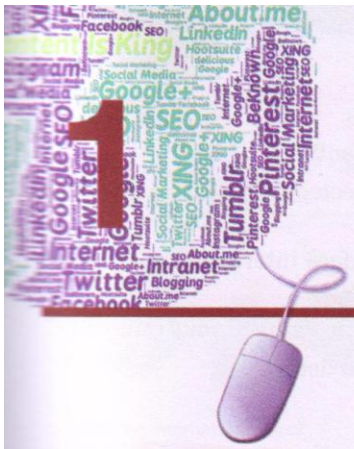


Internet Basics

INTRODUCTION

The name Internet itself suggests its meaning. It is an International Network of computers. Just with a click this international network of computers allows us to share the information available around the globe. The old saying "Its a small world" is once again proved correct with this technology.

Millions of people throughout the world use the Internet to share information and ideas, to search information on any topic, etc. All these activities are possible because of tens of thousands of networks that are connected to the Internet. The Internet is an inter-connection between several computers of different types belonging to various networks all over the world. It is a global network of networks.

NETWORK

A Network is a collection of computers that are connected to each other with the help of cables or satellite to share information around the world.

INTERNET

Internet is a network of networks which consists of inter-connected networks. It is a worldwide network of computers that uses common communication standards and interfaces to provide the physical backbone for a number of interesting applications.

Using the Internet, we can review newspapers, magazines, books, listen to music, watch movies, play games, keep ourself updated with current events, go for online shopping, know about recipes, check airline schedules and railway reservations, send e-mail and much more.

Advantages of Internet

- Useful communication links.
- Greater access to information reduces research times.
- Global reach enables one to connect to anyone on the internet.
- A valuable resource for companies to advertise and conduct business.
- Publishing documents on the Internet saves paper.

Disadvantages of Internet

- Much of the information isn't checked and may be incorrect or irrelevant.
- Computer viruses get downloaded and spread across machines connected to networks and have detrimental effects.
- Too much time spent on the Internet could result in a lack of face-to-face interaction with others and a loss of social skills.
- Going on-line runs the risk of malicious hackers or viruses being able to damage your computer.
- Cyber frauds may take place involving Credit/Debit card numbers and details.

HISTORY OF INTERNET

The History of Internet can be traced to a networking project started by the Pentagon's **Advanced Research Projects Agency (ARPA)**, an agency of the U.S. Department of Defense. ARPA's objective was to build a network that;

(1) Would allow scientists at different locations to share information and work together on military and scientific projects and (2) Could function even if a part of the network was disabled or destroyed by a disaster such as a nuclear attack. Such network linking scientific and academic researchers in the United States became functional in September 1969 and was called **ARPANET**.

Do you Know

ARPANET started using the TCP/IP on January 1, 1983. Its considered as the birth date of Internet.

In 1971, more nodes joined the network. These new nodes included Harvard and NASA.

In 1974, data was transmitted more efficiently with the development of TCP(Transmission Control Protocol) then lateron IP (Internet Protocol) technology was developed.

In 1982, Internet technology protocols were used, commonly known as TCP/IP (Transmission Control Protocol and Internet Protocol). This led to one of the first definitions of 'Internet': Being a connected set of networks.

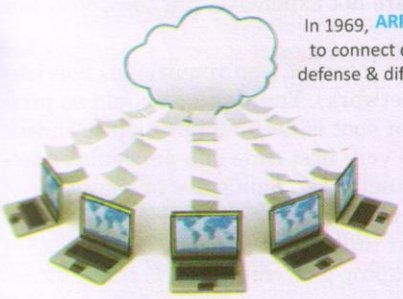
Tim Berners-Lee developed the **WWW** (World Wide Web) in 1991.

