An Introduction to the Internet

Sample materials
Introduction

This section is concerned with the browser component of your Internet software. It is the browser that gives you access to the wealth of information on the World Wide Web, more commonly called the Web or WWW. Unlike email, the Web provides you with visual information as well as text, and, if you have the hardware, it even provides sound and video. However, visiting Websites is not like watching TV. With TV you passively view the screen while information is fed to you. With the Web you control the information and your interaction with it. That control goes far beyond the on-off switch or changing the channel.

When visiting a site, you choose to go to that particular site and to stay there. A page on the site is likely to contain a number of hyperlinks¹ to other pages in the site or elsewhere. You decide whether and when to follow any of these links. At the end of a visit you decide if the site is worth revisiting and therefore whether or not to bookmark the address. In effect, you interact with each page.

In this section, we explore the uses of the web browser to develop your understanding of what happens when you load a Web page.

We start by extending your overall experience of Web pages by discussing some of the main types that are available. As Internet technology develops, so do new techniques for creating pages. For example, initially pages were predominantly text-rich, i.e. full of text only, but now moving images can be included. These developments increase the power of Web pages to communicate ideas and information in an interesting and effective way. You need to understand what kind of techniques the browser is capable of displaying and how to appreciate them when they are used. This section introduces you to five of the most common ones.

¹ A ‘hyperlink’ is a piece of text or a graphic image that when clicked causes the browser to display a different page or a different part of the same page.
1 Types of Web pages

Throughout this section and this course, you will be investigating changes to your browser by seeing their effects on pages. Rather than creating pages specially, we’ll use pages from around the Web, both for variety and to widen your Web experience. This means you need to be familiar with some of the more common Web page features that you’ll encounter. In addition, learning about different kinds of Web pages will help you become more confident about surfing the Web, and will encourage you to view pages outside of the course. This will inevitably expose you to pages that use features that do not appear on the UI23 Website and that therefore require different skills.

Objectives

At the end of this section you should be able to navigate your way around Web pages incorporating:

- frames
- cookies
- forms
- clickable maps
- Java applets.

Background

Advances in technology can create problems for the ordinary people who use it. Take computers, for example. It was not very long ago that most software ran on a DOS system. With the introduction of the Windows platform came more pressure on users to upgrade their systems so that they could use the latest software. Now, Windows technology is developing at such a pace that regular upgrades are required. Users opting out of upgrading soon find themselves restricted to a decreasing market of software packages.

Similar pressures arise in Internet technology. Within a short period of time, Web pages have moved from text-rich, through intensive use of images, to multimedia components. The form of the Web page is constantly under revision. As with computing generally, users find themselves pressurized to upgrade both their system and their Internet software to view pages incorporating the latest techniques. Internet enthusiasts are often eager to include new techniques in the design of their Web pages; but this disadvantages those who do not upgrade. If they attempt to access a page using a new technique, their ‘old’ browser refuses to load it.

Problems in accessing the latest techniques should not always be taken as an indication of the need to upgrade. The latest versions of browsers
are often unstable and bug-ridden — and sometimes have difficulty accessing even pages that use well-established techniques. Furthermore, not everyone is keen to incorporate new techniques as soon as they emerge, simply because pages that incorporate them are not as widely accessible. Most professional page designers prefer to prepare pages using techniques that the vast majority of users can visit. Ordinary Web surfers can therefore afford to delay upgrading their browsers until the bugs have been removed from the new versions and the new techniques have been adopted by most page designers.

So, what techniques can your version of the browser handle? In fact, it’s likely it can handle most of the new techniques introduced recently. There isn’t time to cover all of them here, but we look at five of the most commonly used: frames, cookies, CGI (forms), clickable maps and Java applets.

**Frames**

Start up your browser and position the browser in the top window. Visit

http://ccts.cs.cuhk.edu.hk/

which is the homepage for the Hong Kong Computer Society’s Chinese Computer Terminology.

You will find that the page is split into two horizontal sections called ‘frames’. Each frame contains a different Web page. In this particular example, the bottom frame (Frame 2) contains a page that is larger than the displayed area, so there is a scroll bar that enables you to move through this page. The page in the upper frame (Frame 1) is the same size as the frame.

**Click the link Suggestions in Frame 1.**

The contents of Frame 2 are changed to display the suggestions page, but the contents of Frame 1 are unchanged.
Click the link **Chinese Input Methods** in Frame 2.
Again, the contents of Frame 2 are altered without affecting Frame 1.

The following example shows that frames do not have to be horizontal.

**Go to the homepage of the Hong Kong World Wide Web Database**

http://www.cuhk.edu.hk/hkwww.htm

You will see the page in Figure 2.

![Figure 2](image)

Here, each of Frames 1 and 2 has its own set of scroll bars, with the left frame showing a menu to control the contents of the second frame. The third frame is relatively small.

**Click on any of the menu options in Frame 1.**

and the contents of Frame 2 alter accordingly.

You can use several frames, as the next page demonstrates. It was prepared by two users who think that some people overuse the frame technique.

