WWW and Web Browser

6.0 Introduction

WWW stands for World Wide Web. WWW is a collection of interlinked hypertext pages on the Internet. Hypertext is text that references some other information that can be accessed by clicking the word, moving mouse over the word or pressing a keyboard key. Using the WWW we can access information on other devices on the Internet.

6.1 Objectives

In this chapter we will learn about:

- WWW – World Wide Web
- Web browsers
- Search engines
- Using the web resources
- Using e-governance sites

6.2 World Wide Web (WWW)

The web is the most popular Internet service next to e-mail. It accesses a larger quantity and greater variety of data than any other service on the Internet. The World Wide Web or the web, in short, is an Internet based global information system. The web offers video, interactive multimedia and live audio, in addition to more basic data types, such as text documents and still photographs.

6.2.1 Important elements of the Web:

Web Sites Vs Web Pages
Web site is a place on Internet where information about an organization/topic has been stored. Information can be a single page or multiple pages. Pages are linked in such a way that by clicking the mouse you can move from one page to another. A Web page is a part of a complete Web site. There is theoretically no limit to the number of pages that a website can have. The only constraint is availability of storage space.

Hypertext
Hypertext is a system of organizing, navigating, distributing and publishing information electronically. Hypertext information is organized into an interconnected web of linked text and image. Hypertext documents (called web pages) contain navigational anchors (commonly known as hyperlinks) that allow you to navigate to another part of the same document. It is also used for accessing information on the Internet. Hypertext makes the information relatively easy to navigate using a universal software application called a web browser, such as Microsoft Internet Explorer, Netscape Navigator and Mozilla Firefox, etc. The most common example of the hypertext is the help system available in Windows OS and other windows-based applications like Excel, Word, etc.

Hyperlinks

A hyperlink or link provides access to another hypertext document or multimedia file that you may wish to visit. Web browsers distinguish text hyperlinks by different color or underlined text blocks. When clicked with mouse, a hyperlink downloads and displays. Hyperlinks often direct you to a related or more detailed information regarding the desired subject matter. Rather than listing detailed information about each subject, this page provides hyperlinks which would allow you to visit and view only the information you desire.

Web Browser

A Web browser is a software application program that resides on your PC and can display text, images, and multimedia data found on different Web pages. It allows you to specify a Web page, navigate using links and "bookmark" your favourite Web pages. The commonly used web browsers are Internet Explorer, Netscape Navigator, Google Chrome and Mozilla Firefox.

6.2.2 Basic Features of Web

Some of the basic features of the web are:

- **Hypertext Information System** – The idea behind hypertext is that instead of reading text from beginning to end as in a book, you can jump easily from one point to another as per your interest. The information does not take up any disk space and is easily available as well.
- **Graphical and easy to Navigate** – One of the best features of the web is its ability to display both text and graphics in full color on the same page. Before the web, using the Internet involved simple text-only connections or complicated interfaces or encoding to view graphic.
- **Cross-platform** – You can access web information equally well from any computer with any hardware or software configuration.
- **Distributed** – The web is successful in providing so much information because that information is distributed globally across thousands of web sites, each of which contributes the space for the information it publishes. You as a consumer of that information, go to that site to view the information. When you are done you go somewhere else, and your system reclaims the disk space. You do not have to install it, or change disks, or do anything other than point your browser at that site.
- **Dynamic** – Because information on the web is contained on the site that published it, the people who published it in the first place can update it at any time. If you are browsing that information you always have access to the most updated information.
- **Interactive** - Interactivity is the ability to "talk back" to the web server. The web also enables you to communicate with the publisher of the pages you are surfing. For example pages can be designed that contain interactive forms like feedback, polls, comments, etc. which reader can fill out.

6.3 Web Browsing Software

A web browser is a program you use to view pages on Net and navigate the www. Browsers are sometimes referred to as web clients. A wide range of web browsers is available for every type of systems you can imagine, including GUI and text-only for dial-up UNIX connections. Most browsers are freeware. All you have to do is to get a browser downloaded from the Internet. A web browser does the following two types of services:

- Given a URL address, it should be able to access that information. For hypertext web documents, this means that the browser must be able to communicate with the web server using the HTTP protocol.
- The web can also manage information contained on FTP, in Usenet news posting, in e-mail, etc. The browsers can often communicate with those servers or protocols as well. Different browsers may format and display the same file differently, depending on the capabilities of the h/w and the default layout options for the browser itself. Retrieving documents from the web and formatting them for your system are the two tasks that make up the core of a browser's functionality. However, depending on the browser you use and the features it includes, you may also be able to play multimedia files, view and interact with Java applets, read your mails or use other advanced features that a particular browser offers.

6.3.1 Popular Web Browsing Software

NCSA Mosaic
Mosaic was the first full-color graphical browser and was instrumental in making the web as popular as it is today. Mosaic was developed by NCSA at the University of Illinois, with several supported commercial versions available from companies such as Spry and Spyglass. NCSA Mosaic is free for personal use and comes in versions for Windows, Macintosh and UNIX (the X window system). Each version is called WinMosaic, MacMosaic and Xmosaic respectively.

Netscape Navigator
It is also known as Netscape and is available for Windows, Macintosh, and for many different versions of UNIX running the X windows system. It is well supported and provides up to the minute features including an integrated news and mail reader, support for Java applets, and the ability to handle "plug-ins" for more new and interesting features yet to be developed.