Until 1995, NSFnet handled the bulk of the communications activity, or **traffic**, on the Internet. In 1995, NSFnet terminated its network on the Internet and returned its status to a research network. Today, a variety of corporations, commercial firms and other companies provide networks to handle the traffic on the Internet. These networks, alongwith telephone companies, cables, satellite companies and the Government contribute towards the internal structure of the Internet. Many donate resources, such as servers, communication lines and technical specialists -making the Internet truly collaborative. Even as the Internet grows, it remains a public, co-operative and independent network. Although no single person, company, institution, or government agency controls or owns the Internet, several organizations contribute toward its success by advising, defining standards and addressing other issues. **The World Wide Web Consortium (W3C)** is the group that oversees research and sets standards and guidelines for many areas of the Internet.

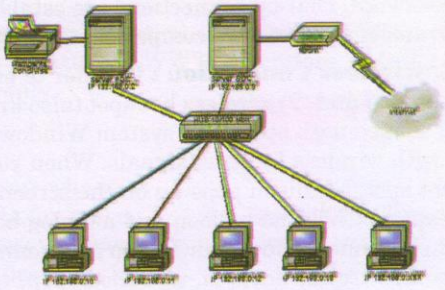
Definition

Internet is a global network of computer networks that enables information to be exchanged.

The organizational structure of Internet has steadily evolved; after around four decades of internet activity. Thus making it a modern age phenomenon. As of 2011, there are approximately 65 million internet users in India alone and 1.3 billion users around the world.

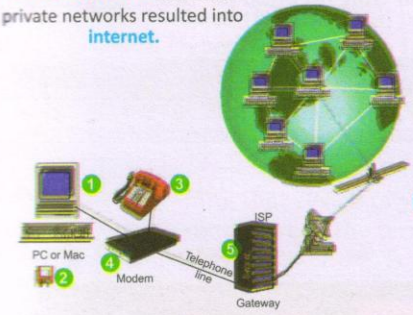


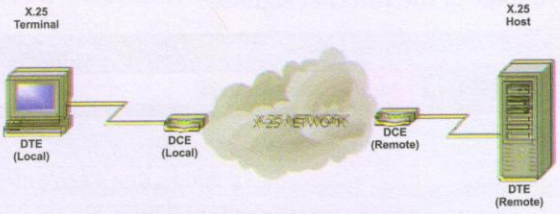
In 1969, **ARPANET** was started to connect computers at U.S. defense & different universities.



In 1980s, **NSFnet** was started to make a high-capacity network to be used strictly for academic and engineering research

In 1990s the internetworking of **ARPANET, NSFnet** and other private networks resulted into **internet.**





In 1980s many private networks were also built to cater to the activities, which were not allowed on **INSnet**

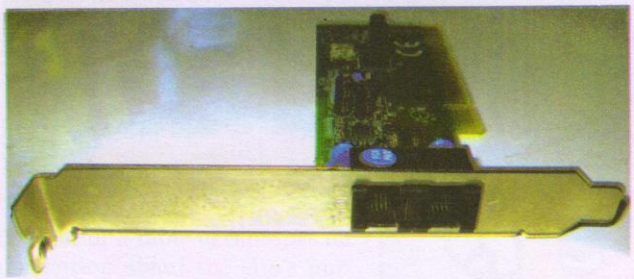
HOW THE INTERNET INFRASTRUCTURE WORKS?

When you want to make the Internet Services available for your computer, you approach ISP (Internet Service Provider). ISP connects your computer to Internet using one of the methods given below:

1. Broadband Connection. 2. Dial-Up Connection. 3. Wireless Connection.

Now let us discuss each of these types in detail:

1. Broadband Connection : This type of connection provides high speed transfer of data from Internet to your computer. Your computer is permanently hooked to Internet. Data travels through either cables of TV or phone lines. You also need cable modem or DSL box (DSL stands for Digital Subscriber Line).



Wire from upper socket goes to your phone.

