
UNIT 2 WEB APPLICATIONS I

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2.0 INTRODUCTION

In the previous unit, you have gone through the concepts relating to networking and Internet. The Internet is the network of networks and is used for many applications. Internet allows you to share resources and applications with ease. The Internet uses TCP/IP as its basic protocol on which many more application level protocols have been developed. The Internet can carry any digital signals such as text, graphics, sound, video and animation. Today, Internet has thousands of networks and millions of users, using many services.

Uses of Internet technologies have become common place in recent times. Since, the advent of Mosaic Browser in 1993, the popularity of web and its users grew very fast. The web application during this era primarily wanted to provide information about various organizations and some basic interaction with the clientele. Even in this time some of major usages of Internet were to browse and search the information and communication through emails. Since, 2003 there is a shift in focus in use of Web technologies. The Web has now become a platform for collaborative, community driven applications. This form of Web at present is called Web 2.0. There are other more structured forms of web organization that is at present popular named Web 3.0 and beyond. However, that is beyond the scope of this Block.

This unit introduces you to some of the basic applications of the Internet that have become part of daily routine application of any Internet users, whereas, the next unit will focus on some of the applications relating to Web 2.0. We will discuss about browsing, emailing, searching and chatting in this unit. If you are using World Wide Web on Internet then you are essentially doing the browsing. You may need to search the net for relevant information. Sometimes, you may like to send messages to your friends either offline or online and hence you will need email or chat.

2.1 OBJECTIVES

After going through this unit, you should be able to:

- explain the term browsing and perform browsing on the Internet;
- explain the role of search engines;
- identify and use the basic features of email services;
- identify and use basic models of chat; and
- appreciate the various security issues on the Internet.

2.2 BROWSING

Browsing also called Surfing the process of looking into the information available in the web. One of the preconditions for browsing is that you should be connected to the Internet. For connecting to Internet you should have an Internet account with a service provider (like MTNL, BSNL) and you have done the connection settings on your computer relating to that account.

Activity: Set up a connection to Internet on your Computer. Ask for the relevant settings.

2.2.1 What is Browser?

A Web browser is software application that enables you to find, retrieve, and display information available on the World Wide Web (WWW). Browser also allows you to traverse information resources on the WWW. As you know that the information on the Web is organized and formatted using tags of a Markup language called Hypertext Markup Language or **HTML**. A web browser is converts the HTML tags and their content into a formatted display of information. Thus, a web browser allows you to see the rich web contents from a website. Some of the popular web browsers are - **Internet Explorer, Mozilla Firefox, Apple Safari, Google Chrome, and Opera.**

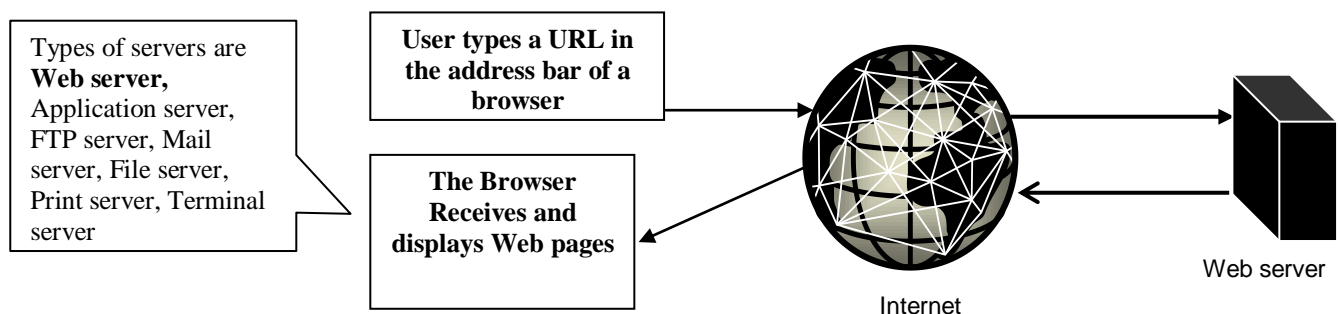


Figure 2.1 : The Browsing

2.2.2 How does Browser work?

Internet is characterized by the Client Server Computing that consists of three basic components:

- The **Web client** which may be the **web browser**;
- The **web server** that services the request of the web client; and
- The **network** that connects the client and the servers through a network such as LAN, WAN or the Internet.

For exchanging information between the client and the server, an application level protocol *Hypertext Transfer Protocol (HTTP)* is used. This protocol uses the services of TCP/IP for communication of reliable information over the Internet. However, HTTP is not suitable for all kinds of applications especially that requires large amount of data transfer in real time, for example, Voice over IP (VoIP) application which requires real time transfer of voice data. For such applications, different application level protocols have been designed, for example, for VoIP a protocol named Real-time Transport protocol (RTP) has been designed. Such protocols instead of reliable TCP may run over unreliable User Datagram Protocol (UDP)

The HTTP protocol allows us to access a **web page** by a web client running a browser. A Web page is a document or resource of information that may be available on a Web Server.

2.2.3 How communication takes place between web server and Web browser?

As stated earlier, a web browser is an application that allows you to interact with various web sites on the Internet. You can run a browser from your Windows Desktop. Figure 2.2 and Figure 2.3 shows some of the important interactions/displays that are available on a browser window:

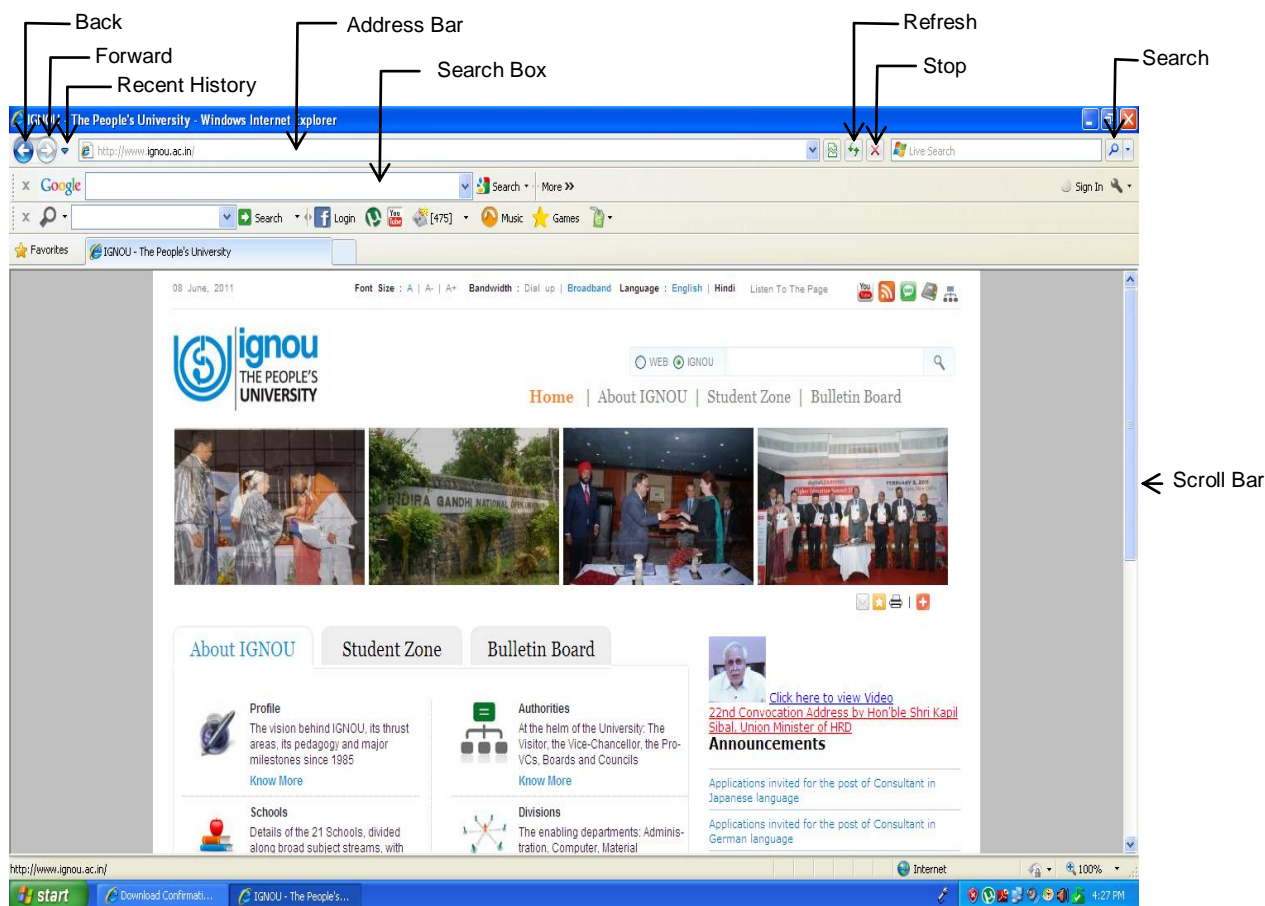


Figure 2.2 : IGNOU's website in Internet Explorer



Figure 2.3 : IGNOU's web site in Mozilla Firefox

A brief description about some of these interactions/buttons is as follows:

- **Back/Forward Buttons:** Back button can be used by you for going back to the previously visited web page whereas the Forward button is used to visit the next page (if you are not on the most recent page visited by you, this may happen when you have pressed the back button at least once).
- **Tab:** It allows you to view multiple web pages in the same browser without opening a new browser session.
- **Address bar:** Also known as URL Bar is a place where you can type the web page address that you want to retrieve from the web address. It also displays the address of the web page currently being visited by you.
- **Recent History:** This shows the links to the web pages previously visited by you.
- **Refresh:** This is also called as reload button. It reloads the current web page.
- **Stop:** It cancels loading of the current web page. This button is used when the page is in the loading state.
- **Home:** This button will bring you back to the home page of your website. Home page is the first page of any web site.
- **Search:** Search box allows any term to be searched by the search engine from the web. It can also be used for searching contents from the website visiting.

When you type in the address of a web site, for example, *http://www.ignou.ac.in* in the address bar of your web browser, the web browser performs the following actions:

- Your web browser knows that you want to access a web site (*http://* indicates that). But, where is this website? The web browser requests the nearest **Domain name system (DNS) server** to resolve the IP address of the intended web site *www.ignou.ac.in*
- The name server may take the help of other name servers in case it is not able to resolve the IP address, otherwise it will generate an error message.
- Assuming that there is an entry for the web site, the name server will return the resolved IP address of the Web server of the website *http://www.ignou.ac.in*
- The browser then requests TCP/IP protocol to establish a connection with the web server whose IP address has been resolved in the previous step and get the home page of the web site (generally named as *index.html*). In addition, to the HTML text file, the browser may also request download of the related image files, audio files, video files, XML files, Flash files, Java applets etc. with Hypertext Markup Language (HTML).
- A web browser then receives webpage and related files from the server then displays the webpage as desired.

When the desired webpage loads into your browser you will see the text comes in, the pictures arrives, the animation gets loaded and so on. You will notice that some text is underlined and in different colour — it is **hypertext**, if you link multimedia elements like graphics, sound, and video then it is called **Hypermedia**. The contents of these links are hosted on some web server. These links are called **hyperlinks**. Usually, by clicking hyperlink you will move from one location to another location within the same document or in another document or some other website. This process of clicking hypertext links, loading one page after another, is called "**browsing**" or "**surfing the web**".

In the current times, Web Browsers are most user-friendly and essential technology tool for surfing the internet. Web browsers help you to view contents of different file formats, interact with other websites, and incorporate appropriate technology to view or download or upload multi-media content and streaming multi-media. Web browsers also provide functions like blocking of unwanted pop-up advertisements; spywares and phishing (please refer to references for more details on these terms). They provide the convenience of tabbed browsing and come with advanced features like auto-fill and password and download managers. Web browsers of today are full-fledged programs capable of using fuzzy logic to select most appropriate content and help you to browse safely.

2.2.4 A Brief History of Web browser

In the **late 1980s**, a variety of technologies laid the foundation for World Wide Web by Sir Tim Berners-Lee. You may trace the history of the WWW and Web Browser from the website *http://www.wikipedia.org*. Some key points of the history are highlighted below:

- The first graphical web browsers which led to explosion of web usage was developed in 1993 by under the leadership of Marc Andreessen. The browser was named NCSA Mosaic.
- Netscape Navigator was the first very popular browser in 1994. It accounted for 90% of all web use at its peak.

- Microsoft Internet Explorer was launched in 1995. The usage of this software peaked in 2002 at 95%. Internet Explorer is one of the popular browsers.
- Opera was started in 1996. It is presently one of the popular browsers on a mobile phone.
- Firefox has evolved from Netscape. It was released in 2004. It is one of the popular browsers.
- Apple Safari was developed in 2003. It is the main browser used in Apple machines.
- Google Chrome was released in September, 2008. It is also becoming popular.

Types of Browsers

Line Mode Browsers: The initial browsers were line mode text browsers. These browsers were simple and used to display text line by line. They used to provide command line interface to the user on a less sophisticated computers and terminals. These browsers provided fast access to websites as they displayed only the text part. Lynx is a line mode browser.

Graphical User Interface based Browsers: These browsers run under graphic user interface systems such as Windows, Macintosh etc. A graphical browser, in addition to text can handle images, audio, video and animation. These browsers are very easy to use – You just need a point and click device like mouse. They have good display features.

Java enabled web browsers: These browsers include a Java Runtime Environment that support Java programming language. These browsers can dynamically load java applet from web server to web client. These browsers are portable, extensible and secure. The example of java enabled browser is “LOBO”. It is open source software written completely in java.

2.2.5 Browser Security

WWW is used for many applications today including Banking, reservation, trading, e-commerce and many such applications which require security and confidentiality of data. However, HTTP was not a secure protocol. Thus, a secure HTTP protocol was developed for applications that required secure communication channel over an unsecured network. This is called HTTP Secure and most of the contemporary browsers support this HTTPS protocol. Thus, if you are browsing a secure website then you will find https:// at the beginning. In case, you are browsing from a public computer then you must delete the contents of web cache, cookies and browsing history. All browsers provide simple way of doing this task.

Activity 2: List the steps to clear browser cache, cookies and history on the browser used by you.

Browser Cookies

A cookie is a small message sent by the Web server to a your web client. This message is stored by the browser as a text file. The basic purpose of cookie is to store information needed by a server at the user end only. The cookie is used to send information back to the Web Server each time the browser requests a page from the server. For example, a website may ask you to fill up a form with the information about your name and interests. This information is packaged by the server into a cookie and sent to your Web browser which stores it for later use. The next time, you go to the same Website, your browser will send the stored cookie to the Web server along with the request for a web page. This way, server will be able to remember you and send you only that information that you had desired earlier.

