

### Chapter 3: Putting the Hyper in Hypertext

In the last chapter, you learned how to make a simple HTML page and how to upload, or publish it on the Web. However, to get responses from people in *Ch2\_ex1.htm*, you have to wait for them to write you letters and send them through the mail. It would be nice if the person reading your page could respond by email, which might increase the likelihood that they will respond at all, since they do not have to copy down your address and pay for postage. It will also be better not to have to wait for postal mail (also called “snail mail”) to arrive.

So far, the bare bones HTML document created in Chapter 2 is not interactive. In this chapter, you will learn to make links to email, to other documents, and to other parts of the same page. You will also learn how to incorporate images in HTML pages, and how to link from images. These links put the hyper in hypertext.

#### A. Email from a Web Page

To add a “link” to an email address, you can add the following tags in the body of the page:

```
<A HREF="mailto:astudent@address.domain">Click to send me email</A>
```

Anything between the `<A HREF="">` and `</A>` tags will be displayed as a “hot” link, which when clicked will instruct the browser to send email addressed to the address specified after `mailto:` (assuming that the browser supports email). This feature converts HTML from a passive display formatting system to an active system, one that supports two-way communication. In this case, it facilitates getting responses, since somebody reading the page can just click on the link and type in a response, without having to print out a letter, put it in an envelope, affix a stamp, and put it in the mailbox. Load *Ch3\_ex1.htm* from the page of examples on your CD.

## B. Linking to Another Page

To link to another page, you can use the following variation of the `<A HREF></A>` tags:

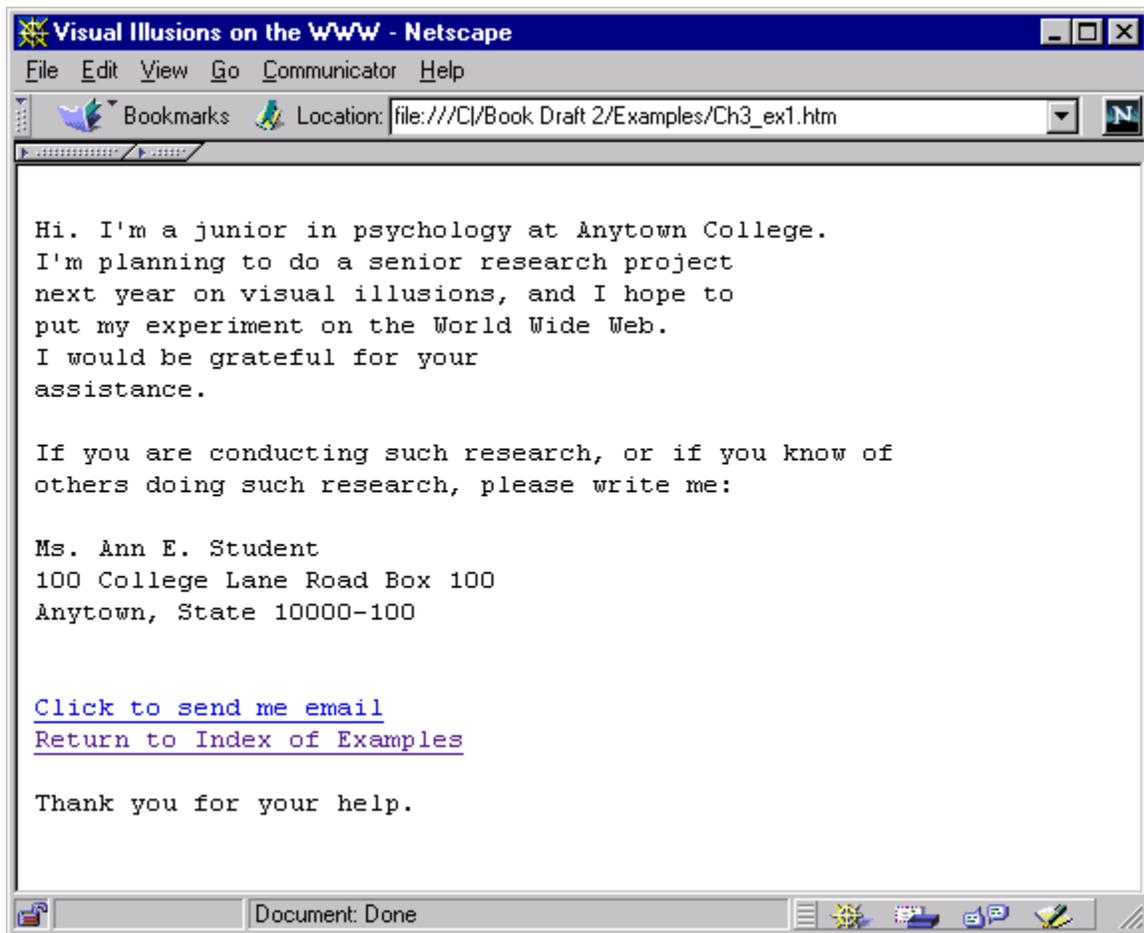
```
<A HREF=" http://www.ulb.ac.be/psycho/brmic.html">Museum of Perception</A>
```

