.36%.



9.3 AltaVista

AltaVista is also available from the Yahoo! home page (http://www.yahoo.com) by clicking the Go to AltaVista link on your search results list. AltaVista is one of the oldest search engines on the Web. To conduct your search, type the word or phrase that you are looking for in the blank box and click Search. The default search language is English. To conduct your search in another language, click the Any Language down arrow and select a language from the drop-down list.

Enter your search words or phrase in the language that you selected.



9.4 Excite:

Web address http://www.excite.com

Click the Power Search link at the top of the page. Excite displays its search form, with a series of drop-down boxes that you can use to customize your search. To access a text Help file and read about the syntax used to conduct a search in Excite, click the Search Tips link at the top of the page.

The home page includes:

- Links to top news stories
- A search box for entering stock symbols to get quick stock reports
- A search box for entering your ZIP code, so that you can see the weather forecast for your part of the United States
- A place to enter your birth date, to get your horoscope.

9.5 HotBot

Web address http://www.hotbot.com

The Web Developer link. It provides a good starting point for information about developing your own Web pages or enhancing Web pages. To conduct a HotBotsearch, type the word or phrase that you are looking for in the search box. Use the drop-down boxes to narrow your search. If you want to refine your search, click the More Search Options button. When you're ready to submit your search, click the Search button.

In addition to the search bar, the HotBot home page also provides quick links to Web pages. Contains links to news, sports, entertainment, and health stories, as well as links to reference materials such as dictionaries and time zone maps.Links to business stories, job listings, and education information, shopping areas of the Web.

9.6 Infoseek

Web address http://www.infoseek.com

In addition to the search box, the Infoseek home page contains links to current news stories and to categories and subcategories that you can access to find specific information about one topic. If you want to search in a language other than English, go to the bottom of the page and click one of the language links.

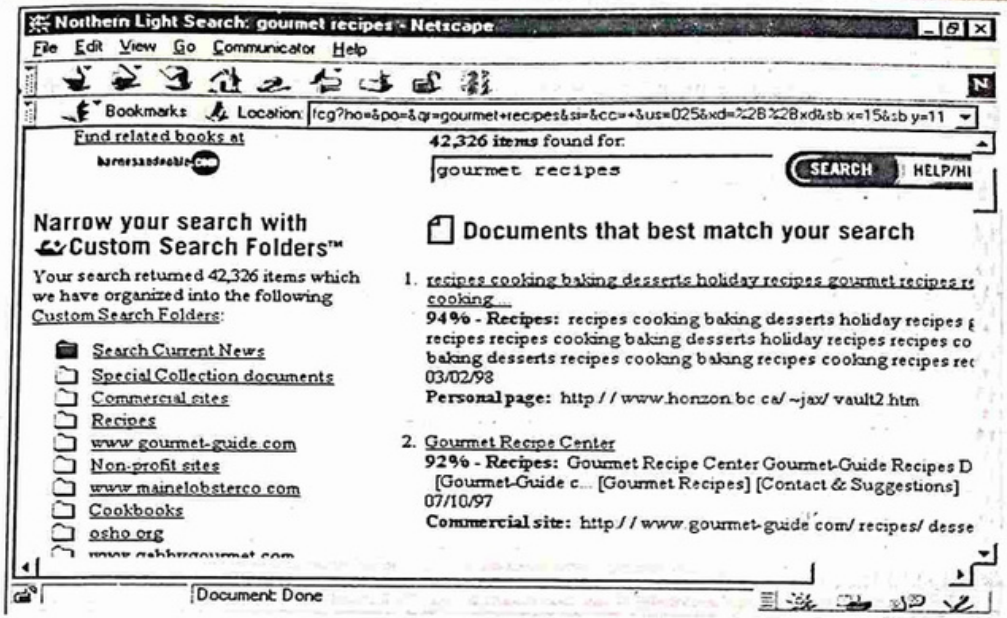
9.7 Northern Light

Web address http://www.northernlight.com

Northern Light acquires information from over thousands of journals and publications and stores the information in its Special Collection. You can search the Special Collection for free, but if you want to see the full article, you have to pay a small fee.

Northern Light is a search engine that returns results to you a little differently than other search engines. When you search for words or a phrase, the results are grouped into Custom Search Folders. You can open the folder that most closely matches the type of information you want.

The search results are ranked and listed on the right side of the screen, and grouped into folders on the left side of the screen.



9.9 WebCrawler

Web address http://webcrawler.com

This section of the home page provides links to a variety of subjects. The links are updated daily. The subjects are diverse and are fun to browse. The WebCrawler home page provides a quick way to obtain information about a community. Interested in information about your home town, or another town in the United States? Click the Local Channel link and then enter a ZIP code or select the state (and then the city) that you want to see. You see all kinds of information about the selected city, including schedules of coming events, Arts and Entertainment activities, and lists of Web sites pertaining to the city.

To search using WebCrawler, enter in the search box the words or phrase that you are looking for and then click Search. There are also categories listed on the page that you can peruse to go to Web pages about specific topics.

10. Communication between server and Client:

10.1 Establishing Connection:

Before a client and server can exchange information, they must first establish a connection. TCP/IP is used to let computer establish a link between a web server and a web browser over the internet.

To communicate with the web server, the client machine must be given the IP address of the server along with the sub protocol that must be used that is HTTP, FTP etc. The client browser will attempt to locate the server based on the IP address supplied and established connection.

A web server supports multiple protocols. For example a web server may support two protocols like HTTP, FTP.

In such cases, each of protocols can be accessed by specifying protocol name and a specific port numbers. For example the http protocol by default works on port number 80. FTP uses 21.

If protocols are configures on default port numbers, the connection to web server can be established by:

Protocol://IP address

For example, if the IP address for SCT server is 131.100.2.107 and communication must be established using HTTP then any client attempting to connect would have to pass the IP address as http://131.100.2.107 to the ISP (Internet Service Provider) whose gateway being used to access the internet.

Protocol cab be configured to run on other port numbers other than the default port number. Valid values are 0 to 9999. If a protocol is configured to run on any other port number then the client when the protocol name and the IP address.

Thus the complete syntax to access and connect to any server would be:

Protocol://servername:port:port number.

10.2 Client issue a request and server sense response:

As seen earlier, each Web Server controls a web site. From amongst the collection of several web pages, one page is treated as "default Web Document".When a browser connects to web server using an appropriate protocol name, IP address and port number and the web server treats this connection to be a request for the default web document. The Web server then dispatches the default web document to the client can who connected.

If the client requires viewing any other web page then the client can specify the web page name along with the connection information. Thus complete connection and web page information will now be specified as:

Protocol://servername:port number/web page name

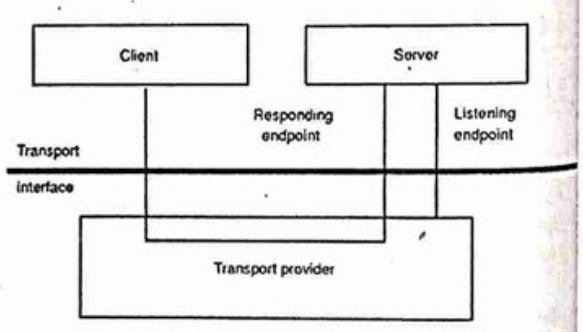
A web page apart from text and HTML TAGS, can also include references to external objects like GIF, JPEG Audio file, video file and so on.

When an appropriately structures HTTP request is received from a browser. The web server will try to locate the web page requested. If the Web page exists the server responds by providing the page to browser.

If the web page is not found, an appropriate error message is sent as response to the browser request. After sending the web server resets the connection with browser.

10.3 Client issue a request and server sense a response:

It is the server's responsibility to terminate the TCP/IP connection with the browser after it responds to the browser request. However, both the browser and the web server must manage an unexpected closing of a connection as well. In other words if the user clicks on browsers stop button the browser must close the connections.



Exercise

Very Short Questions:

1. What is World Wide Web.
2. What is Domain Name System.
3. What is internet?
4. What do you mean by "Home page"?

Short Questions

5. Write short note on:
   a. URL
   b. Protocol
6. Explain Web server in detail. How request and response are occurs between Web browser and Web Server.
7. Describe web page and web site.

Long Questions

8. Explain web elements.
9. What is Web browser ? Explain different type of web browser.
10. What is search engine? Explain role of search engine. Write short note on different type of search engine.