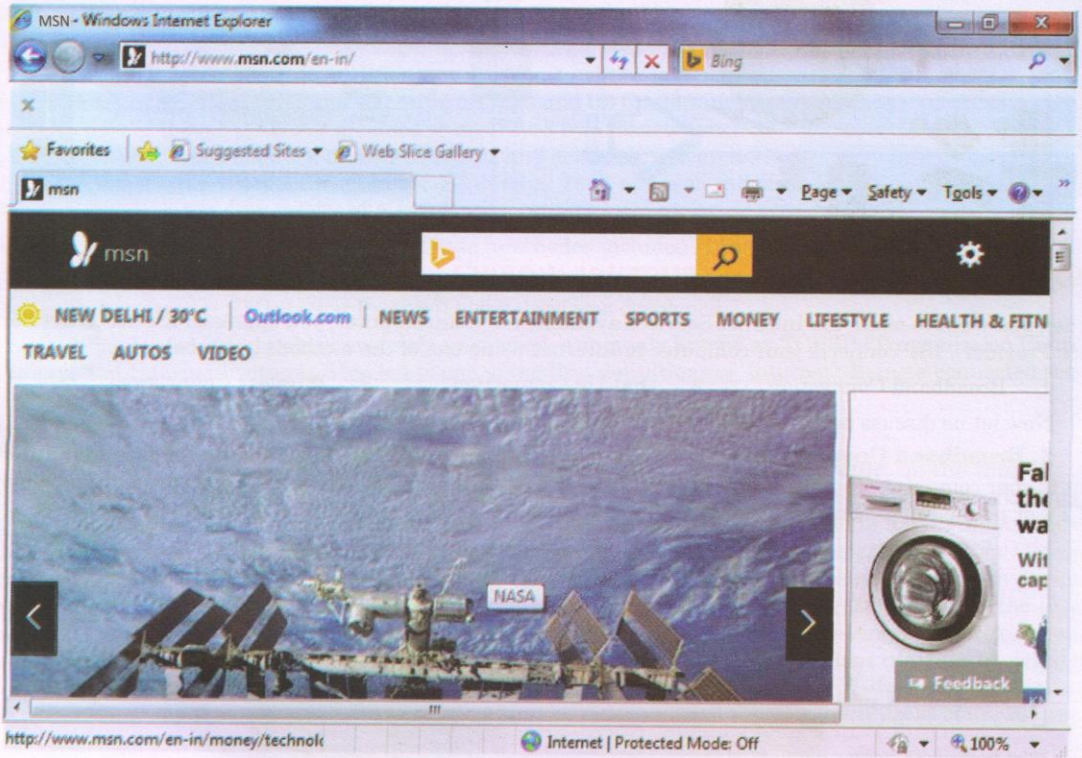
Wire from lower socket goes to your phone line.

In order to enjoy the broadband connection, you are not required to know how these machines (cable modem or DSL box) work. When you go for broadband connection, ISP sends a technician to your home and sees to it that your computer be connected to Internet.

2. Dial-up Connection : In this method, with the help of a modem, we connect our computer to ISP's telephone line. And as the name suggests, when we have to use internet, we dial to ISP using a username

and password. Dial-up connections are established temporarily. They are not expensive, but they have low data transfer rate and are comparatively very slow.

3. Wireless Connection : In order to enjoy wireless connection to internet, you require: (1) wireless ready laptop and (2) wireless hot spot (also known as WiFi or Airport network). Your laptop should be preferably loaded with operating system Windows XP or later. Wireless hot spot is nothing but a place that is filled with wireless Internet signals. When you take your laptop for the very first time in a particular wireless hot spot, a balloon pops up on the screen stating that one or more network signals are in the range of your laptop. Click the balloon and a dialog-box pops up on the screen, in which select the desired network and click Connect. Now your laptop gets connected to the Internet. Next time you bring your laptop in that particular wireless hot spot, no balloon pops up on the screen, and the laptop gets connected to the Internet without any consent. Generally, campuses of University or IT companies are set as wireless hot spots. Do not think that you can take your laptop in any wireless hot spot and enjoy the Internet connection. Many wireless hot spots are protected with the provision of a password, so that no outsider takes unnecessary advantage of the Internet signals.



World Wide Web (WWW)

From the late 1960s to the early 1990s, the Internet was a communication and research tool used almost exclusively for academic and military purposes. This changed radically with the introduction of the World Wide Web (WWW) or the Web in 1989. The WWW is a set of programs, standards and protocols governing the way in which multimedia files are created and displayed on the Internet.