Are cookies bad?: Cookies are merely text files that can be deleted at any time - they are not malicious nor are they programs. Cookies cannot be used to spread viruses and

Please make sure while logging in to your Bank account that web browser shows https:// or else there may be a chance of leak of your login information.

they cannot take control of your hard drive. However, they contain important information about you, so they may be threat to your privacy and anonymity on the Internet. The cookie contains information that you provide to a Website. So be careful about what information you provide on the web.

Some Security Tips While Browsing:

Web although on one side is huge resource of information, but on the other there is an increasing threat from software attacks that take advantage of vulnerable web browsers. Therefore, you are advised to take following precautions while browsing a web site:

- Do not click all the links without considering the risks of your actions. Some web page addresses may be disguised and may be very close to address of a site you want to visit but they may take you to an unexpected site.
- You must use the latest versions of browsers and please do not configure them to have decreased security.
- Do not login to a critical application if it does not have https://.
- Please do not download or install plug-in from the unknown party such tendencies may put your computer to additional risk.
- Third-party software may not have a mechanism for receiving security updates.
- Do not visit unsolicited websites, those add to your computer vulnerabilities.
- You may use a separate user account for accessing internet on your computer. You may restrict the rights of this user account.

This list may include many more tenet as you become more prolific internet user.

Activity 3: Develop a comprehensive Dos and Don'ts Card on Internet use.

Check Your Progress 1

1. What is a browser? Discuss various types of browsers.

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2. How does Web Server communicate with Web browser?

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3. What is cookie? Is it really bad? Discuss.

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Activity 4: Use at least 3 browsers? Give at least 5 criteria on which you compare them?

2.3 SEARCHING

The Internet consists of millions of private/public/academic/business and government networks having local to global scope. It has billions of web pages on varied topics that may be accessed by you. Thus, if you are asked to surf the net for specific

information relating to a topic, it may take years before you could find all the pages related topic you are looking for. How can you make this process faster? Well perhaps you require the service of a search engine on the Internet. Some of the popular search engines on the Internet are: Yahoo!, Google, Bing, Ask.com and many more. These are the tools to help you locate the content that you are looking for.

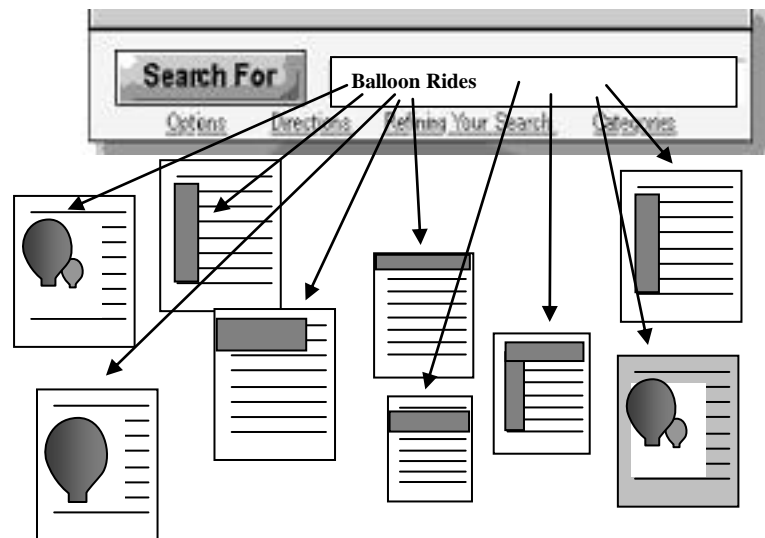


Figure 2.4 : A Search Engine

A search engine can be defined as a tool to search diverse and disorganized sources of information available on the Internet. You can clearly visualize from this definition that a search engine has to use some automated programs that needs to continuously keep visiting the web pages about the content they have and organize the information about web pages in some format. Programs that continuously keep searching for information from web pages are called -spiders, robots, crawlers, wanderers and worms. Search engines finds, classifies and stores information about the contents of various websites on the Internet.

Types of Search Engine

Some of the basic categories of Search engines are :

- a. **Primary Search Engines:** Such search engines use web crawlers or spiders to traverse the web and scan websites for key words, phrases, to generate database of web pages having some indexing or classification. Google and Alta Vista are examples of primary search engines.
- b. **Web directory:** Web directories organize information into categories and subcategories or directories. You can search a web directory for all those entries that contain a particular set of keywords. Directories differ from search engines in the way they organize information. Yahoo is an example of web directory.
- c. **Meta search engines:** Such search engines pass your queries to many search engines and web directories and present summarized results to the users. Some of the examples of meta search engines are — Dogpile, Infind, Metacrawler, Metafind and Metasearch.

You can refer to further readings for more details on various types of search engines.

But how does search engine get able to do searching?

A search engine performs, the following three actions:

1. Spidering or Web crawling
2. Indexing
3. Searching

Spidering or Web crawling: Spider or Web crawler is a computer program that browses the web pages of WWW in a systematic, automated manner. Search Engines use spider for getting up-to-date data on web sites. They are used to create a copy of the pages visited by them for later processing to create Index. These programs are also useful in validating HTML code to a particular standard like XHTML or checking or validating the hyperlinks.

Indexing: Once, the spiders have completed the task of finding information about Web pages, the search engine must store the information in such way that you are able to use it. The search engine may provide some information relating to relevance of information may be in the form of Ranking. Thus, a search engine may store the keywords of a web page, number of times that word appeared on the page, the URL of the page. A weighting factor that gives more weightage in case a word is found at the top of the document. Each commercial search engine uses a different formula for assigning weight to the keywords in its index. This is one of the reasons that a search for the same word on different search engines will produce different results.

Since, the data that is to be stored for indexing is large, therefore, search engine may encode it. The Index is created with the sole purpose, that is, it allows you to find the information on the Internet quickly. In general, Index uses hashing (you will study this concept in the Data Structure course).

Searching: When a user enters a query into a search engine, the engine examines its index and provides a listing of best-matching web pages according to its ranking criteria. This short list, usually, have a short summary containing the title of the document and small part of the text. Most search engines support **Boolean search**. Some simple example of a search is given below:

To find website which contains “java tutorial”, you may type **Java tutorial** in the search box of the browser. The search will look for keywords “Java” AND “Tutorial”; the search expression will retrieve all those records where both the terms occur (Figure 2.5).

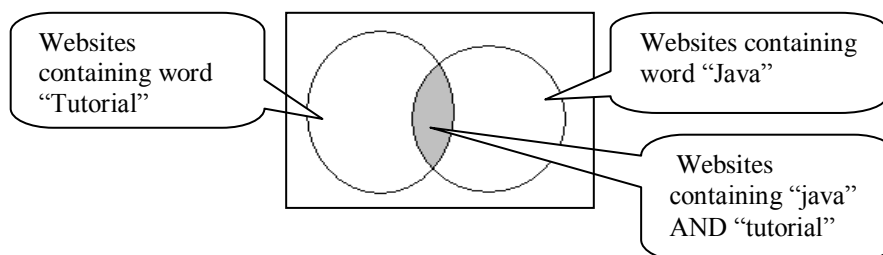
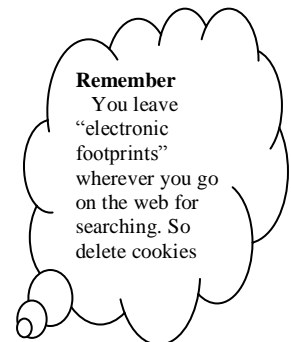


Figure 2.5: A Searching Example using AND

You may use other Boolean operators like OR and NOT in the searches. For example, if you are interested either in web pages having keyword “Java” or they are tutorials then you may use search expression as: **“Tutorials” OR “Java”** (please refer to Figure 2.6).