■■■

Unit-I

Chapter 2

Mail Concept and Security System

1. E-mail

E-mail means electronic mail. Email provides a wonderful means of communication. Electronic mail (e-mail) is probably the most widely used TCP/IP application in the Internet community today. For most people, it has become an integral part of everyday life, and it serves as the primary communication vehicle for most businesses.

You receive Internet e-mail when it's sent to your unique e-mail address. E-mail messages are passed through the Internet by using a protocol called Simple Mail Transfer Protocol (SMTP). SMTP is understood by all e-mail applications that package your Internet e-mail message for sending, and by all the computers (servers) that pass the message along its route.

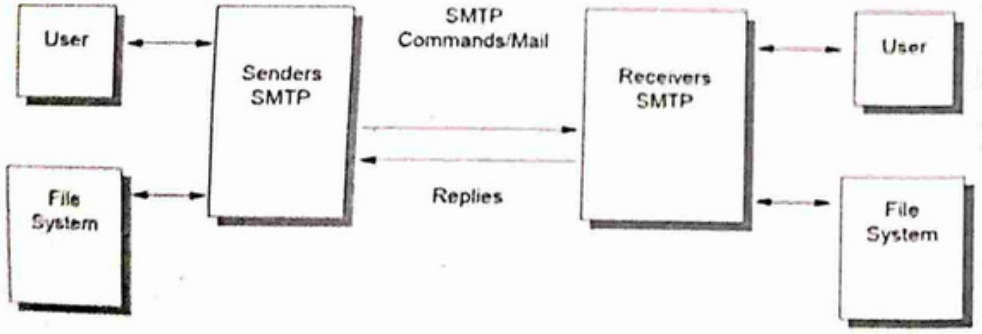
1.1 Receiving Incoming Messages

Mail servers receive and store e-mail messages in mailboxes by using a protocol called Post Office Protocol (POP). Mail servers are sometimes also called POP servers.

To read your e-mail, you need an e-mail application, also called a mail client or POP. A client application works in concert with a server-in the case of e-mail, a mail server collects your e-mail, and your mail client enables you to read it.

1.2 Sending Outgoing Messages

Sending e-mail requires a similar process. You write messages on your own computer by using your e-mail application. Then, you (or the e-mail application) transfer the messages to an SMTP server-a mail server that accepts outgoing e-mail. Your Internet service provider (ISP) probably runs both an SMTP server and a POP server for its customers. The SMTP server that takes care of sending your e-mail messages may be a different server than the POP server that collects your e-mail.



1.3 E-mail Addressing

To send e-mail to someone, you must know his or her Internet e-mail address. The mechanics of the Internet require an exact e-mail address. Internet e-mail addresses look like this:

- myname@hostname.com

The e-mail address has two main parts, joined by @.

- Username In the preceding example, the username is myname. Usernames are employee's names that use one initial and one full name. However, usernames can also contain characters other than letters, they can contain numbers, underscores, periods, and some other special characters.
- Host or domain name In the prior example, hostname.com is the host name. The host name provides the Internet location of the mailbox, usually the name of a computer owned by a company or Internet service.

1.4 Some points about addresses:

- Capitalization usually isn't important in e-mail addresses (sometimes referred to as case insensitive). For example, NetTCR@Gurus.Com works just the same as myname@hostname.com. Of course, if you're sure that you have the right address, but you're getting error messages, you may want to try different capitalization.
- E-mail addresses do not have punctuation marks, such as square brackets or quotes around them.
- Most e-mail programs allow you to type angle brackets (<>) around e-mail addresses. You can also precede an e-mail address with the person's name in quotes. For example, the address for this book might appear like this:
- Internet book" myname@hostname.com

1.5 Message Headers

Every e-mail message starts with headers. The headers are like the envelope for the message, and include the addresses of the recipient and the sender. Your e-mail package may not automatically show you all message headers; headers make the message look messy. If you check the help system for your e-mail application, under "headers," you should be able to find out how to display them.

Each header consists of the type of header, a colon, and the content of the header.

For example, the header that shows who the message is addressed to consist of To: followed by one or more e-mail addresses.

1.5.1 Header Type Description:

Date: The date and time the message was sent, according to the sender's computer.

To: The e-mail address(es) of the primary recipient(s) of the message. The To line may also contain names.

From: Who the message is from.

Subject: What the message is about-according to the sender.

Cc: Additional recipient(s) of the message. Cc is an abbreviation for "carbon copy," a term that is

outdated but still in use.

Date: When the message was sent.

Reply: To or Return-Path Your e-mail application automatically uses this address when you reply to the message.

Received: Contains information from each host service that relayed the message.

Message-ID: The unique ID that identifies this message generally not useful.

X-Sender: Adds a layer of authentication to the message by identifying the sender.

X-Mailer: The application used to compose the message, not all e-mail applications add this header to messages.

Mime-Version The version of MIME used the Multipurpose Internet Mail Extension is used for attachments and for HTML-formatted messages.

Content-Type: The MIME data format used. Frequently, the data format is text/plain with some further information to identify the text type.

X-UIDL: A unique identifier added by some POP e-mail applications to identify message that have been downloaded.

1.6 Downloading E-mail:

This section demonstrates how to access e-mail through a computer system. If you have a dial-up connection, your e-mail is collected on a POP server and your e-mail application downloads the messages to your computer, so that you can read them.

You have the following options for e-mail downloads:

- You can usually work either offline or online.
- You can choose to either leave downloaded messages on the server or delete them from the server.

1.7 Deleting Messages from the Server:

If a POP server stores your messages until you download them, your e-mail program usually deletes them from the POP server after downloading. Your e-mail application may have a setting that enables you to choose whether to delete the e-mail from the server and, if so, when to delete it. The people who maintain your POP server would greatly appreciate it if you delete your e-mail-in fact, they have every right to insist on it. Otherwise, your mailbox will balloon to an enormous size after a while. However, if your e-mail application supports it, you may want to leave your e-mail on the server for a day or two after you pick it up, so that if anything goes wrong, you can get the message again.

1.8 Using Smileys, Emotions, and Abbreviations:

Some users of e-mail use shortcuts, including what have become known as emoticons (including smileys) and abbreviations of frequently used terms.

1.8.1 Smileys and Emotions

Smileys are punctuation used to portray faces or other pictures. For example, the standard smiley face. The standard use of a smiley is to indicate a joke when the text might not be clear that the author is kidding.

People use a whole range of smileys and other emoticons. The most common emoticons are listed here:

:-) Standard smiley face
:) Alternate smiley face
:-(Sad face
;-) Winking face
:-o Surprised face
&:-) Smiley with curly hair
<g> or <grin> Grin or smile
<sigh> Sigh

For a good list, see http://net.gurus.com/smileys.html.

1.9 Signatures and Stationery:

Many e-mail programs include two features that save typing when you compose e-mail messages.

1.9.1 Signatures

Your name, e-mail address, and other identifying information should appear at the end of each e-mail message you send. To save having to type this information at the end of each message, many e-mail programs allow you to create a signature, that is, a file containing the list to be appended to each outgoing message.

Signatures generally should be limited to about some (especially four) lines, so that your regular correspondents don't have to see a long signature each. Do include your name, e-mail address, and the organization (if any) you represent.

- You don't have to include your postal mailing address or phone number, since people who see your signature are more likely to contact you by e-mail.
- You can include a cute or informative tag line, but keep it short.
- Long poems, pictures created using lines of punctuation, and other fancy signatures wear thin after multiple viewings.

1.9.2 Stationery

If you send certain messages over and over with minor variations, define stationery e-mail form letters. Some e-mail programs let you save stationery files with the headers and text you want to include in your frequently-sent messages. To compose a message using stationery, you choose the name of the stationery file. You can then edit the message to insert information tailored to the recipient.

1.10 E-mail Attachments:

By attaching files to e-mail, you can exchange documents for revision, pass on spreadsheets for data entry, or send a presentation for review. Of course, you can also attach electronic pictures, sounds, movies, whatever can be put in file form.

Because e-mail was originally designed to convey only text, your e-mail program must convert other types of files(encryption) to a text-like format that can pass through the Internet mail system. The

receiving e-mail program converts the message back to its original format(decription). The following are the three most-common formats for e-mail attachments:

- MIME MIME is the newest and best standard method for sending attachments.
- Uuencoding is the old standard and is the only method a temporary "non-fatal" delay and that you don't need to resend the message.