Before WWW, Internet was mainly used for obtaining textual information. But post-WWW, the Internet popularity grew tremendously because of graphic-intensive nature of WWW. Therefore, we may attribute the explosion in use and popularity of Internet to WWW only.

How does the WWW work?

WWW is a true example of Client-Server technology. A person who uses Internet, uses a software known as web browser and requests for a document or a web page located somewhere on the web. The browser requests the Internet host/ server which contains that document. The browser thus acts as a customer or a client. The Internet host after receiving the request passes the information to the clients. The total flow of information is controlled by a net protocol. The protocol used in this exchange is called Hyper Text Transfer Protocol (HTTP). Web pages are written in a simple markup language called Hyper Text Markup Language (HTML). Nobody can even count that how many web pages exist on the web. They are made by individuals, organizations or the one who want to publish them.

Do you Know

The **World Wide Web** is a set of programs, standards and Protocols that allows the multimedia and hypertext files to be created, displayed and linked on the Internet.

Web Server

What is the first thing that comes to your mind if someone asks you about a web server? If we simply break the term, it would mean a server which is responsible for providing web content. A web server can be any of the following:

- A computer program which delivers web content using HTTP (Hypertext Transfer Protocol) over the World Wide Web (WWW).
- A computer or virtual machine which runs the program delivering web content.

Do you Know

A **web server** is a computer which contains the information that the users of the internet can access using their web browser. Examples of widely used web servers are Apache, Microsoft's Internet Information Server (IIS).

Web Client

A Web Client is a program or a component on client side that requests and uses services provided by web server.

Examples of web client are web browser, a specific web page with components fetching information from web server, email programs, file sharing programs, chat programs etc.

Website and Home Page

A **Website** is a collection of one or many related web pages, images, videos and other digital assets hosted on a Web Server. Web pages on a site are linked together through a system of hyperlinks, enabling you to navigate between them by clicking on the links.

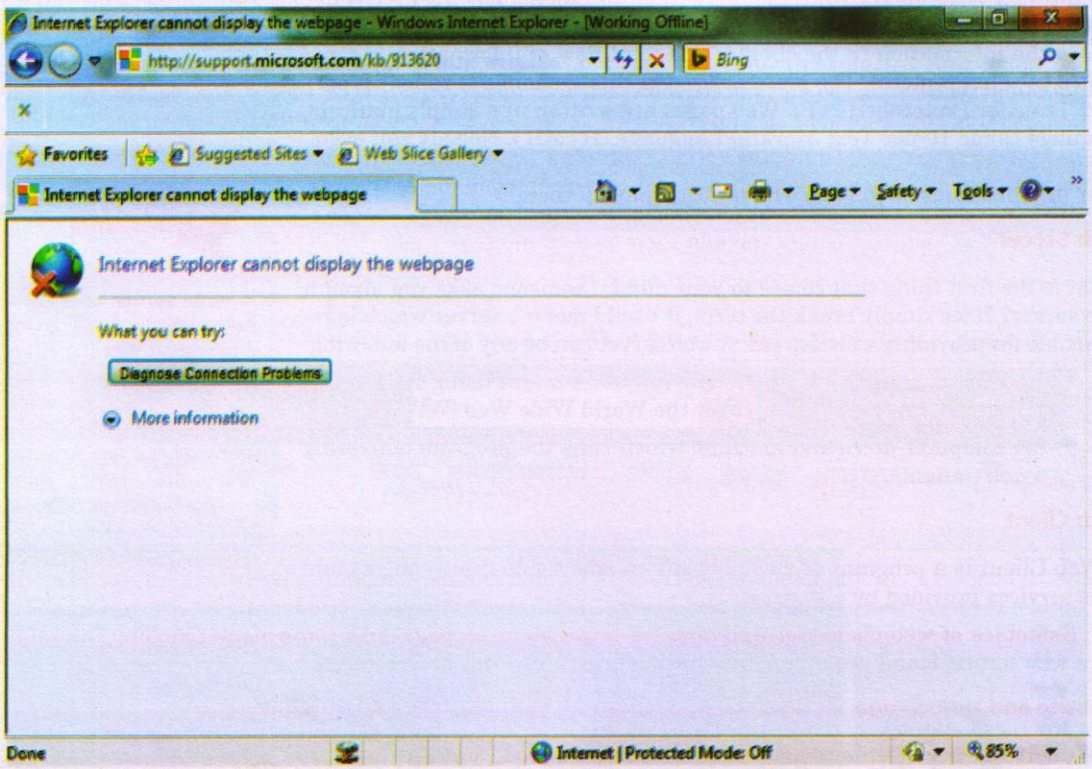
The starting page of a browser is called the **home page**. It is similar to a book cover or a table of contents for a Web site. It provides information about the site's purpose and content. The initial home page that displays is one selected by your Web browser. You can change the home page at any time. Many websites also allow you to personalize the home page so that it displays the areas that interest you.