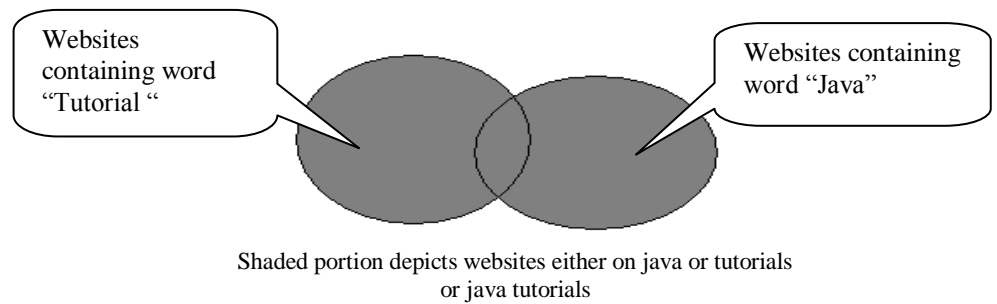


Figure 2.6: A Searching Example using OR

If you are looking for Tutorials that are not related to Java then you may use the search expression as "Tutorials" AND (NOT "Java") (refer to Figure 2.7).

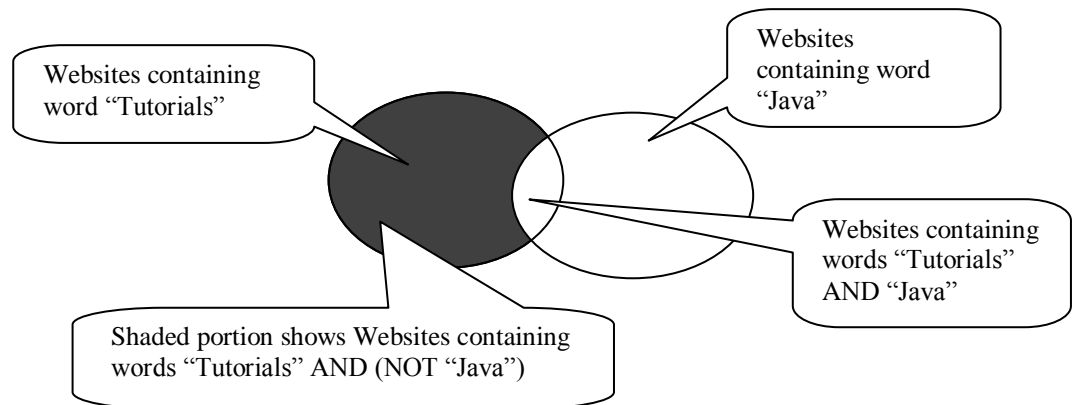


Figure 2.7: A Simple example of use of NOT

Some other Boolean expressions are:

FOLLOWED BY: One of the terms must be directly followed by the other.

NEAR : One of the terms must be within a specified number of words of the other.

Quotation Marks : The words between the quotation marks are treated as a phrase, and that phrase must be found within the document or file.

Field search: Using 'title', 'in title:' or 'all in title' etc.

Limiting search: Limiting by time, date or file type language or occurrences.

Please note that different search engine provides these search forms using different syntax. You should refer to further studies for more details on this topic.

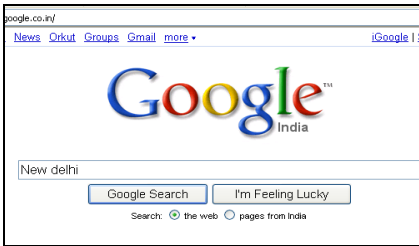
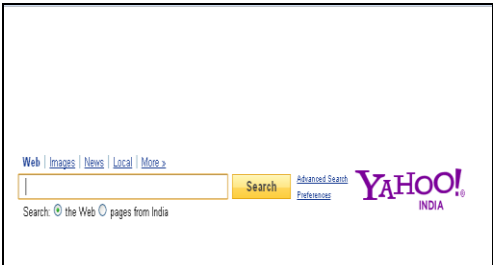

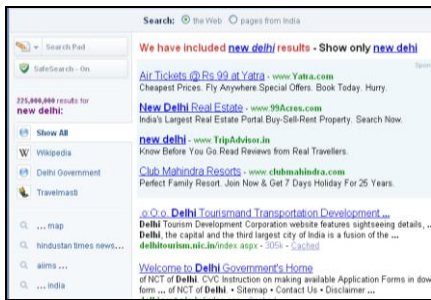
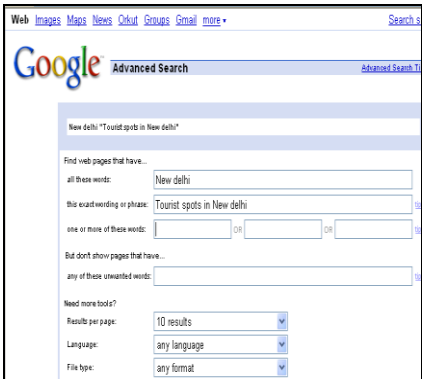
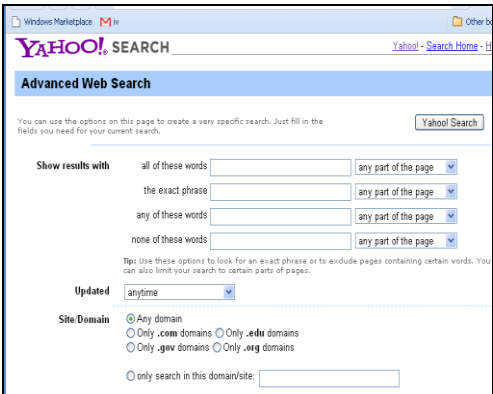
Let us now show you how you may be able to use search engines. For the purpose of this unit, we have selected Google and Yahoo, however, you must do the similar exercise using Bing, Ask.com, and many other search engines.

Google was launched in January 1996, as a research project by Larry Page and Sergey Brin as PhD students at Stanford University

Yahoo was launched in January 1996, by Jerry Yang and David Filo, Electrical Engineering graduate students from Stanford University

The Table 1.1 shows in detail some of the basic features of Google and Yahoo.

Table 1.1 : Basic Features of Google and Yahoo

Searches	Website: www.google.co.in	Website www.yahoo.co.in
Web Search	Google has a very large number of indexed pages.	Yahoo also has faster ways to find the information.
You just type any word for e.g. New Delhi and click search		
		
The Result Screens		
On Home Page near search button there is option Advance Search. If you Click that button you get this screen	Advance search can help you to create more specific search.	Yahoo advance search is primarily category based
		
Image Search	Google has a very good Image Search facility on the Web. It has more than one billion indexed images for viewing.	Image Search of Yahoo! allows you to search millions of images from across the Web.
Other Searches	You may be able to do many other types of searches including scholar for scholarly articles, books, maps, news and many more categories	You may able to perform searches using yahoo such as news, products etc.