1.11 Reading and Sending E-mail

1.11.1 Reading E-mail

You display your list of incoming messages and then double-click the message to display the text of the message. Most e-mail programs have an Inbox, one of several folders that display message summaries.

Normally, a message summary appears on one line with the name of the sender, the subject of the message, and a date stamp. Some programs allow you to add different columns to the folder list.

Most programs enable you to sort messages-often, you can sort messages by clicking the header that you want to sort by. You may also want to change column widths from their default values. In most programs, to change column widths, you move the mouse pointer to the right side of the column header and then click and drag the divider to the left or right to make the column narrower or wider.

Most e-mail programs display only the most important headers, hiding the rest. Some programs have a command that lets you see all the headers

1.11.2 Creating Messages

To create a new e-mail message in most e-mail programs, you click a New Message button on the toolbar to display a message composition window. That window contains boxes for several standard headers and a large box in which to type the message. To create the message, fill in the headers, type the message, and then click the Send button.

- To The alias or address of the person or people to whom you are sending the message.
- Cc It stands for Carbon Copy. Additional people to whom you are sending the message. These are usually people for whom the message is informational only, and does not require any action or response by them.
- Bcc Yet more people who will receive the message. Bcc stands for Blind Carbon Copy that means that the other recipients of the message will not know that the message has been sent to the people who you put in this header.
- Subject The subject of the message.
- Attached The names of any attached files.

Rather than create messages from scratch, you may choose to reply to or forward messages:

1.11.3 Reply to or Forward

- Replying When you reply to a message, the sender's address is automatically put in the To: header and the Subject of the original message is reused, preceded by Re, for the reply.
- Forwarding When you forward a message, the subject of the original message is reused, with the prefix Fw (or something similar). You must specify the e-mail address of the recipient of a forwarded message.

- Redirecting Some e-mail programs allow you to redirect messages.

Redirecting a message is similar to forwarding a message, except that the message retains the original sender in the From header and adds a notation that the message came through you.

1.12 Spam:

Spam is the term that Internet users apply to unsolicited commercial e-mail. You receive spam because the sender has obtained your e-mail address, either from a mailing list or newsgroup, or directly from you on a Web site. Your address may be in one or more of the lists of e-mail addresses that are available for sale.

The following are a few ways to reduce the amount of spam that you receive:

- Be careful about who you give your address to.
- Set up several e-mail accounts and use them selectively.
- Don't bother "unsubscribing" from any service that sends you messages unless you originally subscribed to the service. In fact, your e-mail address becomes more valuable to spammers when they receive a removal request from you, because you've just confirmed that your e-mail address is valid.
- Control the time that you spend on your own e-mail. Don't spend time on messages that you're not interested in-this takes some self-control.
- Don't contribute to the spam problem by forwarding unwanted messages or by sending your own messages to many recipients.
- Create filters that automatically delete spam messages.

2. News and Chat:

2.1 Newsgroups:

Usenet is a distributed system of. Because so many messages are sent every day, they are divided into newsgroups, with each newsgroup concentrating on one topic. You can read the newsgroups' articles, post replies to articles, or post new articles. Like e-mail mailing lists, you can read articles on your own schedule rather than in real time. Unlike mailing lists, anyone can read articles, without subscribing to the newsgroup.

Newsgroups are named by using a hierarchical system of words, separated by dots.

The first word of a newsgroup name indicates the category (or newsgroup hierarchy) into which the newsgroup falls. Newsgroups are like bulletin boards. It is an area of the Internet where you can search for a specific interest and find postings, or messages, that relate to that specific interest. You can view these postings, respond to a posting, or submit your own postings. A Usenet newsgroup is a repository usually within the Usenet system, for messages posted from many users in different locations. Despite the name, newsgroups are discussion groups, and are not devoted to publishing news. Newsgroups are technically distinct from, but functionally similar to, discussion forums on the World Wide Web. Newsreader software is used to read newsgroups.

2.2 CHATTING:

The Internet enables a group of people to communicate. This group communication can be by te on the screen, by voice, or by video. All of these types of online communication are called online chat o online conferencing.

2.2.1 Real-time chat

Allows dialog to happen quickly, since each participant sees each message within seconds of whe it is sent messages are sent immediately after they are complete (for example, as soon as you pres ENTER after typing a message). This type of communication is called real-time communication.

2.2.2 Asynchronous chat

Allows participants to consider their responses, gather information, and formulate a response carefull It also allows people from different time zones or with different schedules to participate. When messag delivery is more slowly; for example, via e-mail. These other types of communication are also calle asynchronous, because participants do not all read and respond to messages at the same tim (synchronously).

2.2.3 Safety While Chatting

Safety is a consideration when you participate in public chat systems. Here are some safe considerations:

- Remember that what you say is not private.
- Be aware that your messages are not anonymous. E-mail and newsgroup.
- Don't believe everything you read. A person's description of himself or herself may ran anywhere from slightly optimistic to totally inaccurate.
- Don't reveal more about yourself than you would want everyone in the universe to kno Specifically, don't reveal your phone number, address, or other identifying information in online chat.
- Never type your password in a chat or conference.
- Don't allow your children to use chat or conferencing systems without supervision.

2.2.4 Videoconferencing

Voice conferencing is talking to another person via the microphone and speakers connected to y computer. Videoconferencing is sending your image and voice to one or more other people, through camera and microphone attached to your computer, and receiving pictures and voices back. You use one or the other, or both, depending on the peripheral equipment connected to your compu Instead of typing messages to conduct a conversation, as you do in a chat room, with voice conferenc and videoconferencing, you can talk to other people, see their faces, and transmit your video so they can see you, too.

2.2.4.1 Use of Video Conferencing

Videoconferencing is an easy way to meet with people when you need to speak face-to-f Conferencing is becoming a popular business application, to connect a main office with telecommu to meet with customers without incurring travel costs and time, and to keep branch offices around world in visual contact with each other.

3. SECURITY AND PRIVACY ISSUE

Network owners need to protect sensitive data from the attackers. Sensitive data here can be any password, user name or credit card or debit card. As we know that our sensitive data is travel through the internet and if there is no security is applied the network then any illegal person can hack the sensitive data.

To achieve secure data on other end, we provide some solutions to effectively defend a network from an attack, specifically against the attacks.

It has to be noted that any of interacting with the Web is a little like passing notes across a classroom. You can't know ahead of time what computers are going to handle your messages as they pass between you and a Web server, and you can't be sure that none of those intermediate computers will copy the message, or let someone else read it.

Worse, the Web itself may not be what you think it is. It may be trying to capture sensitive information about you, such as your passwords or credit card numbers. It may be trying to deduce things about your interests or browsing habits. It may even be trying to introduce viruses that will damage the information on your computer.

The question you have to answer is whether you feel secure letting a program handle your credit cards. The nightmare is that some clever Web site will be able to trick your credit card numbers out of your wallet without your knowledge, or that someone with access to your computer will be able to break the encryption or guess your password and get your credit card information that way.

Each new generation of Web browsers introduces new features to the Web. Some of these features, such as firewalls or the Secure Socket Layer (SSL) protocol, make your Web interactions safer. Others, such as cookies or scripting languages, open new opportunities for mischief in addition to their beneficial uses.

Microsoft has done several things to guard your private information. Both wallet programs take the following precautions:

- They communicate with Web sites by using the Secure Sockets Layer (SSL) protocol which makes it unlikely that some third party can overhear your credit card numbers being transmitted.
- Authentication by digital signatures and certificates: To verify who is sending data over the network.
- They store your information in an encrypted, password-protected format.
- Authorization: To prevent improper access.
- Encryption: To protect data and passwords.
- Integrity checking and message authentication codes: To protect against improper alteration of messages.
- Non-repudiation: To make sure that an action cannot be denied by the person who performed it.
- One-time passwords and two-way random number handshakes: To mutually authenticate parties of a conversation.

3.1 PRINCIPLES OF SECURITY

- Authentication: A method for verifying that the sender of a message is really who he or she claims to be. Any intruder masquerading as someone else is detected by authentication.

- Integrity checking: A method for verifying that a message has not been altered along the communication path. Any tampered message sent by an intruder is detected by an integrity check. As a side effect, communication errors are also detected.
- Non-repudiation: The possibility to prove that the sender has really sent the message. When algorithms providing non-repudiation are used, the sender is not able to later deny the fact that he or she sent the message in question.

Secure Web transactions use a protocol called the Secure Sockets Layer (SSL). This protocol depends on public key cryptography to establish proofs of identity, called digital certificates.