**Go to the examples page of Web Pages That Suck at:**

http://www.webpagethatsuck.com/suckframe.htm

where there are three frames.

![Figure 3](image)
Of course, increasing the number of frames decreases the space available for each individual frame. However, as the above example demonstrates, using multiple frames provides more information in one screen with more control over the contents of the screen.

Cookies

One of the main ways you can interact with many Websites is to specify which parts of the site you want to revisit, or record choices you have made during a visit. This is particularly useful when a site contains a lot of options. Clearly, you would prefer not to have to make the same personal choices every time you go to the site. It is possible for owners of a site to arrange for such information to be recorded in a file, called a ‘cookie’, which is saved onto your computer by their Web server.

To see how this works, you are going to visit a site specializing in shareware. You will be instructed to select a number of packages for future downloading. You will not actually be downloading any of this software.

Go to ZDNet's Software Library at http://www.zdnet.com/downloads/

Select the Most Popular button.

The resulting page contains a list of links relating to shareware programs that have generated the greatest demand for download from visitors. For the purpose of this section you can select any file.

Click on the first file in the list.
This loads a page containing details of the file. For example,

- Clicking here adds the package to the basket.
- Clicking here reveals what has been placed in the basket.

![Image](Figure 5)

The site uses the concept of a ‘shopping basket’ to store your selections.

**Click on the **Add to Basket** button.**

This changes the icon to **Remove from Basket.**

**Click on the link **look in basket** to access a page indicating what you have selected.**

**Repeat this process to add a further three packages to the basket.**

**Check the contents of the basket.**

Each time you alter the contents of the basket, the Website stores that information in a cookie file on your hard disk. To demonstrate this, leave this site.

**Load U123’s homepage**

http://learn.ouhk.edu.hk/~u123/

**Reload ZDNet’s Software Library at**

http://www.zdnet.com/downloads/

**Select the **Most Popular** button.**

**Check the contents of the basket using **Download basket.**

The basket still records what you selected previously.

Since your two visits to the ZDNet’s site were during the same Internet session, you may not be totally convinced about the existence of the cookie. You should revisit the site when you next reconnect to the ISP and check to see whether the basket still contains your selections.

**Forms**

As well as providing information, Web pages can be designed to collect information. Such pages require the use of a special programming language called CGI (Common Gateway Interface). The language itself need not concern you, as its use is invisible when you visit a page. It is most commonly used in forms to collect information. An example can
be found at the OUHK Website. The Mailing Prospectus and Application Forms page at

http://www.ouhk.edu.hk/~wwwuser/prospectus/

contains the form

![Form Image]

Figure 6

Entering your data into the boxes and clicking the SUBMIT button automatically sends the data to a file at OUHK. Staff can then use all entries in this file to arrange for dispatch of the material requested.

**Clickable maps**

Image maps are central to many sites. They consist of pictures that contain within them location-sensitive links. The picture is divided into a combination of defined areas, with each area associated with a link. The location is indicated by the position of the mouse, and the browser notes wherever the mouse is clicked. It then converts that position on the picture into the appropriate link. As with conventional links, the result is to send you the associated page. A single image map can contain any number of links, so long as there is sufficient space to define them. When you move your mouse over an image map, you will notice that the status bar at the bottom of your browser screen usually shows the coordinates (measured in pixels) at which your mouse is located.

To illustrate these properties of image maps:

To complete the form, you are not expected to submit this form.

Go to the Clickable Map Demonstration at

http://www.hku.hk/demo/clickmap.htm
The resulting page contains an image of the university’s emblem⁴.

![University Emblem](image)

**Figure 7**

**Move the mouse over the emblem, noting the changes to the link at the bottom of the screen.**

Here, the main part of the link remains unchanged but it is followed by a ‘?’ and a pair of numbers, which change with the movement of the mouse cursor. These numbers represent the coordinates of the cursor on the image. Clicking at any point will cause these coordinates to be translated into the appropriate link.

**Click anywhere on the emblem to see that a new page is loaded.**

The important point to appreciate here is that one image may contain links to more than one Web page. If it has been defined as a map, then you will need to take more care about where the cursor lies when you click.

**Java applets**

Java is a programming language that can be run by all of the latest browsers. A Java applet is a small program that accompanies a Web page when loaded onto your computer. Your browser runs the applet in your computer, so the program responds immediately to any input you provide (whereas, as you know, if you send input to a server, there is a delayed response).

The creators of Java provide some entertaining examples of applets.

**Go to the Applets from the JavaSoft page at**

http://www.javasoft.com/applets/jdk/1.0/demo/TicTacToe/index.html

A conventional 3 × 3 game board appears. Loading the applet takes some time, but if you click one of the squares a cross will appear to indicate that the applet is ready. After that, the applet will respond and you can play the game quickly since it is now running on your computer. Below is a partly completed game.
Play a game.

On completing the game, leave the page in the browser and disconnect from the ISP.

To demonstrate that the applet is running on your computer and does not require the original server, you can continue playing the game. You start a new game by clicking on any part of the board.

Play another game.