There are many other search features provided by search engines. You must use various search engines and explore the facilities they provide.

Activity 5: Compare the features of at least four search engines.

Some Searching Tips

Any Search engine allows you to perform either a broad search of everything on the Web or a narrow search limited specifically to images, video, news, or other specific search type. If you are interested in further narrowing your search results, try adding more words to your query Or search again using different terms. Following are some of the tips that may help you to formulate better search strings:

Choose words carefully: Use specific words to describe exactly what you are looking for.

Make sure to watch for words with more than one meaning. In case word has more than one meaning then also include the context in which you are searching the information

Try to use phrases instead of single word for pointed search.

You should perform multiple searches simultaneously

Now let us discuss about some of the products provided by the search engine. Figure 2.8 lists the products provided by Google and Yahoo:

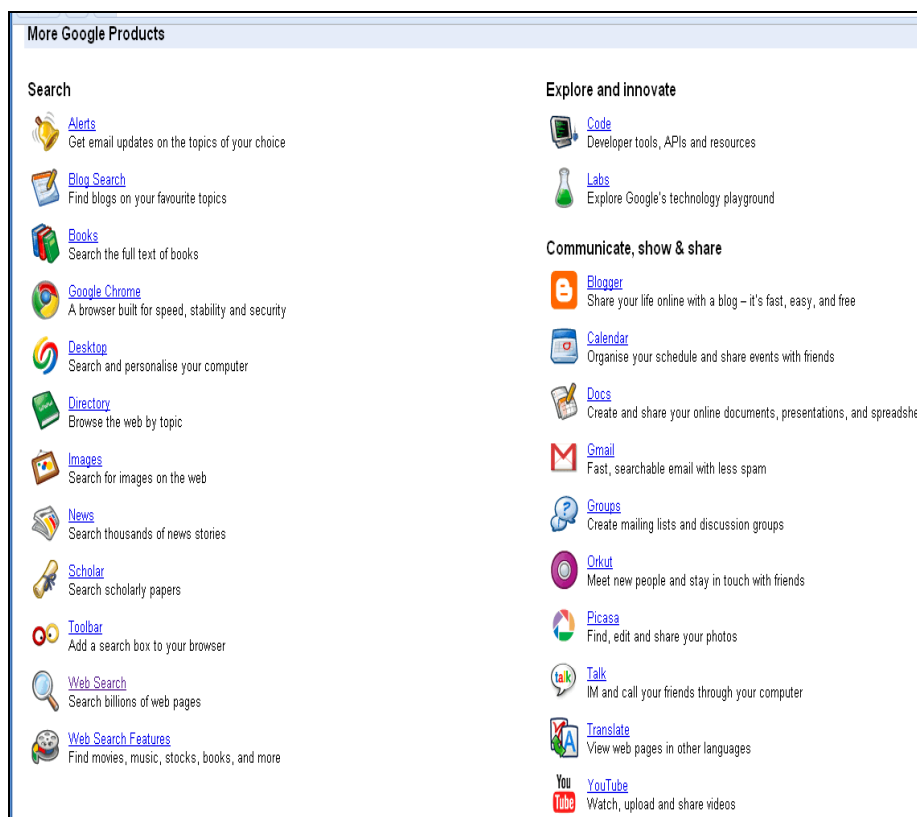


Figure 2.8: Products in Google

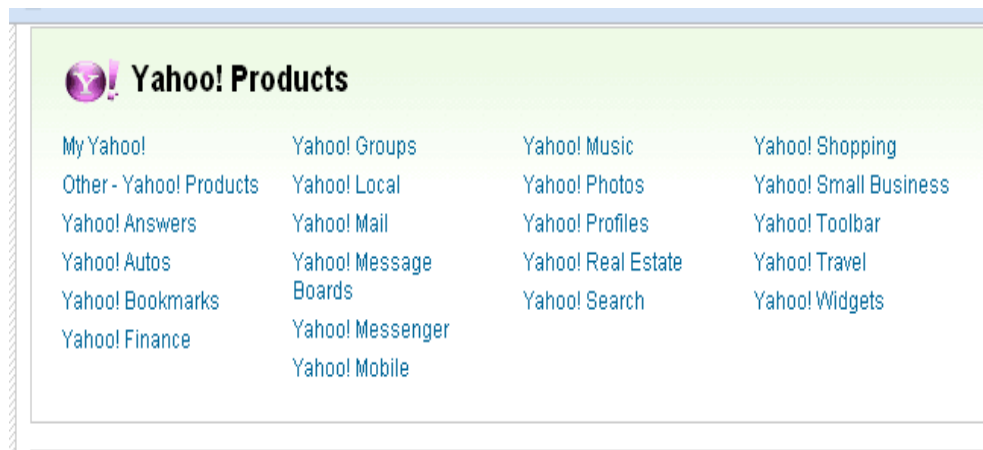
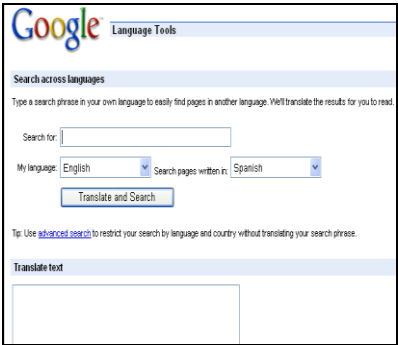
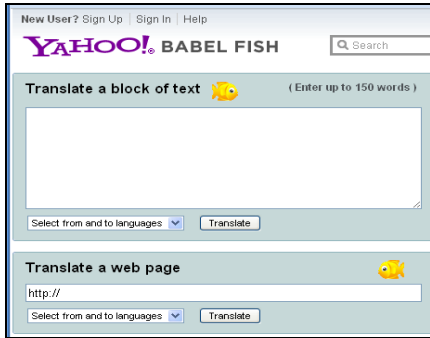


Figure 2.9: Products in Yahoo

Following is a list of some of these products.

Product	Google	Yahoo
Language Tool: Can be used to translate. But please check these translations before use.		
Alerts	Alerts sends you an email about the latest relevant updates on information of your choice.	
Answers	Answers may help you to get answers to your questions from researchers.	
Directory	Directories are pool of information that is integrated with the search option to provide more structured information on the web.	
Finance	You may get stock updates and related information.	It provides you access to financial resources.
Groups	It is an online discussion group or mailing list that helps you communicate with your families, friends or a group of people.	
Mail	These are client/server based email services that provide free email account with huge storage space. Section 2.4 provides more information on one of the mail service.	
Maps	Maps are very well developed mapping services with many features like driving directions, location addresses etc.	
Other Services	Other services provided by Google and Yahoo include – Mobile – that allows browsing and searching of contents through mobile phones News – that collects news from different news sources and present to the user as per his/her preferences. Personalised home pages – you can create your own home pages very quickly. Weather – you can see weather conditions and predictions. Some other services include social networking and chat.	

Please note that many search engines provides the similar products. You must try several search engines from time to time as they keep updating their features.

Activity 6: Find all the products available with any four different search engines.

Check Your Progress 2

1. What is a Search Engine? How does it work?

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2. What is searching? How efficiently you can search:

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- a. Tutorials of XML

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- b. Universities in India and USA

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- c. Universities is not in USA or Britain

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- d. Cleaning process of gold, it should not give process related to cleaning of jewelry

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Activity 7: Find out 10 search engines from the web. Also list the importance in the context of type of searches they are good at. You may select the some of the search engines from the following list:

Bing, Yahoo, Google, MSNSearch, Lycos, Webcrawler, Hotbot, Alta Vista, AOLSearch, Alltheweb.com, Allacademic.