Microsoft Internet Explorer
Microsoft Internet Explorer (IE) enables you to connect to the Internet to gain access to the vast stores of information on these computers. Subscribe to your favourite sites so that the content is automatically updated whenever you want-daily, weekly or monthly. Internet Explorer can download updated Web Pages or entire sites in the background while you do other work on your computer. You can add a Web page to your list of favourites for easy access from the Favourite menu or Explorer bar. With Auto Complete, when you start typing a frequently used URL in the Address bar, Internet Explorer completes the address for you. Using security zones, you can set different levels of security for different areas of the Web to protect your computer. With Content Advisor, you can screen out objectionable or offensive content. IE is available free.

Mozilla Firefox
It is a fast, full-featured web browser that makes browsing very efficient. Firefox includes pop-up blocking, tab browsing, integrated google searching and simplified privacy controls that let you cover your tracks more effectively. A streamlined browser window shows you more of the page than any other browser. This is also available free.

6.4 Search Engine

A search engine is a program which looks through its database for information that matches your request. Information in the database are about websites and their contents. Examples of search engines are Google, Alta Vista, Yahoo, Hot Java Excite, Infoseek, HotBot, etc. The effectiveness of search engine can be measured by two main parameters:

- Exhaustive indexing
- Specific terms

Indexing is the processing of a document representation by assigning content descriptions or terms to the document. In Indexing the web documents are characterized by recall (ratio of the number of relevant documents retrieved to the total number of documents retrieved). Automatic indexing includes single term indexing, statistical methods, as well as information theoretical and probabilistic methods. In addition to this automatic, indexing uses linguistic and multi-term or phrase indexing. Since the Internet is a vast collection of information, it is difficult to find specific information you actually need. Therefore the search feature in a web browser such as the Internet Explorer provides an easy access to a special facility called search engine. Search engines scan the Internet for the words or topics you are looking for. Web crawler is a program that crawls through the web and collects information regarding the web sites. This information is put into the database of a search engine.

6.4.1 Popular Search Engines/Search for content

There are many search engines available on the web. Most of the search engines provide website reviews and homepage services, in addition to key-word searches. Some of the popular search engines are:

- Google
- Yahoo!
- Alta Vista
- MSN

6.4.2 Accessing Web Browser

To access a web browser, you need to do the following:

- Install web browser software like Internet Explorer, Mozilla Firefox on any other in your machine.
- Double click the browser icon to open the web browser.
- Provide an address of a page which you want to see in the address bar and press Enter

6.4.3 Using Favorites Folder

If you want to save a webpage that you want to come back to later, you can add it to "Favourites" folder. It's a great system for organizing your search efforts in manageable folders. Follow these steps to create a favorite in Internet Explorer:

- When you are on a web page you want to save, click on the "Favorites" icon in the Internet Explorer toolbar.

- You'll see either a drop down menu or a side screen window pop up.
- Select Add to Favourites to open the Add Favourites dialog box.
- Change the filename and/or folder name as you want and click OK.

6.4.4 Downloading Web Pages

To download a web page you need to do the following:

- Click Tools → File → Save As to open the Save Webpage dialog box.
- Enter the location where you want to save the page and name with which you want to save it.
- Click Save to save the webpage.

6.4.5 Printing Web Pages

To print a web page you need to do the following:

- Click Tools → Print to open the Print dialog box.
- Choose your options (especially All/Selection/Pages option is important), set print preferences and click print.

6.5 Understanding URL

URL is the acronym for Uniform Resource Locator. It refers to the address of a page or a site on the Internet. Files can be accessed on Internet through their URLs. The URL contains the following information:

- The Internet name of the site containing resource
- The type of service the resource uses, e.g. HTTP, FTP, etc.
- The Internet port number of the service (if this is omitted the browser assumes a commonly accepted default value)
- The location of the resource in the directory structure of the server structure of URL.

Example: http://www.yahoo.com/images/logo.gif specifies an image file(logo.gif) located in the image directory in the www.yahoo.com domain. A partially qualified URL is the one that specifies a resource on the Internet whose location is relative to a starting point specified by an absolute URL. In fact the concatenated absolute and relative URLs constitute a complete URL. After going to the absolute URL one can use relative URL to point to another file in the same directory by just using other document's filename as the relative URL. The additional information like service, hostname, port, directory name will be assumed based on the URL used to reach the first document

6.6 Surfing the web

Surfing the Internet is usually seen as very useful, fun, dangerous, or a tremendous waste of time, depending on who you ask. All of the above is true, but what is also true is that the Internet is a necessity in today's world. As we have discussed before, there is so much information about every conceivable topic on the web that can be accessed only by surfing. Besides, you can download software, audio, video, files, etc. or do shopping on the web.

6.6.1 Using e-governance website

E-Government (short for electronic government, also known as e-gov, digital government, online government, or connected government) is creating a comfortable, transparent, and efficient, cheap and fast interaction between government and citizens (G2C – government to citizens), government and business enterprises (G2B – government to business enterprises) and relationship between governments (G2G – inter-agency relationship). There are four domains of e-government, namely, governance, information and communication technology (ICT), business process re-engineering (BPR) and e-citizen.

The primary delivery models of e-Government can be divided into:

- Government-to-Citizen or Government-to-Consumer (G2C)
- Government-to-Business (G2B)
- Government-to-Government (G2G)
- Government-to-Employees (G2E)

Within each of these interaction domains, four kinds of activities take place:

- Pushing information over the Internet, e.g. regulatory services, general holidays, public hearing schedules, issue briefs, notifications, etc.
- Two-way communications between the agency and the citizen, a business, or another government agency. In this model, users can engage in dialogue with agencies and post problems, comments, or requests to the agency.
- Conducting transactions, e.g. lodging tax returns, applying for services and grants.
- Governance, e.g. online polling, voting, and campaigning.