Chapter 1

The Internet and the World Wide Web

The Internet and the World Wide Web (WWW) is a network of global proportion. The power that you have to contact anyone in the world is available to you. The word internet and the WWW are commonly used when talking about access to an enormous amount of network resources. You need to understand the difference between the Internet and the World Wide Web (WWW).

The Internet

The Internet is the worldwide collection of large computer servers connected to each other by a network. All of these servers are connected to each other by different types of media to establish these connections. These servers can be connected using copper wire, Fiber Optics, or satellite communications. The Internet is considered the Architecture of the World Wide Web. These servers are usually Web servers for Web sites.

The internet can be thought of as an imaginary line around the world that users can connect to in order to gain access to anyone anywhere. (See figure 1.0).

Figure 1.0
The World Wide Web (WWW)

The World Wide Web (WWW) is the interface you use to access this global network. Clients login and authenticate to a server to connect to the WWW. The client is able to access the server and is then able to access the WWW. The client can do a number of things on the WWW. The client can browse Web Sites for information, use email capabilities, or a variety of other functions.

The Internet uses a standard protocol to access Web pages and sites. The Protocol used to access Web pages is Transmission Control Protocol/Internet Protocol (TCP/IP). Port 80 of TCP/IP is Hypertext Transfer Protocol (HTTP) and is used to view basic Hypertext Markup Language (HTML) Web pages. A protocol is a set of standards for accessing the internet. TCP/IP has many ports to do different things on the WWW.

Client computers authenticate to server to access the Internet. (See figure 1.1)

**Figure 1.1**
**Internet Service Provider**

There are four basic components needed to access the internet.

1. A computer with a Network interface.
2. Client software – Internet Explorer, Mozilla, Netscape
3. A Digital Subscriber Line (DSL), Cable Modem (CM), or Fiber Optics (FO) connection.
4. An Internet Service Provider to Provides you access to the internet and World Wide Web.

**Browsers/Search Engines**

Web Browsers are used today to access Web Sites by typing in the Uniform Resource Locater (URL) address in the Browser address window. Browsers are also used as Search Engines. You can put a caption in the address window of the browser and the browser will search the internet to find Web Sites that have the caption in its domain name.


The way a particular browser displays your text may vary. Each browser interprets the HTML tags slightly different. The best way to be sure that your pages will be displayed the way you intend is to test your Web Site by viewing all of your Web pages using the different browsers and different screen resolutions.

**Logging into an Internet Service Provider:**

A DSL, Cable Modem, or Fiber Optics is considered a dedicated connection. This dedicated connection doesn’t require you to login after you have established a connection. To establish a connection to the WWW all you need to go is turn on your computer and let it boot the operating system.

The computer has a Network interface card. Software is installed on the client to complete the connection from the client to the Internet Service Provider. After the connection is made, the only authentication that is needed is to access email. Dedicated connections are faster than dialups. The main difference between DSL, Cable modem and Fiber Optics is the bandwidth of your connection. The DSL, Cable Modem and fiber Optics connection can be set at different bandwidth and is set depending on how much money you want to spend. DSL comes in a variety of speed packages. The cable connection has a set speed, but can vary depending upon how many connections are on the same segment of cable. Fiber Optics comes in three speeds. The speed of your connection depends upon how much money you want to spend. A faster connection will cost you more money than a basic connection.
Microsoft Notepad:

Notepad is the simplest program to use to create Web pages. The key to making Web pages is to follow the tagging system of Extensible Hypertext Markup Language (XHTML). After you have completed making your Web page you need to save your work. Notepad by default will save your work as a text file (.txt). You will need to specify the (.HTM) file extension when saving your work. This will make your work viewable in a Web browser. The text extension will not be viewable in a browser. This is a common mistake for first time programmers. Web Pages are written in a language called HTML. HTML files are text files that contain text and tags. Tags are special instructions to the computer telling it where and how to display the different elements of a Web Page.

Opening Notepad is the manual way of making a XHTML Web Page. Left click on the Notepad to display the Notepad program. (See figure 1.2)

Figure 1.2

This display is from a Windows Vista system to open a Notepad session.
**XHTML**

Extensible Hypertext Markup Language (XHTML) language is replacing HTML version. XHTML can be displayed within a HTML program in three formats. They are Transitional, Frameset, and Strict format. An XHTML document must include a `<!DOCTYPE>` declaration which type version of the document and the XHTML DTD code to be used.

XHTML document must include a `<!DOCTYPE>` declaration and the `<HTML>`, `<HEAD>`, and `<BODY>` elements. The `<!DOCTYPE>` is located at the beginning of the document. This is used to specify the type of XHTML program rules that will be used.