2.4 E-MAIL

Internet has changed the art of writing letters to email. Email is one of the ways on Internet to send messages to another person across the network. E-mail and postal mail coexist in the present India. In our country, the reach of postal mail is far more penetrative through technically you may claim that e-mail has the potential to reach every village may be through mobile devices. The e-mail system has been designed on the postal system that is why in email you have to write the email address of the sender and the recipient. In case the address of the receiver is incorrect the mail is undelivered and returns back to the sender. The advantages of e-mail over postal mail may be:

- E-mail is faster than postal mail.
- E-mail cannot be lost like letters and can be stored for life long.

- It can be edited and forwarded to other users.
- Emails are not affected by distances. It can be sent anywhere in world in seconds unlike postal mails.
- You can add video and audio with the e-mail.

The disadvantages of email over postal mail are:

- There must be computer or alternatively suitable mobile devices and network connection should be available at sender and recipient side unlike postal mails.
- There is a need of knowledge of opening email account and how email can be sent. There is no such knowledge is required for postal mail.

2.4.1 History of E-mail

Internet based E-mail system was designed by a Computer engineer - Ray Tomlinson in late 1971 while working with ARPANET. Tomlinson used a file transfer protocol to send electronic messages to any computer on the ARPANET network. The first email was sent between two computers that were actually sitting beside each other but connected through ARPANET.

The first important email standard was called **SMTP**, or simple message transfer protocol. SMTP was very simple and is still in use - however, SMTP has a problem – it makes no attempt to find out whether the person claiming to have sent a message is actually the same person. This basic flaw in the protocol was later to be exploited by viruses and worms, and by security frauds and spammers forging identities. Some of these problems are still being addressed.

In 2004, when Internet standards for email began to mature the **POP (or Post Office Protocol)** servers began to appear as a standard - before that each server was a little different. POP was an important standard to allow users to develop mail systems that would work with each other.

Now Internet mail is defined by a large number of standards and recommendations by the Internet Engineering Task Force (IETF). However, only a few of the protocols used in Internet mail are full IETF standards. Most of these standards are being used by for people writing Internet mail software.




2.4.2 How to create Email Account?


For sending or receiving email, you need to have to an email account. The email account may be provided by the organization for which you are working or else you can create an account with web based email providers. If you are working on mail services provided by your organization's mail server, you have to install and use email client software such as Microsoft Outlook Express, Pegasus Mail, Apple Mail client, Mozilla Thunderbird etc. On the other hand if you are using web based mail services then you may use the mail services offered by any of the web based mail service providers. Some of these web based mail providers are – Windows Live mail, Yahoo mail, Gmail, Rediffmail, and many more. In this section we discuss about the process of creating an email account with the web mail service. Although for example we have selected Gmail, you must try creating account with at least 3-4 such services and choose the one that suites you the most. It is also worth mentioning here is that most of these web e-mail programs work in a similar way.

Start the browser and Open the Gmail Homepage www.gmail.com. The screen similar to Figure 2.10 may appear on your system. Select the “Create an Account” button on the right.

A Google approach to email.

Gmail is built on the idea that email can be more intuitive, efficient, and useful. And maybe even fun. After all, Gmail has:

-  **Less spam**
Keep unwanted messages out of your inbox with Google's innovative technology.
-  **Mobile access**
Read Gmail on your mobile phone by pointing your phone's web browser to <http://gmail.com/app>. [Learn more](#)
-  **Lots of space**
Over 7394.491025 megabytes (and counting) of free storage.

Latest News from the Gmail Blog 

[New in Labs: Green robot icon](#)
Wed Nov 18 2009
Gmail chat status (those green, orange, and red bubbles) indicates if your friends are online or not. But sometimes ...

Sign in to Gmail with your **Google Account**

Username:

Password:

☐ Stay signed in

[Can't access your account?](#)

New to Gmail? It's free and easy.

Figure 2.10: The Screen for creating an account

Then following page will open

Create an Account

Your Google Account gives you access to Gmail and [other Google services](#). If you already have a Google Account, you can [sign in here](#).

Get started with Gmail

First name:

Last name:

Desired Login Name: @gmail.com
Examples: JSmith, John.Smith

Choose a password: [Password strength:](#)
Minimum of 8 characters in length.

Re-enter password:

☒ Stay signed in

Security Question:

If you forget your password we will ask for the answer to your security question. [Learn More](#)

Answer:

Secondary email:
This address is used to authenticate your account should you ever encounter problems or forget your password. If you do not have another email address, you may leave this field blank. [Learn More](#)

Location:

Word Verification: Type the characters you see in the picture below.

 
Letters are not case-sensitive

Terms of Service: Please check the Google Account information you've entered above (feel free to change anything you like), and review the Terms of Service below.
With Gmail, you won't see blinking banner ads. Instead, we display ads you might find useful that are relevant to the content of your

Terms of Service: Please check the Google Account information you've entered above (feel free to change anything you like), and review the Terms of Service below.

With Gmail, you won't see blinking banner ads. Instead, we display ads you might find useful that are relevant to the content of your messages. [Learn more](#)

Figure 2.11: The Screen for entering information and creating an account

Fill all the fields and click “I accept. Create my account”

If you have not made any mistake then your account will be created, otherwise the error will be displayed. Correct the errors and try again. Now you have created your account.

Activity 8: Open your account with at least 3-4 web mail services.

Next time you visit the Gmail website, you can now you access your account as: Enter the *username* and *password* (as shown in Figure 2.12) and click “Sign in” button.

Figure 2.12: Log in to your account

Now you can access your account. An email account, in general has the following folders:

Inbox: Inbox is the main folder in your email account. It contains all the e-mails that have arrived in your e-mail account. You can click on inbox to see the mails that you have not read (shown in bold) as well as the mails that you have already read (in normal font)

Sent Mail: It shows all the e-mails sent by you from your e-mail account.

Drafts: This folder stores those messages that you have created but have not been sent by you so far. These messages are saved by you for more work.

Spam: Spam is unsolicited e-mails or junk mails. It is generally e-mail advertising sent to group of people. We can also term spam as unwanted e-mails. Spam mails are also a big cause of computer viruses. Spam mails are identified by the mail services and placed in this folder. These spam mails are automatically deleted after few days.

Trash: Any deleted mail is put in the Trash folder. Trash folder allows you to get back an e-mail which have already been deleted. But it is important to know that you can get back the mails only within few days from trash after its deletion. After few days, mails are permanently deleted from trash folder.

An email account, in general has the following options:

Compose Mail: Composing is addressing, writing, and sending an e-mail message. By clicking on the Compose Mail button a window appears where we can write our message in the message box and the email addresses of the person we want to send the mail.

Contacts: The Contacts helps you to find email address of a person whom you have saved in your Contact list. We can also quickly find email conversations associated with a contact, and store additional information about our other persons whose email id is stored in our contacts (such as a mailing address, title, phone number, etc).