3.2 Cryptography

Cryptography is the science of achieving encoding message to make them non-readability. To achieve this goal, techniques such as encryption, decryption, and authentication are used.

Encryption is the transformation of a plain text or readable message into an unreadable form (cipher text)in order to hide its meaning. The opposite transformation, which retrieves the original clear text (plain text), is the decryption. The mathematical function used for encryption and decryption is the cryptographic algorithm or cipher.

3.3 Cookies:

Cookie are small information of users which is stored by web server machine on client machine when user request (at login time). And it always attach with request when user interact with web server.

A cookie is a small file that a Web server can store on your machine that is on client browser. Its purpose is to allow a Web server to personalize a Web page, depending on whether you have been to this Web site before, and what you may have told it during previous sessions.

For example, when you establish an account with an online retailer or subscribe to an online magazine you may be asked to fill out a form that includes some information about yourself and your preferences. The Web server may store that information in a cookie on your machine. When you return to that Web site in the future, the retailer's Web server can read its cookie, recall this information, and structure its Web pages accordingly.

Much has been written about whether cookies create a security or privacy hazard for you. If your Web browser is working properly, the security hazard is minimal. It is, at first glance, unsettling to think that Web servers are storing information on your hard drive without your knowledge. But cookies are not executable programs. They cannot, for example, search for and accumulate information from elsewhere on your system. They simply record information that you have already given to the Web server.

However, cookies do make it easier for advertising companies to gather information about your browsing habits. For example, a company that advertises on many Web sites can use cookies to keep track of where you have seen its ads before.

Turning off cookies entirely makes many Web sites much less convenient. If you have customized a start page at a portal, for example, the customization stops working when you turn off your cookies.

Advertisements on a Web page usually come from a different server than the page itself, particularly if an advertiser is attempting to track your browsing across many sites.

3.4 Firewalls:

A firewall is a piece of hardware or software that sits between two networks for security purposes. Typically, an organization might have its own computers linked in an Internet-like network called an intranet. A firewall is placed between this intranet and the Internet to prevent unauthorized users from gaining access to all the resources of the intranet.

If you communicate with the Internet through a firewall, you must configure your Web browser to request Web pages from the firewall's proxy server, the program that filters packets of information between the intranet and the Internet. Ask your intranet or LAN administrator for instructions.

3.5 Executable Applets and Scripts:

Applets are small java programs which saves on server and travel through internet and execute (run) on client. A web page can contains any image, table, audio file, video file and also contain a .class file. This .class (byte code) file is a java applet, which is stores on server machine and travels through internet in web page and run on client machine by browser.

Java, JavaScript, VBScript, and ActiveX controls are all languages for Web servers to run application on your computer. These programming systems have security safeguards, but occasionally, bugs are found either in a programming language or in the way that is implemented by a particular browser or on a particular machine. These bugs involve some security risk.

ActiveX controls involve risks that go far beyond those of JavaScript or VBScript scripts or Java applets. The latter three run in a "sandbox" that limits the accidental or deliberate damage that they can do. Programs running inside the sandbox don't get full access to your computer's resources.

Microsoft's Authenticode system goes through a process similar to SSL to verify that an applet control was written by the organization that claims to have written it, and that it hasn't been tampered with since it was written. With the authorship of the control verified, you are left with the decision Do I trust the author or not? If you say yes, the control can run on your computer, and you may not be able to tell what it's doing. If you say yes to this, applet controls from that author will install and run without you being made aware that anything has happened.

3.6 Blocking system :

Almost anything that people want to see, hear, or read is on the Web somewhere. You may decide that you want to block your Web browser's access to certain kinds of content, because you either find it offensive, don't want your children to see it, or don't want your workers to waste their time on it. The most recent versions of popular Web browsers, allow you to participate in a voluntary system for blocking offensive or inappropriate content.

Exercise

Very Short questions

1. Why we use blocking system?
2. Define the term Cryptography.
3. What do you mean by signature and stationery in e-mail?
4. What do you mean by SMTP and MIME?
5. What do you mean by videoconferencing? How it useful in real life?

6. What do you mean by applets?
7. What safety guards are required to during chatting?
8. What do you mean by spam?
9. What is difference between mail reply and forward?

SHORT QUESTIONS

1. Write security principles?
2. Write short note on Cookies.
3. Explain firewall in detail.
4. Write a short note on news and chat through internet.
5. Explain e-mail header in detail.

LONG QUESTIONS

1. What do you mean by e-mail? Explain how e-mail useful in real life? Explain functioning of e-mail in detail.
2. Explain network security issues in detail.
3. Explain various mode of chatting.

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Unit-I

Chapter 3

Advance Web Page and Subscriptions

Early Web pages consist of nothing but text. The first big revolution in Web browsing occurred when Mosaic, the precursor to Netscape Navigator, became the first browser to display pictures right in the Web page. Now, graphics are familiar part of Web pages, and many Web pages contain other types of non-text information, such as audio files, video files, animated graphics, and moving stock tickers.

1. PLAYING STREAMING AUDIO AND VIDEO:

1.1 FINDING AND INSTALLING PLAYERS:

A player is a program that displays or plays the information in a file. Operating system come with players for some types of audio and video files, as well as programs that can display many formats of graphics files. If you encounter a file on a Web page that your computer can't you may need to get and install a new player. For example, if you want to play MP3 format audio files you need an MP3 player.

Many players are available for free on the Internet. Almost any program can be considered as a player, for example, if a Web page contains a link to a Microsoft Excel spreadsheet file, you could use Excel to display the file.

Some programs are available that give you the ability to display files that you might find on Web pages, without giving you the ability to edit or create such files. Here are few of these "display only" players.

- Microsoft Word documents: It can be displayed by Microsoft Word Viewer, which you can download from Microsoft's Web site at http://www.microsoft.
- Microsoft Excel spreadsheets: It can be displayed by Microsoft Excel Viewer, which is also available for downloading from Microsoft's Web site.
- Microsoft PowerPoint presentations: It can be displayed by Microsoft PowerPoint Viewer, downloadable from the same URLs listed under "Microsoft Word documents."
- Adobe Acrobat documents: It can be displayed by Adobe Acrobat for information about audio and video players.

1.2 Watching and Listening to the Web

The Web has gone beyond text and pictures, many pages also include sound and video. Both audio and video files that contain more than a few seconds of audio or video data can be very large, and can take a long time to arrive over the Internet. Audio and video files are stored in several standard formats.

1.3 Playing Audio and Video

To address the large size of audio and video files, streaming was invented, which enables your computer to play the beginning of an audio or video file while the rest of the file is still arriving. If the file arrives slower than your computer plays it, the playback has gaps while your computer waits for more data to play. Several streaming formats are widely used on the Web, and you can install plug-ins and ActiveX controls to enable your browser to play them.

When you click an audio link on a Web page, your audio plug-in or ActiveX control runs and plays the file. Some plug-ins and ActiveX controls display a little window with VCR-like controls that let you stop, rewind, or fast-forward the file, as well as adjust the volume of the sound played by the file. When you click a video link, the video appears in your Web browser. Because these video files are highly edited and compressed, the video is usually very small.

Here are some popular audio and video formats, and the plug-ins and ActiveX controls that can play them:

- RealPlayer Plays RealAudio-format audio and video files, including streaming audio. You can download RealPlayer (available as a plug-in or ActiveX control) from http://www.real.com, choose the free RealPlayer or the reasonably priced and more powerful RealPlayer Plus.
- Beatnik Plug-In Plays a variety of audio file formats, including RMF, MIDI, MOD, AIFF, and AU files.
- QuickTime Plays audio and video files stored in the QuickTime format. You can download the Apple QuickTime player from http://www.apple.com/quicktime.
- Microsoft Windows Media Player Plays both regular and streaming audio and video files, including RealAudio, Real Video, NetShow, and QuickTime streaming files, and AVI and WAV audio .

1.4 Playing MP3 Music

MPEG3 or MP3 is a highly compressed audio format that is used for storing audio data, mainly music. Many music files are available on the Internet in MP3 format, which has the file extension .mp3. The problem with most .mp3 files is that they are bootlegged, recorded illegally without the permission of the copyright holder.

Some files are put on the Web by small bands that are just getting their start and use MP3 and the Web as a great way to get wide exposure legally. If your computer has a CD-ROM drive, you can also convert songs from CDs that you own into MP3 files. Converting music CD songs into MP3 files is probably legal as long as you keep the MP3 files that you create and don't give or sell them to anyone else.