1. **Transitional** DTD’s allow you to continue using older HTML tags along with the well formed document required of XHTML.

2. **Frameset** DTD’s is identical to the Transitional DTD’s, except that it includes the `<frameset>` and `<frame>` HTML elements. Frameset allows you to split the browser window into two or more frames which are independent of each window.

3. **Strict** DTD’s eliminate the elements that are older HTML tags in the Transitional DTD and Frameset DTD formats. The Strict DTD format is true XHTML code and only use XHTML code.
This XHTML code begins with the <!DOCTYPE> command and the DTD type being used is the strict version. This means that this program can only use XHTML version 1 commands. (See figure 1.3)

**Figure 1.3**

The meta tags are used by search engines to help your Web page to be included in a search inquiry. The meta tag is modified to include key words that are unique to your Web page.
This is the result of the XHTML code from figure 1.3. (See figure 1.4)

Figure 1.4

This is my First XHTML Web Page.

XHTML has additional commands compared to HTML.
Saving the work that you created in Notepad is an easy process. The first thing that you need to do is to click **File -> Save as**. Next, you need to select a filename Lab_1.HTM. The last thing is to select a destination on the top of the display and click the save button. **Make sure you save your work as a HTM file. Saving your work as a TXT file will not be displayed in a Web browser.**

(See figure 1.5)

On the Web file name WILL NOT have any spaces. The Web doesn’t like HTML file name that contain spaces. Use _ or any other methods to eliminate spaces.

**Figure 1.5**

![HTML code example](image)

The extension HTM may be upper or lower case (htm).

**Open File and Display Your Work in a Browser:**

There are two ways to open this file Lab_1.HTM in your browser. The first is to locate the file that you have saved and double left click. The Web browser will open up and will display your work (unless you have an error in the code).

The second way to display your work in a browser is to open the browser and put the drive location in the address window. The browser will display all the files located in that folder. Double click the file that you want displayed and it will appear in the browser window.
Here is an example showing how to open a file called First_Web.HTM located in the My Documents folder. To display the file in a browser all you need is to double left click the mouse on the “First_Web.HTM file. This will open the browser and display your work. (See figure 1.5)

Figure 1.5

Double click on Lab_1.HTM and the page will be displayed in the default Web browser.
The second way to display your work in a browser is to open the browser. Once the browser is open type the drive letter where your file is located and the files will be listed. (See Figure 1.6)

**Figure 1.6**

All the folders are located in the root. The files are located in the folders and some files are located in the root directory.
Double click the file you want to open and run. The local address of the file is located in the top of the browser. (See figure 1.7)

**Figure 1.7**

This is my First XHTML Web Page.

The information that you have displayed in the browser is generated from the HTML code that you entered. After you examine the display of data, and if it is displayed correctly, then you have entered the code correctly.
From Microsoft Internet Explorer you can view the HTML code when you click on **View -> Source** from the title bar and Notepad will open with the data from the current page. (See figure 1.8)

**Figure 1.8**

This is the code that is displayed after you click on **View -> Source** from Internet Explorer. This is a quick and easy way to display the HTML page and then edit it. After you edit the page you can hit **F5** on the keypad to display the new page. (See figure 1.9)
You should see the same source code that you entered in Notepad.

**Figure 1.9**

```html
<html>
<head>
<title>This is my First HTML Web Page</title>
</head>
<body>
This is my First HTML Web Page.
</body>
</html>
```

This is a fast way to bring up your work to be modified and checked. **Always press the F5 key to refresh the Web page that you are working on.** Many students get confused when they modify Web pages and they don’t see the changed in the Web pages. The refresh key F5 will give you the latest changes on any Web page.
Most Web Browsers used today act as a Web browser and as a search engine. The most common Web browser and Search Engine used today are from the Google Web site. The browser can accept a fully qualified domain name, text word or sentences. A fully qualified domain name is http://www.qcc.cuny.edu. You type the URL in the address field and it will take you to that Site. You can also use key words to locate a Web Site. Queensborough Community College an example of key words used to access a Web Site. The name used to get a list of all Web Sites that contains all three words. Insert the key words into the address bar or search area of the Web Browser and the Browser is also a search engine and retrieves and lists the Web Sites that meet the criteria of the your search. A good Web search depends upon the key words that you use. (See figure 1.10)

**Figure 1.10**

A Web Page search is the data that you are looking for. When a browser displays the result of a search it is called a search hit. A hit lists Web Sites that are associated with the word of the search that you entered.

This is a search for Queensborough Community College. The first hit of this search is the Queensborough Community College homepage located at http://www.qcc.cuny.edu. Today’s Web browsers are used in two ways. First is for browsing the WWW and the second as a simple search engine to locate Web Sites of interest.