To check the effects of these links, type them as additions to the simple page from Chapter 1, and use your browser to load the pages. You will see what is displayed, and you can try clicking on the links to see the effects. Clicking on the above link should send the browser to the address specified. If this does not work, check to see if you have made any error in typing in the tags. Check if you have left out the closing tag, `</A>`. Check if you have mistyped the address. Check if you have used a parenthesis `()` instead of the `<>`. Try `Ch3_ex2.htm`. Examine it in a text editor and in your browser.

Within your own Web site (i.e., the same directory on your server), you can simplify links by simply specifying the filename, without the entire address. This method is called a *relative* address. Thus, if the file displayed is already in the folder that contains `examples.htm`, then the link can be written as follows:

```
<A HREF="examples.htm">Return to Index</A>
```

The result is illustrated in Figure 3.1, which you can load as `Ch3_ex1.htm` from the CD that accompanies this book. Insert Figure 3.1 about here.

Figure 3.1. Appearance of links to email and to another page (*Ch3\_ex1.htm*).

There is a good reason to use a relative address, as above, instead of a complete address. Suppose you created a set of files that refer to one another using absolute addresses (i.e., complete URLs). Then, suppose you move your files to another server, and suppose your files are removed from the old server. You will have to change all of the links in many pages to make them all work. However, if all of the links within your site are relative, then when you move the entire set of files to another server, everything within your pages will still work.

Anyone outside your server who had a link to your old address will still send people to the wrong address. If you have explored the Web, you have undoubtedly clicked on a link or entered a URL only to find that it takes you to a dead end of "file not found." After checking your spelling, you find that the file is no longer there. Because the Web is ever-changing, every click is an adventure.

Because students get their degrees at one university, and then move to other universities or to jobs in industry, students often need to move all of their Web files from one location to another. Professors also take new jobs and move from one university to another. Furthermore, your old server might become crowded, and you might be asked to move your files to another location, or you might acquire your own server. Therefore, it is a good idea to plan ahead, and use relative addresses to refer to pages in your own site.

### **C. Linking to Parts of the Same Page**

It is also possible to use linking to send the reader to different parts of the same page. You need anchor tags to name the locations, and anchor reference tags to send them to the locations. For example,

```
<A NAME="req">Course Requirements</A>
```

This course requires that you will attend, do the homework, take exams, and complete the course project before the last day of the semester.

The tag `<A NAME="req">` names the anchor line of information as "req", which refers to a section of a course description. There might be separate sections for prerequisites, assigned readings, exam policy, exam dates, etc. Each section could be identified by its own anchor name. The following link will send the viewer to the location in the file of the "req" anchor.

```
<A HREF="#req">Click here to see course requirements</A>
```

The file, *examples.htm*, on the CD uses this device to allow the reader to click one of the chapter numbers at the top of the page to jump to the examples for that chapter. The reader might also scroll down the list, but it is faster and more convenient to click the link. A possible disadvantage is that by clicking such a link, the reader may become psychologically "lost" (following the hyperlink), and not realize that he or she is still reading the same document. To keep from getting lost, incidentally, read the title and URL of the pages you read, and note the position of the handle in the scroll bar.

Another useful trick is to provide a link to the top of the same page, as in the following example:

```
<A HREF="#top">Top</A>
```

The above example will take the reader to the top of the page, even though no anchor specifically defines the top of the page. This trick is also illustrated in the *examples.htm* file on the CD.

#### **D. Linking to an Anchor in Another Page.**

It is also possible to link to a particular place in another page. This is done by placing one or more anchor name tags in the second page, and by linking from the first page to the second using both an address and a name. For example, suppose you are in a document called [home.htm](#), a professor's home page. To link to course requirements in a particular course syllabus, the following could be used:

```
<A HREF="syllabus101.htm#req">Click here for requirements in my 101
course</A>
```

Another example is in *Ch3\_ex1.htm* and *Ch3\_ex2.htm*,

```
</PRE><A HREF="examples.htm#three">Return to Index of Examples</A>
```

This link, and others like it in the examples take the reader from one file to the appropriate spot in another document. In this case, it takes the reader back to the list of examples for Chapter 3, which has an anchor tag `<A NAME="three">`, in *examples.htm*.