Not all CD-ROM drives can be used to create MP3 files, the drive must be able to read raw data from music CDs. To play an MP3 format, you need an MP3 player, which you can download from the Web. Two popular MP3 players are Winamp (shareware from http://winamp.lh.net) and

MusicMatch Jukebox (freeware from http://www.musicmatch.com). WinAmp allows you to install "skins," which are custom interfaces, to make the program look even cooler than it usually looks.

Once you find the song that you are looking for (if it is available on the Web), you download the by clicking an FTP link or using an FTP program. You may have trouble getting through to FTP sites that have MP3 files, because they can be very busy, if you get "Document contains no data" or "Site busy" messages, just keep trying. After you download the MP3 file, you can play it as many times as you want by using an MP3 player. If you have a slow computer, the music may sound terrible, but on faster computers, MP3 files can sound like CDs.

2. ActiveX Controls and plugins:

2.1 ActiveX controls :

ActiveX controls are essentially pieces of software and have access to your entire computer if you opt to install and run them. If you're using Internet Explorer, websites can prompt you to install ActiveX controls - and this feature can be used for malicious purposes.

An ActiveX control is a small program for Internet Explorer, often referred to as an add-on. ActiveX controls are like other programs they aren't restricted from doing bad things with your computer. They could monitor your personal browsing habits, install malware, generate pop-ups, log your keystrokes and passwords, and do other malicious things.

An ActiveX control is a component that can be inserted into a Web page or application in order to reuse the object's functionality programmed by someone else.

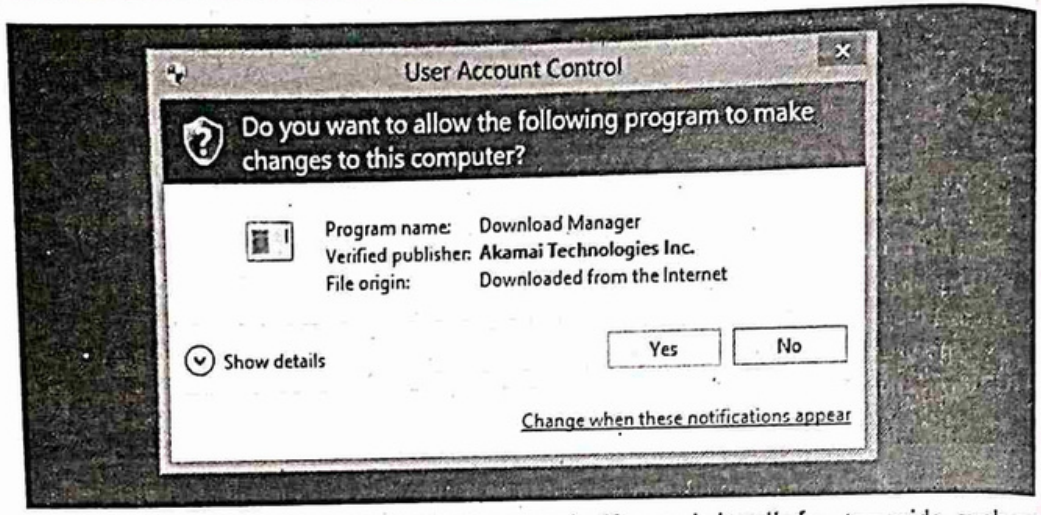
ActiveX controls provide a way to allow the tools and applications used on the Web to be integrated together.

The greatest benefit of ActiveX controls is the ability to reduce development time, and to enhance Internet applications. ActiveX automation is one of the most important functions of ActiveX. Automation is the ability of one program to control another by using its methods and properties. Automation can also be defined as the standard function that allows an object to define its properties, methods, and types, as well as provide access to these items.

An ActiveX container is a container that supports ActiveX controls and can use the control in its own windows or dialogs. An ActiveX control cannot exist alone. The control must be placed in a container. The container is the host application for an ActiveX control.

ActiveX controls are actually not Internet Explorer-only. They also work in other Microsoft applications, such as Microsoft Office.Other browsers, such as Firefox, Chrome, Safari, and Opera, all use other types of browser plug-ins. ActiveX controls only function in Internet Explorer. A website that requires an ActiveX control is an Internet Explorer-only website.

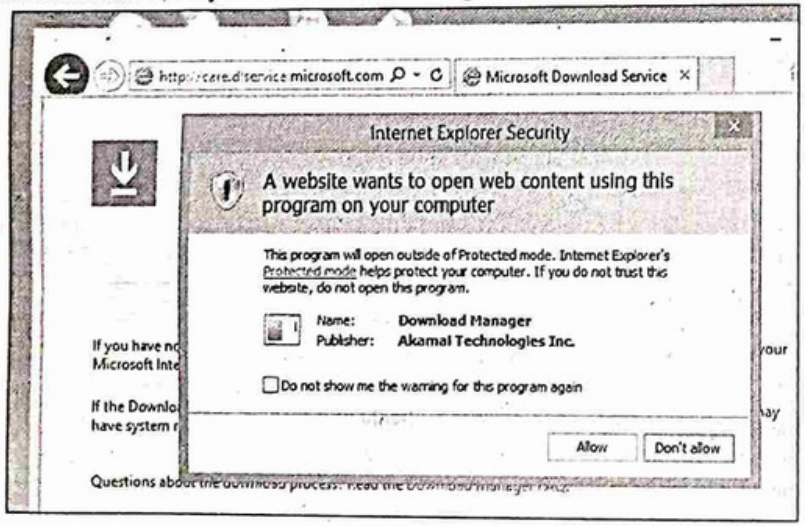
ActiveX controls (AXCs), like Java, are used to embed executable programs into a Web page. When Internet Explorer encounters a Web page that uses ActiveX controls, it checks whether that particular control is already installed on your computer, and if it isn't, Internet Explorer installs it.



You will probably have a variety of common ActiveX controls installed system-wide, such as Adobe's Shockwave Flash, Microsoft Silverlight, and Windows Media Player. You can disable these from here, but you'll have to uninstall them from the Control Panel if you want to remove them from your system.

2.2 Security Concerns With Active Controls

You should avoid installing ActiveX controls unless you trust their source. Certain ActiveX controls are normal , for example, if you're using Internet Explorer you probably have the Flash Player ActiveX control installed , but you should avoid installing other ActiveX controls if possible.



Modern versions of Internet Explorer include features like ActiveX Filtering, protected Mode, and "killbits" that prevent vulnerable ActiveX controls from running. Unfortunately, ActiveX controls are insecure by their very design and nothing can be done to make them completely secure.

In summary, ActiveX controls are dangerous and you should only install them if you need to do so and trust the source.

2.3 Plugins:

Plug-in applications are programs that can easily be installed and used as part of your Web browser. Initially, the Netscape browser allowed you to download, install, and define supplementary programs that played sound or motion video or performed other functions. These were called helper applications. However, these applications run as a separate application and require that a second window be opened. A plug-in application is recognized automatically by the browser and its function is integrated into the main HTML file that is being presented.

In computing, a plug-in (or add-in / addin, plugin, extension or add-on / addon) is a software component that adds a specific feature to an existing software application. When an application supports plug-ins, it enables customization. The common examples are the plug-ins used in web browsers to add new features such as search-engines, virus scanners, or the ability to utilize a new file type such as a new video format. Well-known browser plug-ins include the Adobe Flash Player, the QuickTime Player, and the Java plug-in, which can launch a user-activated Java applet on a web page to its execution a local Java virtual machine.

2.4 Finding and Installing Plug-Ins and ActiveX Controls:

Sometimes, a player can't handle the information on a Web page. Players work only if information is stored in a separate file and you want it to appear in a separate window, not in your browser window. Two other types of programs can handle audio, video, and other information right in your browser: plug-ins and ActiveX controls.

A plug-in is a program that can "plug in" to Netscape Navigator, to give the browser a new capability. Most plug-ins work with Internet Explorer too, and some work with Opera. Plug-ins works with Navigator seamlessly, so that after you install them, you can forget that they are not part of your browser. Netscape originally invented the idea of plug-ins, but Microsoft makes sure that Internet Explorer can use most of them, too.

ActiveX controls are programs that work with Internet Explorer and other programs, but not with Netscape. Many programs are available as both plug-ins and ActiveX controls.