Web browser

Web Browser is the software used to view websites. It acts as an interface between the user and World Wide Web. It allows the user to send requests to a Web Server, to view the requested web page on their computer. Some of the commonly used web browsers are:

- Internet Explorer
- Safari
- Mozilla
- Google Chrome

All of these are graphical browsers because they can display graphics as well as text. In addition, they can also present audio and video information. The most widely used Web Browser is the Internet Explorer.



Web Pages

A webpage is a digital document that is linked to the world wide web and viewable by anyone connected to the internet having a web browser. It can contain any type of information, such as text, color, graphics, animation, video and sound etc.

Difference between a Webpage and Website

A web site is composed of a group of web pages linked together. A website refers to a central location on a webserver that contains more than one web page. A web site may have just a home page, or it may have many other internal webpages in addition to the home page. For example, eduhub.com is considered a website, which contain many web pages. However, a single web page or first page of web page on this site would be its home page.

Do you Know

A **website** may have just a home page, or it may have many other internal web-pages.

Blogs

A blog is a kind of website. The term 'blog' is the shortened form of "weblog" a diary or journal on the web. The owner of the blog writes on the blog and is known as blogger or author of the blog. The activity of updating or writing for blog is called blogging. The blogger writes periodically about a certain topic of his or her choosing. The blogger can provide links to other websites that she thinks might interest the audience.

Types of Blogs

Web of today has millions upon millions of blogs. There are blogs maintained by individuals, there are blogs maintained by companies or organizations on the web, and then there are blogs dedicated to factual information like news, and so on. But, one thing is common–they tend to fall into these types of blogs :

Personal blog : This is the most common type of blog. Maximum numbers of blogs on Internet belong to this category. After all, blogging started off as a way of creating on online diary. A typical blogger may be keen on posting stories about their interest such as fishing, or dancing or collecting something.

News and Views : This type of blog contains factual stories about News, maintained by journalists. News and television companies such as the BBC have many professional journalists who post stories and views about the latest events. Visitors can add their own opinions as well.

Company blogs : Many companies run blogs to let their customers and clients know what is going on in the company that would interest clients or customers such as new products coming up or progress being made on some project.

Micro-blogs : This is a new type of blog where one can post very short comments that others can follow Twitter is the best example of a micro-blog where one can only post 140 characters with each entry called a Tweet'. The entries become a running commentary about one's life and interests.

Do you Know

While **blog** poses no restriction on number of characters / words for a pose a microblog generally limit a post to certain number of characters e.g., 140 characters is the limit for a post (tweet) on twitter.

Advantages and Disadvantages of Blogs

Although blogs are proving to be very useful tool for individuals, companies, news makers etc., even micro blogging has become very popular in past few years. But there are some disadvantages also, associated with blogging. Following table lists the advantages and disadvantages of blogs and blogging :

Advantages	Disadvantages
1. Enables you to write down your thoughts on anything that interests you.	1. Whatever you publish is available for everyone to see. If you write a post in anger you might regret later.
2. Easy to set up; don't need much technical knowledge.	2. Personal blogs may be biased or contain inaccurate information.
3. Easy and quick to update or add new posts.	3. Blogs can be time-consuming. Finding time to write regular updates can become a chore.
4. People can leave comments on your blogs.	4. People may leave rude on inappropriate comments.
5. If you want to read other people's blogs there are literally millions to choose from.	5. There are many very dull blogs around. You may have to look at many before you find some worth reading.