Now, if you want to read your mails then click “**Inbox**”(Figure 2.13)

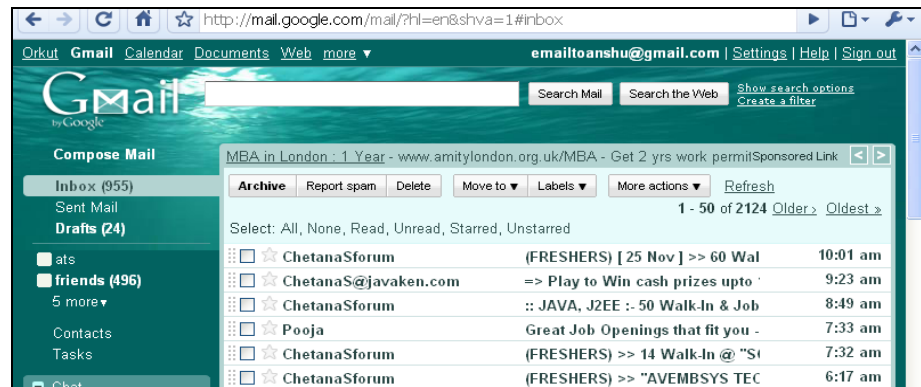


Figure 2.13: Inbox

If you want to send email then click “composes mail” and screen as shown in Figure 2.14 will appear.

In the **To** field you have to put the address of the receiver. In case you want to send email to more than one receiver then put commas between their email addresses or you can use “add cc” or “add bcc”.

Cc stands for *Carbon copy* the persons whose address is listed in this field will receive carbon copy of the message and Bcc means *blind carbon copy* similar to Cc but only difference is that the recipient who had got Bcc is invisible to other recipients.

Subject : The main heading of your mail i.e., it will explain that the mail is regarding which issue. Please note that the subject should be descriptive of the mail to help the receiver understand what mail is about without having to open the mail.

Text Area : The message is written in this area.

When all the required fields are filled as shown in Figure 2.14, you can send the mail by clicking the *Send* button.

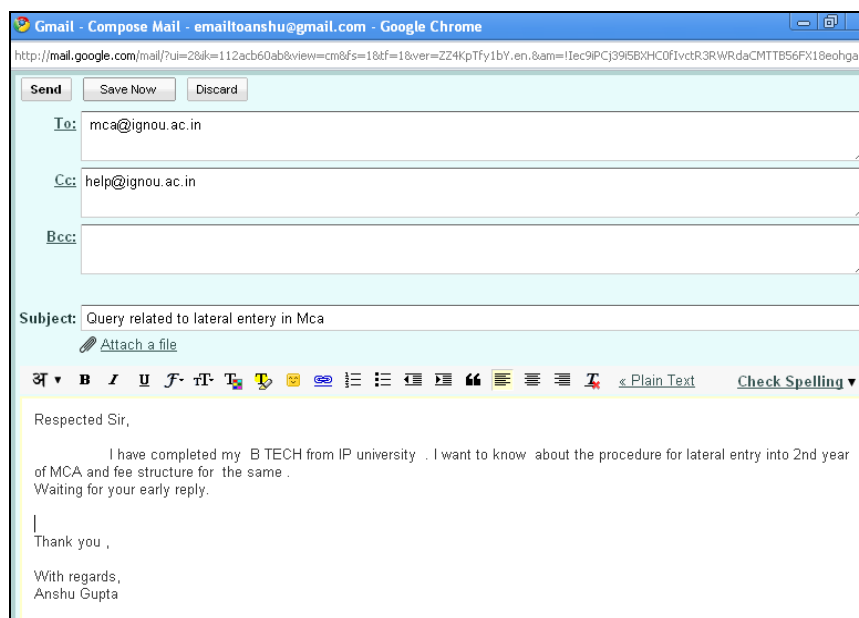


Figure 2.14: Compose mail window

Besides sending or receiving mails. Email services have other features. Contacts is one such list as explain earlier. Contacts can be organized in different groups like office, school, relatives etc.

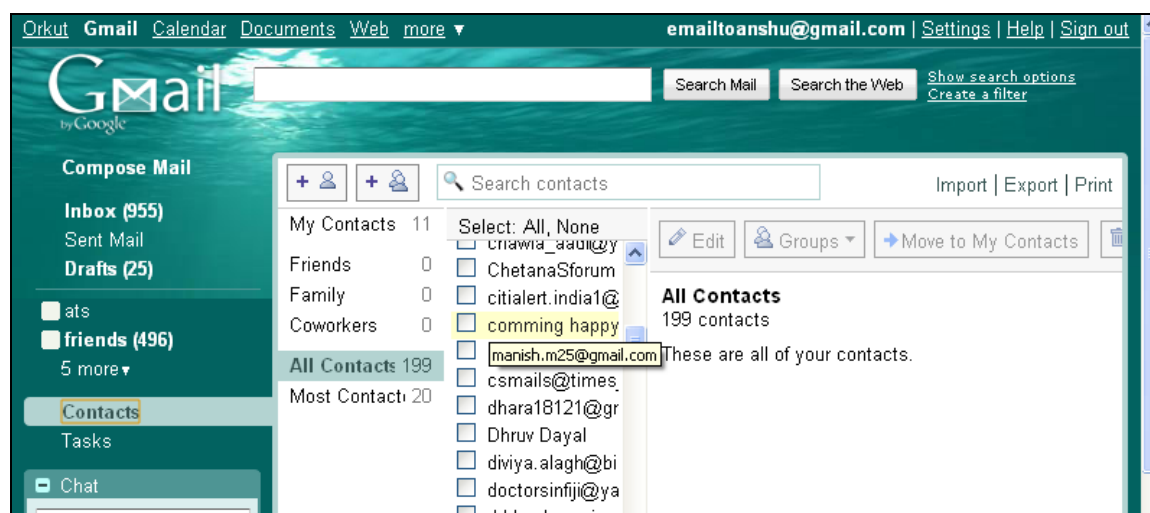


Figure 2.15: Contacts

Gmail also provides many other facilities in addition to the mail. These include Chat , Orkut, Calendar, Documents, photos, web and many more. We will discuss Chat in this unit, whereas Orkut is a social networking facility. Social networking is discussed in the next unit. You should try the other facilities yourself.

2.5 CHAT

The word chat in English language means - casual conversation. On Internet it means the same, except that you need to use text and your keyboard skills are tested. Earlier chatting was possible only between two people, now you can enjoy chatting with a number of people at a time. Now, you can use Voice Chat – it requires microphone and speaker; and Video Chat – it requires microphone, speakers and web camera. You can chat even using your mobile if it had that facility.

Chat is normally done in a chat room. Some of the common chat services are yahoo messenger (yahoo), Gtalk (Google), RediffBol. We will just show you an example using gtalk. However, you may use any other chat software. Remember you need to download and install chat software of your choice. After installing the chat software, you may run it to open the chat window so that you can start chatting. Figure 2.16 shows a typical chat window. To chat, you just type in the text and press the Enter key.

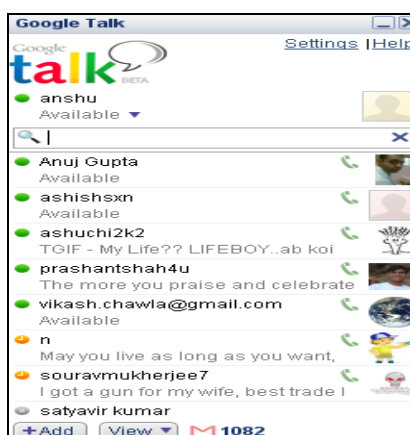


Figure 2.16: Chat Window

Most chat services also provide different forums, communities, discussion groups. These forums may be useful, for example, if you have any query, you just post it in forum. You may get the answer or you may get some related news or related information posted by a community. There are many such technical communities where you can learn latest in your field. Tutorials, interview, walk-in alerts, and online discussion with experts are available through these services. You may register with some such community.