Typically, a plug-in or ActiveX control is born when a software company develops a new type of information to play or display on the Web-for example, sound or video.Rather than trying to convince Netscape and Microsoft (and other browser makers) to make their browsers capable of playing or displaying this new type of information, the software company creates a plug-in or ActiveX control (or both) that can handle the task of playing or displaying the new information within the browser.

Many plug-ins include a stand-alone player, in case you want to display files when you are not browsing the Web.

Here are a few plug-ins and ActiveX controls that you should consider downloading and installing:

- Adobe Acrobat Reader Displays Portable Document Format (PDF) files. documents that are saved with all of their formatting for uploading to the Web (Acrobat Reader is available as a plug-in, an ActiveX control. and a stand-alone player). Unlike with regular Web pages, the author of a PDF file can control the exact formatting of each page of the document. PDF is used for documents that are to be printed and documents with formatting too elaborate for HTML.
- Shockwave Displays animated graphics. plays sound. and lets you interact with the Web page. For example. games can be programmed to use the Shockwave.
- Word Viewer Plug-in Displays Microsoft Word format document files right in your browser window.

2.5 Uninstalling Plug-Ins and ActiveX Controls :

Uninstalling plug-ins and ActiveX controls is not always easy-in fact, sometimes it's impossible. Some plug-ins come with uninstall programs. but most do not. If you use

Windows choose Start | Setting | Control Panel, open the Add/Remove Programs icon. and see whether the plug-in or ActiveX control appears on the list of installed software that you can remove.

3. Subscriptions and Channels:

3.1 Subscriptions:

When you browse the Web, you are requesting. or pulling, information. You go to the pages that you want to see and jump to the links that you want to visit. Frequent Internet users and developers didn't take long to realize that information delivery might be more efficient if information could be pushed at users, so that Web pages could be delivered without users having to find and request them each time.

Subscriptions and channels were developed as a way for users to have information from the Web delivered to their computers. The term subscription is also used when you sign up with a broadcast service on the Internet. A broadcast service sends information to you from different news sources that you select. Your subscription is free, because advertisers pay for space on the information that you receive. The information is not Web pages, but rather data that the service provides.

With traditional subscriptions, such as magazine and newspaper subscriptions, you sign up and pay to receive information on a regular schedule. Subscribing to a Web page is similar, but no fee is involved. You mark the page to which you want to subscribe, either in any browser, and set up a schedule to receive downloaded information.

3.2 Channels

A Web channel is a little like a channel on your television set-you go to the channel whenever you want to see what's new. A channel is a Web site that has been set up to deliver information. For example, it could be an intranet site within your company that shows updated employee announcements. or a consumer-oriented site that you like.

For both subscriptions and channels, you don't have to download the information to your computer. You can choose to be notified that a site has been updated, by a light that appears next to the Web page name. without having any Web pages downloaded to your computer. However, if you elect only to receive notification, you have to go online to the site to see what's new. To make the best use of the subscription and channel features, we recommend that you download the Web pages that you subscribe to and the channels that you add.

4. Use of Web Resources

In particular this chapter tells you about Web sites for portal services, news, weather, sports, personal finance and investing, entertainment, shopping, computers, travel, family and community, health and medicine. religion and spirituality.

5. Portals Web

A portal is a Web site that wants to be the starting point for your Web-browsing experience. The portal wants to induce you either to make it your start page or simply to bookmark it and visit it frequently. To this purpose, a portal offers free services like personalized news headlines or an e-mail account.

5.1 Portal services:

The competition among portals is heated, so new services appear regularly and are copied quickly. At present, you can expect to find some or all of the following services at a portal site:

- News services: These services are typically national or international services like Reuters, plus everything else you would normally look for in a newspaper, local, national, ahd international weather reports. stock quotes, sports scores. TV listings, horoscopes, and even cartoons.
- E-mail : A free e-mail account with a portal is a simple way to have an e-mail address that doesn't change whenever you switch ISPs or schools or jobs. The disadvantage of portal e-mail is that it ties you to a portal, since it is time-consuming to save all the messages to your hard drive.
- Home page : At the moment Lycos is offering a small amount of server space for you to post a Web page.
- Chat rooms : The number of chat rooms and the variety of topics depends on the size of the portal's chatting community.
- Message boards : These are a portal's internal version of newsgroups.
- Game rooms : The choice of games varies from one portal to the next, but you can usually find a variety of card games and board games that you play against other real people logged in to the portal.
- Clubs : Yahoo! and Excite both offer you the opportunity to start a "club" online to share ideas and points-of-view with people of similar interests. Excite calls them "communities" and pitches them as a way to share photos.

- Investment tools : These include stock quotes, the ability to track the value of a portfo charts, analyst reports, company profiles, and message boards devoted to specific stock
- Road maps : If you enter a street address or zip code, you can get a road map of the area any scale from national to local.
- Shopping tools : These include bargain-finding programs that allow you to compare pric automatically across many different vendor Web sites
- Buddy lists : These make it possible to know when your friends are logged in and available chat.

6. NEWS AND WEATHER:

The Web is a very convenient place to get news and weather reports. The biggest names news cov rage-newspapers, magazines, wire services, and networks, all have Web sites that regularly updated throughout the day. The Web's lack of space constraints lets you keep track distant or obscure news stories, and to follow links to related stories or background pages. You even get audio and video news reports, either by choosing the stories you want or by connecting live network feeds.

6.1 CUSTOMIZED NEWS

Some news Web sites allow you to be your own editor by specifying your areas of inter Unlike a newspaper or TV news show, you don't have to see hockey news if you don't like hock or hear about the stock market if you don't own stock.

Example: CNN Custom News http://customnews.cnn.com

6.2 NEWS IN DEPTH

Unlike a newspaper, the Web allows stories to have links to whatever background or previ stories are relevant, regardless of the space it takes up. Readers who aren't interested in t background can ignore the links with minimal inconvenience.

6.3 WEATHER REPORTS

The Web gives you access to weather information whenever you want it, including cur conditions, today's forecast, five-day forecasts, radar and satellite images, national forecast ma and storm tracking or other weather service bulletins.

7. SPORTS:

All the major news Web sites cover sports, so if you want something as simple as the last nig scores, you can find it wherever you get your news. The quality of sports coverage at portals ran from a simple list of recent Reuters or AP sports headlines to Which full-fledged rival of the sp Web sites are :

Sporting News: http://www.tsn.com
ESPN SportZone: http://espnet.sportzone.com

7.1 SCORES AND SCHEDULES

Any news site can tell you the score of major league games played during the previous 24 hours. Finding scores of games weeks or months old, or for a minor league team or a distant alma mater is a bit more challenging.

7.2 LEAGUES, TEAMS, AND PLAYERS

Most of the major sports leagues have done a good job on their Web sites of collecting the basic information that fans want to know: team and player pages, standings, schedules, statistics, and schedules for TV and radio coverage chats with star players, injury reports, and a few news headlines. In addition, you can usually buy official league or team merchandise from the Web site's online store.

Some informational websites are given below:

National Football League	http://nfl.com
National Hockey League	http://nhl.com
NCAA Football	http://www.ncaafootball.net

College sports events are often broadcast online, but no central site has all of them.

Broadcast.com has many college games, and even archives many of them so that you can listen to them on demand.

7.3 GAME CASTS

Another kind of play-by-play coverage, the game cast, is unique to the Web. In game casts, a combination of text and graphics is used to communicate a great deal of information about the current state of the game. Baseball games casts are the best developed at present, though football is game cast as well, and other sports have continuously updated box scores on the Web.

8. PERSONAL FINANCE AND INVESTING:

The Web can not only replace many of your current sources of financial information, it allows you to do things you would never have considered doing with other media. The Web's advantages over other media come from a few main features, it has the ability to tailor the information you receive according to your choices, the ability to compile information in databases and present that data interactively, the ability to do searches based on criteria you set, as well as the ability to input your data directly into preprogrammed calculations.

The Web can also provide the following advantages:

- Financial Web sites can give you current quotes for precisely the stocks that you own or are thinking of buying; provide links to the previous month's news stories that mention the companies you have an interest in and assemble investment research that used to be accessible only to professional traders, like charts, quarterly reports, earnings estimates, insider trades, stock screens, and analyst recommendations.
- Message boards devoted to a particular stock, industry, or investment strategy let you trade ideas with other investors.

- Online bank or brokerage accounts let you see your balances whenever you want, transfe money between accounts, and download your transactions automatically into a persona finance program like Quicken or Microsoft Money. Stock trades that used to cost hundred of dollars in commissions can now be done online for less than ten dollars
- Online calculators can lead you through complicated personal finance calculations. Keepin Up with the Market and the Economy.