News Groups

A news group or form is like a community bulletin board. You can post a message, reply to a message or just read messages. When a user sends a message, the news server posts it for everyone to read. Other members of the newsgroup can now respond to your message. Groups of related messages are known as threads.

Definition

A News group or forum is online community bulletin board, where user can post messages, respond to posted messages, or just read them. Groups of related messages are known as Threads.

HTML (Hyper Text Markup Language)

The world wide web is an exciting new medium, bringing information, images, advertising and what not to every desktop. Do you know that everything that you see on the web is documents written in a special language called HTML or Hyper Text Markup Language. This language tells the browsers like Internet Explorer or Netscape how to display text, pictures and links on the screen.

HTML was invented in 1990s by Tim Berners-Lee. As you can make out from the full form of HTML (Hyper Text Markup Language) that is a markup language for Hypertext.

Let us understand the terms that make up HTML.

- **Hypertext :** Hypertext is a special type of digital text that contains links to other text. It is just the way web operates. You find many links or a webpages clicking on which takes you to other pages.
- **Markup :** It refers to special symbols or instructions indicating the format, style or structure for an electronic document or web page.
- **Markup Language :** It is a set of standards (well designed tags, structure etc.) to create an appropriate markup scheme for an electronic document such as web page.

HYPER TEXT TRANSFER PROTOCOL (HTTP)

The Hyper Text Transfer Protocol is an access method (method to access web pages) used on Internet. It is the primary access method for interacting with Internet. The HTTP generally works in combination with WWW. The HTTP is responsible for accessing hypertext documents on world wide web. Since World Wide Web is a system governing the use of multimedia files on the net and the hypertext files support multimedia, the http (hypertext transfer protocol) generally works in combination of WWW.

Web Addresses

The Internet has millions of computers attached to it. In order to communicate, every computer connected to the Internet has a unique address whose format is defined by the **Internet Protocol** (IP) addressing system. Each computer on the network is called a host, and has a name and a number which identifies it. The IP addressing system uses two methods for identifying the computers. These are as follows:

S.No.	Domain Id	Affiliation	Remarks
1.	.com	commercial	for commercial firms
2.	.edu	education	for educational firms

S.No.	Domain Id	Affiliation	Remarks
3.	.gov	Government	for government organizations/bodies
4.	.mil	Military	for Military
5.	.net	Network resources	for ISPs/networks
6.	.org	Usually non-profit organizations	for NGOs and other no-profit organizations
7.	.co	Company	for listed companies
8.	.tv	Television	for TV channels and companies

Some country abbreviations are being listed below :

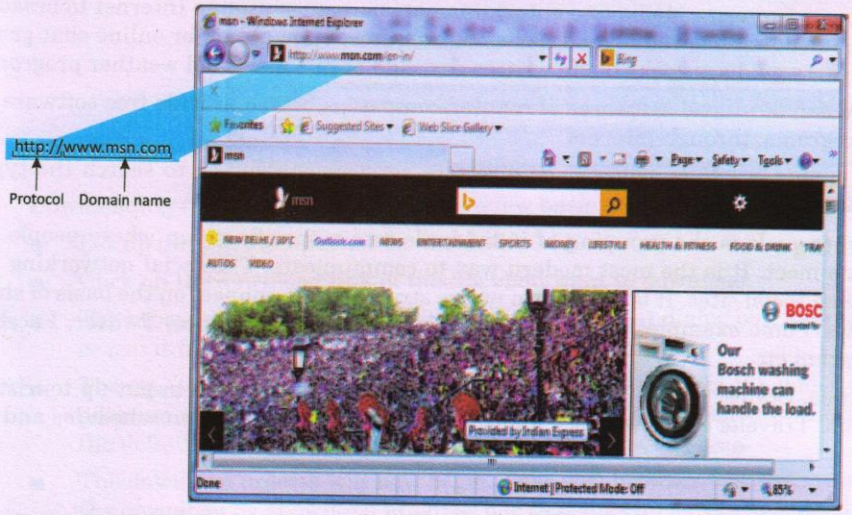
.au	Australia
.ca	Canada
.dk	Denmark
.fr	France
.in	India
.jp	Japan
.nz	New Zealand
.uk	United Kingdom