What can you do with Chat Software?

- Most of the chat software support textual, voice and video chatting.
- You can create your electronic avatars using these software.
- While you may be chatting with group, yet may be able to send private messages to individuals.
- You can add graphics while chatting, even file transfer is possible.

There are several types of chat room variations online today. They include Java, Flash, MIRC and many other.

Java Chat rooms: The most common and popular chat scripts are based on java which is object oriented language. Java is freely available and comes with virtually every computer sold today. To use a Java chat room you must have Java enabled in your browser.

Java chat rooms load quickly and are reasonably fast to use. However, they require you to keep the new release of Java. You can get them from www.java.com

Flash Chat rooms

Flash chat is an upgraded version of chat rooms that is becoming more and more popular. Flash chat rooms use Adobe/Macromedia Flash Player client that are integrated into a website. Flash Chat rooms require that the Macromedia Flash Player from Adobe be installed on your computer. You can get the flash player for free from www.adobe.com.

Internet Relay Chat (IRC)

IRC is multi-user chat network where people around the world can chat and talk in channels or in private. To use IRC you must install IRC client on your computer. Using this client, you can connect to an IRC server, which is connected to other IRC networks. An IRC may have thousands of people you can chat with. IRC is being used for a long time.

MIRC

MIRC is a small computer program for chat. It has many chat channels. You can download the mirc chat from the mirc homepage <http://www.mirc.com>.

Some basic mannerisms while chatting: The term chatiquette describes basic rules of online communication. To avoid misunderstandings and to simplify the communication between users in a chat, these conventions or guidelines have been created. For example, one such convention is that it is considered rude to write only in UPPER CASE as it is considered analogous to shouting. You should not try to chat with unknown people. You should never use abusive or obsessive words.

2.6 SECURITY THREATS ON INTERNET

The Internet has many advantages; however, it also opens up security threat. In this section we just want to highlight some of the threats that you may face because of being an Internet users. When you use internet you are faced with three basic threat situations:

- **Confidentiality:** No unauthorized person should be able to read or copy information that s/he is not supposed to read.
- **Integrity:** No unauthorized person should be able to modify information.
- **Availability:** No unauthorized person should be able to erase information or make it inaccessible.

The other threats posed on the Internet are due to Computer Viruses and identity information thefts.

To make sure the above security situations the following methods may be followed by you:

Authentication and **authorization** mostly using username and password are used by most Internet security systems. Therefore, your username and password are very important and should be such that they cannot be broken easily. In addition, you must give the username and password only on a HTTP Secure website.

You can protect your computer against Computer Viruses and Malware (identity theft programs) through use of antivirus software, which quarantines or removes malicious software programs. So use good antivirus software on your machine that scans email and IM attachments. Maintain a backup of your critical data and programs. Keep deleting cookies from your computer from time to time.

You can use firewalls to block websites having unwanted contents.

The recent threat includes, a rise in threats to confidential information, exploitation of emerging Web browser vulnerabilities, and predictions for future attacks associated with blogs and social networking sites. So keep your browser up-to-date and do not give your personal information on blogs and social networking sites.

Other recent threats relate to wireless networking. Limit your wireless router range to the smallest convenient distance. Also try to maximize the security of wireless network by keeping a series of passwords.

Suggestion

The basic security MUST use a good firewall, strong antivirus software, and download files from safe sites only.

Check Your Progress 3

1. What facility of email makes it appealing than postal mail?

.....
.....

2. How chat is different than email?

.....
.....

3. What are security threats? How can you prevent it?

.....
.....

Activity

1. Create and use email account in yahoo.
2. List the most important security threats on Internet

2.7 SUMMARY

This unit provides you a good account of basic internet applications. One of the major softwares required to do browsing is the Browser. Browsing is mainly looking into the content of Internet using the hyperlinks. You must have a good browser and keep updating the browser, otherwise it may become a security threat. Searching is a very important activity on the Internet as it contains huge amount of information. Therefore, search engines are to be used essentially to search good information. Search engines uses spiders that search the web for information about the words. The information then is indexed. These indexes provide the word and URL of the document where it is used. This information along with other information about the documents helps in the process of searching. Email and chat are two main applications of Internet. Email allows you to send messages while the other person may not be present to receive it while chatting requires a person receiving and replying. You must use internet in a safe manner otherwise you may be exposed to many security threats.

2.8 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 1

1. A browser is software that allows you to access and display a HTML document or web page from a web server. The document first gets downloaded along with all the related file and then is displayed in a browser window. There are different kinds of Web browsers - Text based, Graphical user interface based browsers, Java enabled browsers. Present day browsers are equipped with many features including security.
2. Communication is started by you when either you click a hyperlink or type a web address (URL) in the browser address bar.
 - The browser first takes the help of DNS to resolve the IP address of the website.
 - Then it requests a TCP connection with the Server and sends the request for the web page once the connection is established.
 - The server in response sends back the required web page and any additional request for pages. This whole communication is governed by HTTP protocol.
3. A cookie is a small text message sent by a web server to your web client. This message contains the information that you have submitted to that Web Server. Every time you connect to the server that has set the cookie, the information contained in the cookie is send by the browser to the server.

Cookies are just text files that can be deleted at any time. They cannot spread viruses or harm your hard drive. However, they may be risk to your privacy. You should not give your information on unprotected sites; also never forget to delete cookies, if somebody else is sharing your computer either in your study center, office or cyber café.

Check Your Progress 2

1. Search engines are special sites on the Web that helps you to find information stored on other sites. There are differences in the ways various search engines work. But there are three basic steps which most search engine perform:
 - a. Web Crawling
 - b. Indexing
 - c. Searching

- a) **Web Crawling** : To find information on the hundreds of millions of Web pages that exist, a search engine employs special software robots, called spiders, to build lists of the words found on Web sites. Process of building list by spiders is called crawling.
 - b) **Indexing** : Once the list of information on Web pages is made, the search engine stores the information in a way that it can be searched on words and list related URLs.
 - c) **Searching** : Searching through the index involves a user building a query and submitting it through the search engine.
2. Searching implies typing the required search term into the search field and pressing the Search button
 - a. First you simply type Tutorials of XML
And then next time you type “Tutorials of XML”
The second search will be more accurate as it contained the exact phrase.
 - b. Universities and (India or USA).
 - c. Universities and (not(USA or Britain)
 OR
 + Universities - USA -Britain
 - d) Cleaning process of gold – cleaning process of Jewellery
This will give list of web pages which has cleaning process of gold and not of Jewellery.

Check Your Progress 3

1. Email provides feature of contacts, sending same mail to many person, forwarding mails in addition to being very fast.
2. Email does not require receiver of the mail to be present at the time of sending the Email. The receiver may open the email whenever s/he logs in. Chat, however, is a synchronous communication.
3. The information should be seen, written and made available at the required time to the authorized person only. Other threat includes viruses and privacy of information. The best solution in such cases is to use internet judiciously. Use good antivirus software and firewall, do not give your information on non secure websites, do not download content from unsafe websites etc.

2.9 FURTHER READINGS

- www.wikipedia.com
- <http://www.eiu.edu>
- <http://www.neiu.edu>