8.1 KEEPING TRACK OF A STOCK PORTFOLIO

If you own more than two or three stocks, it can be a nuisance to remember all their stoc symbols and type them into a quote server. Portfolios are lists of stocks that a Web site keeps for yo so that you can look up the current prices of all of them with a single command. Once you hav created a portfolio somewhere, you can use it as a focus of your financial Web browsing, and get fa more information from it than just a list of prices.

8.2 RESEARCHING ONLINE:

8.2.1 Online Brokers

The main motivation to open an account with an online broker is price. Trades that would cos hundreds of dollars in commissions if placed with a traditional full-service broker would cost less tha $30 at almost any online broker, and less than $10 at some.

Once they get used to the idea of trading online, however, many people find they prefer it convenience. If you do your financial reading and stock market research online already, it is natura to do your trading online as well

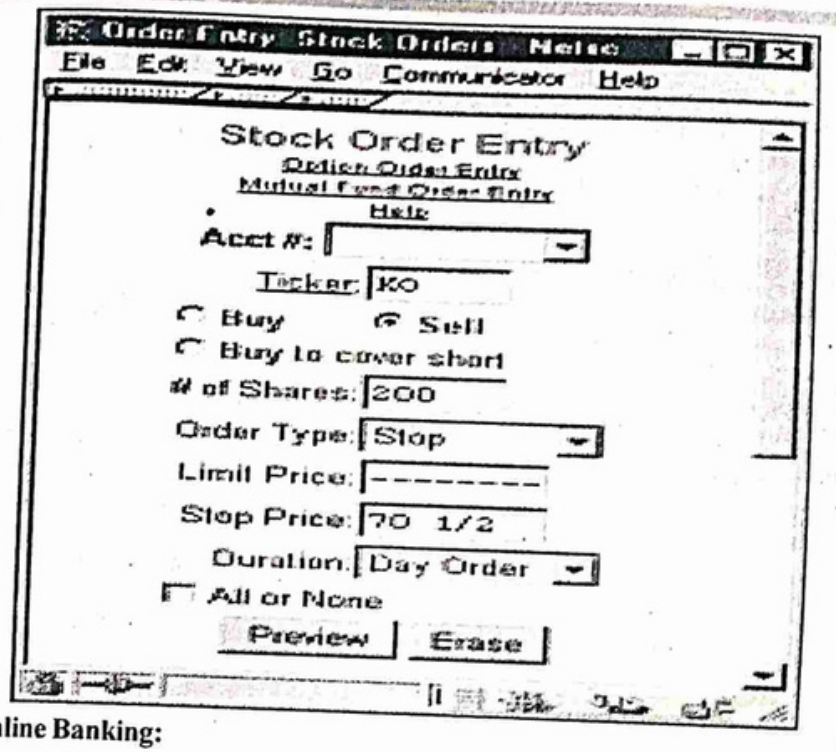
The easiest way to find an online broker is to discover that you already have one.

Even some full-service brokers now allow online trading. A call to your broker or a visit to you broker's Web site should tell you how you can start trading online, and whether there is any advantag for you to do so.

8.2.2 Placing a Trade Online

Every online broker's Web site is arranged differently, but the process of placing an order i similar on each site. After you log in, select a link that tells the Web site you want to place an orde Filling out the form specifies the stock you want to buy or sell, the quantity, the kind of order you wa to place and possibly the price at whichthe order should execute.

After you have completed the order form, you submit it. The broker's site then has you previe the order. it repeats the order it received, displays the current bid and ask prices of the stock, and tel you the commission the brokerage charges for this kind of order. You examine the order, and if yo are satisfied you enter your password. Entering your password is your way of "signing" the order.



8.2.3 Online Banking:

Many banks allow you to control a bank account online. You can get up-to-the-minute balances on all your accounts (including credit cards), transfer funds from one account to another, pay bills automatically, or even schedule transfers or payments ahead of time. If you have a regular payment like rent or a cable TV bill, you can schedule the payment to go out on the same day each month.

Most online bank accounts work with either of those financial packages. Once you have set up your account, you just enter the transactions you want to make into one of these financial software packages and let it log into your bank's computer system.

The best way to understand how all this works is to go through one of the test drive programs that participating banks provide on their Web sites. Your bank may have a similar online introduction to their service. You can look up institutions that offer electronic banking in your area at the Electronic Banking Association.

If your bank does not offer online banking, and you aren't interested in changing to a bank that does, you can still pay bills online through Intuit Online Payment. You can schedule payments online just as with an online banking account, but the payments come out of the checking account you already have.

9. ENTERTAINMENT

You can use the Web for entertainment in any number of ways. You can gather information about entertaining activities-TV shows and movies you can watch or concerts you can attend. You can follow news about the entertainment industry and your favorite entertainers. You can use the Web to watch video or listen to audio. You can play computer games online, download new computer games to play offline, or read online magazines about gaming.

9.1 Local TV and Movie Listings

Portal sites can display TV and movie listings in your area, but they are not particularly good at it yet. Only a small portion of a complete day's TV schedule can be displayed at any one time, and you don't want to have to wait for your entire start page to refresh just so you can see another hour's worth of TV listings. Movie listings are even more problematic, not all theaters submit their listings to the national services the portals use, so the movie listings in your area may not be complete. The best place to get movie listings online is from the same source you use offline at your local newspaper.

Your local newspaper may also be the best place to get TV listings, but if not, you can try the TV Guide Entertainment Network or Ultimate TV. Just input your ZIP code, and they look up your TV listings, including cable. To see an entire day's (or week's) worth of TV listings on one screen, you'll have to go channel by channel, use either the Web site of the network or of your local station.

9.2 Entertainment News

TV Guide's Web site has expanded to include movies as well as TV, but you'll find better movie coverage at *Hollywood Online* or at the Internet Movie Data Base.

Digital Cities	http://home.digitalcity.com
Sidewalk	http://www.sidewalk.com

Broadcast.com is offering a small number of full-length movies and classic TV shows in streaming format. From the Broadcast.com home page, click the Video link. The movies are offered at three speeds: 28.8Kbps, 56Kbps, and 100Kbps. Most of the movies offered have little commercial potential, and seem to be more of a proof-of-concept than a serious channel.

9.3 Computer Games

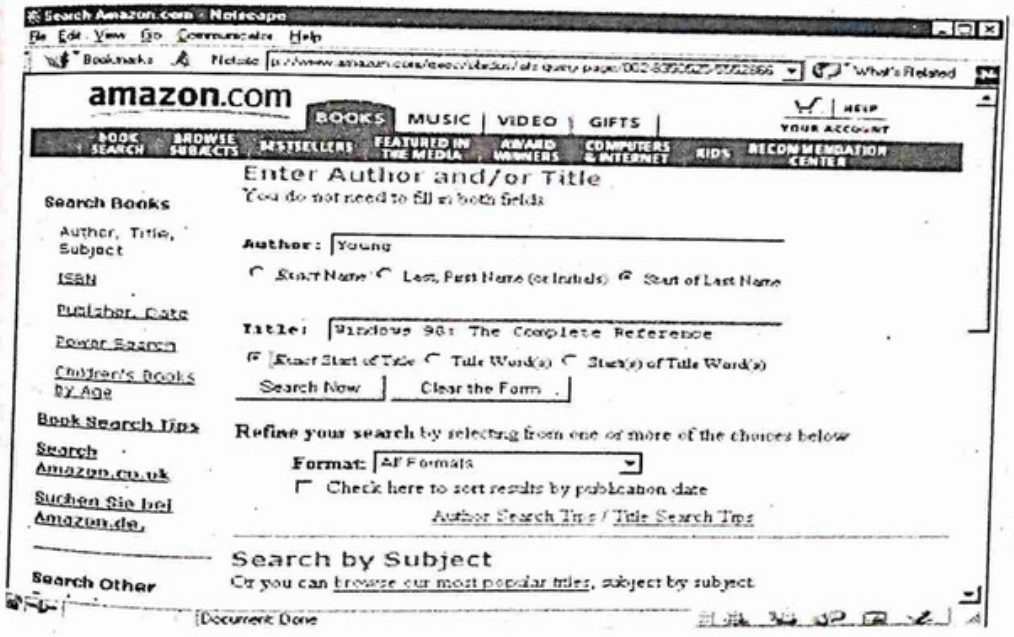
The Internet is the natural medium for people who play computer games. On the Internet, you can play games online against other people. Play games like hearts and chess in portal game rooms. Download shareware games to install on your computer. Web directories like _ Order CD-ROM games. Participate in newsgroups with other users of your favorite games. Popular games like Doom and Tomb Raider have their own newsgroups.