DOMAIN NAME SYSTEM (DNS)

Domain Name is a unique name given to each website. The **Domain Name System** (DNS) is a system in which domain names are interpreted into IP addresses; since the Internet works only with IP addresses. Domain names are easier to remember than IP addresses since name has strong correlation with the website. The DNS serves as a directory for the web by locating and addressing devices in a worldwide network. For example, to use the Google search engine, the domain name is Google.com. The domain name consists of two parts. One is the name of the domain and other is the web extension. The name of the domain comes before the dot (.) symbol and the extension comes after it. A web extension tells the kind of organization and the country it belongs to.

Uniform Resource Locator (URL)

A web page has a unique address, called a **Uniform Resource Locator** (URL). A browser retrieves a Web page by using its URL, also called a **Web address**. The URL tells the browser where to locate the document. URLs make it possible for you to navigate using links because a link is associated with a URL. When you click a link, you are issuing a request to display the website or the document associated with the URL.



As shown in Figure above, a URL consists of a protocol, domain name for a specific Web page or location on a Web page. Sometimes a path is given after the protocol or the domain name for specific location on a Web page.

Many companies and organizations assume the public is familiar with URLs. Web addresses appear on television, in radio broadcasts, in printed newspapers, magazines and other forms of advertising.

If you know the URL of a Web page, you can type it into a text box at the top of the browser window. For example, if you type the URL of http://www.msn.com in the Address text box and then press the ENTER key, the browser downloads and displays the MSN page.

Intranet

An intranet is a network that exists exclusively within an organization and that is based on Internet technology. It delivers an organization's informational resources to each member's desktop quickly and inexpensively but protects the information from unauthorized access. Because an intranet is based on Internet technology, it can have thousands of users across many locations and still be private. It is thought of as **INT**ernal **R**estricted **A**ccess **NET**work.

Do you Know

An **Internet** is a network that exists exclusively within an organization and that is based on Internet technology.

Uses of Internet

The Internet is indeed a boon to the world. Internet offers countless amazing and wonderful services to its user. It has brought the whole world together. The best feature of Internet is that it offers 24x7 services. You will be surprised to know that almost every aspect of our life is touched by Internet.

Some of the common uses of Internet are as follows:

1. **E-mail :** Internet is used for sending and receiving electronic mail (E-mail) across the world.
2. **Education :** Internet has changed the traditional learning system. It enables people to learn anytime and anywhere. Internet is widely used by students, scholars as well as teachers for research and education. Several online education programs are available now-a-days, where students can study and participate in video conferencing. It has made distance learning easier. IGNOU is one of the universities which offers this facility. Through Internet, information can be updated or modified at anytime, which helps in learning and giving a better understanding of the content.
3. **Media and Entertainment :** Media and entertainment companies use the Internet to broadcast audio and video, including live radio and television programs. They also offer online chat groups, in which people carry on discussions using written text and online news and weather programs.
4. **Softwares :** You can download softwares of reputed companies, which provide free software programs, utility programs, through internet.
5. **Products and services :** New yellow page directory services enable you to search the type of company you are looking for.
6. **Social Networking :** It is the grouping of individuals into a specific group where people with common interests meet. It is the most modern way to communicate. The social networking websites are also called social sites. It is a platform where strangers can connect on the basis of shared interests or views. Some examples of social networking sites are: My Space, Twitter, Facebook, Linkedin, Instagram etc.
7. **Travel :** Countries, States, Cities, tourism department are using the web to put-up tourist and event information. Traveler's find weather information, maps, transportation schedules and tickets online.

ELECTRONIC MAIL

Today being a communication era, the Electronic mail proves to be the most valuable asset in sending, receiving messages instantly from one computer to another. It allows you to quickly communicate people