9.4 Shopping

The earliest form of retailing on the Web was little more than using the Web to publish a catalog. But after the development of the SSL protocol made it possible to send credit card numbers safely over the Internet, Web sites began to sell things in earnest. Advantages, such as the following:

- Catalog searches : Depending on the retailer, you can search for products on retail Web sites by name. model number. category. price. author or artist. or by a keyword appearing in the product description.
- Bargain searches : You can search for a product across many retailer Web sitesand compare prices.
- E-mail alerts : You can define criteria describing a product you are interested in, and receive notification by e-mail when the product is available.
- Increased selection Since online retailers don't have to worry about economizing on shelf space. they can offer a wider selection of products.
- Good prices because comparison shopping is so easy on the Web. everyone's prices have to stay close to the best available sale price. Discounts from list price typically more than balance shipping costs.
- Availability : If you don't live in a major city, the specialized product you are looking for might not be easily available to you.

Web site begins keeping track of the item for you, and reminds you of it when you decide to "check out." Just like using a shopping cart in a real store, putting an item in this virtual shopping cart commits you to nothing. After an item is in your shopping cart, you can forget about it for the rest of your browse through the retailer's site. Any time you want to see what you've put in your shopping cart, just click a Shopping Cart button.



When you have finished shopping at that Web site, click a Check Out button. The content your shopping cart are listed and the prices are totaled. At this point decide how many of e product you want. Setting the quantity to zero removes the item from your cart. When you have products and quantities you want, click another button to move to the next step in the process. T varies from one retailer to another. Some go straight to the shipping and payment information, w others want you to open an account or give additional information first.

The final step in the online shopping process is to give a credit card number. Most online reta offer a secure connection. Usually you must also give the expiration date of your credit card and billing address. When you submit the form with the credit card number on it, you're committed to purchase.

10. TRAVEL:

The Web can help you decide what you want to see on your travels, plan your route, and e make your reservations. Online travel agents can show you a list of options for flights or lodging do a search to get you the best deal or the most convenient times or location.

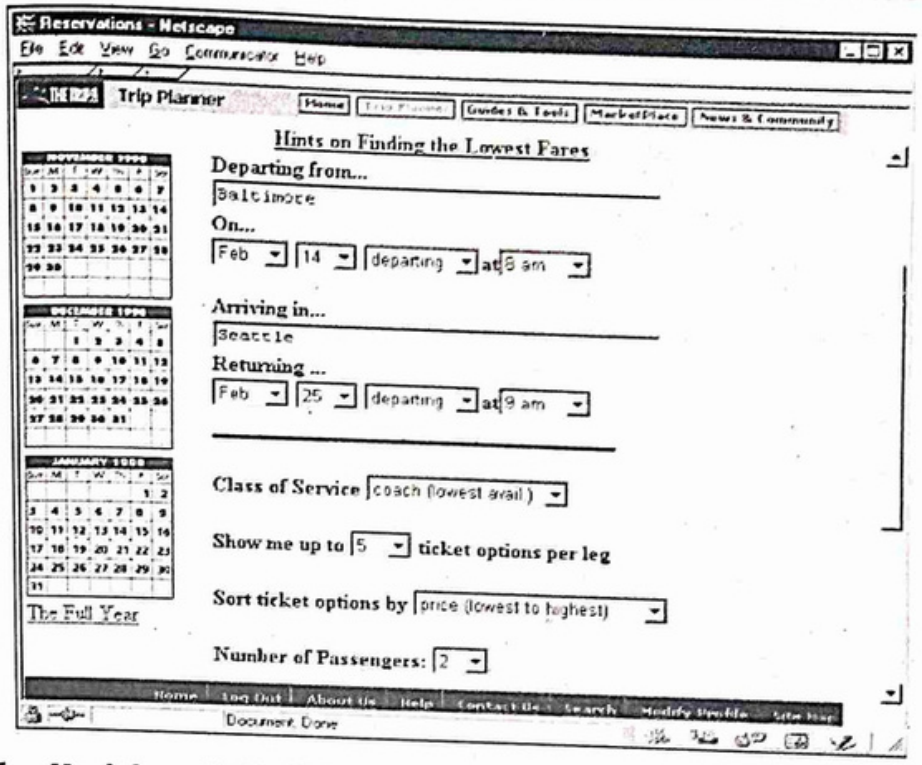
You can use the Web to help you plan your car trips. You can get maps off the Web deta blown up maps that center on your destination and mark it with a star. Or you can have a Web plan a route for you. You can check where the road construction is and what the weather fore are for the cities on your route. In major cities you can get traffic reports, and even call up a cam to show you key intersections.

10.1 MAPS AND DIRECTIONS

If you kno.v an address of any location in the United States, you can map the surrounding to any scale and get text directions on how to get there from wherever you are. Access the map tool from the portal home page by clicking on a link that has the word "map" in it somewhere. A for specifying an address, city, or area code appears. When you submit the form, the portal retu map. The destination is marked in some way, such as a star. Controls next to the map display you to ask for a different scale of map. You can usually find a directions link on the same page displays the map, or you can use a Directions link from the portal home page and skip getting a

10.2 ONLINE TRAVEL SERVICES

The web allows you to be your own travel agent. Click a link indicating whether you are loo for a flight, lodging, or a rental car. You are given an appropriate form to fill out. For flights, you fi a form like shown below. Submit the form, and the site comes back with a list of possibilities and costs.



11. HEALTH AND MEDICINE:

The Web gives you free access to a level of medical information that used to require an expensive library: detailed medical news, abstracts of current medical journal articles, dictionaries of medical terms, first aid information, descriptions of standard drugs, tests, and procedures, and discussion forums where you can meet others with similar medical problems or interests.

Chances are your online source for news headlines has medical news headlines as well, so that you can keep track of major medical advances through Yahoo Health or CNN.

An excellent all-around medical site is Medscape, which includes not only an outstanding range of medical news coverage, but also provides a search engine for finding medical journal articles, plus basic medical references like a medical dictionary and drug handbook. America's Health Network is a cable-TV network devoted to health. Its home page provides a good collection of health news and resource links. In addition, you can watch the network live in streaming video.

The National Health Information Service maintains the Searchable Health Information Resource Database, which directs you to the government organizations who have online information relevant to your search request.

MedicineNet is a network of doctors and other health professionals whose mission is "to provide the public with current, comprehensive medical information, written in easy to understand language." The site is organized into the following categories: diseases and treatments, procedures and tests,

pharmacy, medical dictionary, first aid, and poison control centers.

Another source of detailed online information for both patients and physicians is the Virtual Hospital of the University of Iowa. Many of the most influential medical journals are available online.

12. COMMUNITIES AND CLUBS:

In addition to the communities that gather around the chats, message boards, and games offered by the portals Web sites. They offer message boards, chats, articles, and free e-mail accounts and home pages for people of all ages and interests. The main resource of an online community is the people who participate in it. Each of the major online communities has its own flavor. The best way to figure out where you belong is to stop by and use some of the message boards and chat rooms.

EXERCISE

VERY SHORT QUESTIONS

1. Explain how to play MP3 in browser?
2. What is difference between ActiveX control and plugins?
3. Is it good in practice to use ActiveX controls and plugins?
4. What do you mean by FTP?
5. How web site are helpful in news and weather information.
6. How websites are helpful online brokers and online trade.
7. Explain how we get entertainment through web.
8. What is portal web?

SHORT QUESTIONS

1. What do you mean by ActiveX control? Explain in brief.
2. What do you mean by plugins?
3. Explain security concerns with ActiveX controls.
4. Write note on any two common plugins available.
5. How it is good to use ActiveX controls?
6. Explain how to play streaming audio and video?
7. Explain how online banking is helpful.
8. Explain how can we do online shopping.
9. How can we make travelling easy through websites?

LONG QUESTIONS

1. Explain ActiveX controls with its installation and uninstallation. Explain plugins. Describe similarities between ActiveX controls and plugins.
2. Explain subscription and channel in detail.
3. Write note on playing streaming audio and video.
4. Explain web resource in detail.
5. Explain how can we do online shopping.

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