### E. Linking to a File in Another Folder

One can always use the complete URL to link to any file on the Internet. However, sometimes it is useful to link to a folder inside the current directory with a relative link. The example of *Ch3\_ex3.htm* illustrates how to use a relative link to go into a sub-directory, Chap3, to get the file *hi.htm*. Notice that the slashes are *forward slashes(/)*, unlike the backslashes (\) used to define paths in DOS.

```
<HTML><HEAD><TITLE>Linking to inside another folder</TITLE><HEAD>
<BODY><P><A HREF="Chap3/hi.htm">This links to file inside Chap3
sub-directory</A>
</BODY></HTML>
```

The following example, *hi.htm*, shows how to return back to the parent directory.

```
<HTML><HEAD><TITLE>Linking Back out of a Folder</TITLE><HEAD>
<BODY><P>
<P>HI, now you are inside the folder chap3.
```

```
<P><A HREF="../../examples.htm#three">Return to the index of
examples</A>
</BODY></HTML>
```

In the above example, `../` is used to go out of the current directory to the next higher level directory.

## F. Including Images and Linking from Images

Example *Ch3\_ex4.htm* illustrates how to include an image in a Web page:

```
<IMG SRC="email.gif" ALT="computer mail" ALIGN="left" WIDTH=75 HEIGHT=75
BORDER=0>
```

Two popular formats supported by HTML for Web images are "JPEG" and "GIF", which have extensions of *.jpg* and *.gif*. You can use a program to create or convert your images to one of these formats. For photographs, JPEG (Joint Photographic Experts Group) files seem best, and for graphics such as line drawings, GIF (Graphic Interchange Format) are usually best. GIF images use fewer colors than JPEG, so GIF files can be smaller (taking less time to load) than JPEG.

You can create and edit artwork and photographs in commercial programs such as Adobe Illustrator and Adobe PhotoShop. For simple graphics and word art, MS Word and PowerPoint can be useful and convenient. You can use a scanner and its software to scan in photographs or artwork and edit the images. You can also download freeware and shareware programs that allow you to create pictures and convert images from one format to another. You can click the links to graphic resources from the examples for this chapter. More will be said about graphics in Chapters 7 and 14.

The text in `ALT=text` specifies a verbal description of the image. The description is helpful for people who have set their browsers to not download images. Some people do not download images to save time in reading Web pages. The `ALT` description may not show if a picture loads quickly, but it will show if the load is slow, if the user has turned off images, or if the image is missing. In some browsers, `ALT` shows when the mouse pointer is placed on an image and left still. The visually impaired need the `ALT` description to understand what is pictured. For these reasons, you should supply a description for each picture.

The `HEIGHT`, `WIDTH`, and `BORDER` specify the dimensions and border around the image. Change these values in the example to see their effects. Also try changing `ALIGN=left`, `ALIGN=middle`, and `ALIGN=right` to see the effects of aligning an image in a Web page of text. Remember you must save your changes *and* reload the file in the browser to view the changes in the browser (in IE, click the “refresh” button).

You can nest an `IMG` tag within the tags that specify a link, as in *Ch3\_ex5.htm*. As you might expect, clicking on the picture (nested inside the `<A HREF=URL>` and `</A>` tags has the effect of clicking on a link of text between the same tags.

```
<A HREF=mailto:user@address.edu><IMG SRC="email.gif" ALT="computer  
mail" ALIGN="left" WIDTH=75 HEIGHT=75 BORDER=0></A>
```

## G. Discussion and Summary

If you look at other people's Web pages, you will see many graphics that have been included to liven up the link to email. (If these appeal to your sense of taste, you can look at the page source of such pages (and the images), and learn how to emulate them. You can also search the Web for catalogs of graphic images, video clips, and animations that authors have placed on the Web for free use by anyone who will acknowledge credit

to the artist. There are many images and animations that may be freely used. You should be careful, however, not to use copyrighted material that is not intended for public use. As you peruse the Web, you will also find many graphics that include advertising with invitations to click them to receive commercial messages—the clutter can get pretty annoying. Some think you should keep Web pages fairly clean and simple (they load faster and are easier to read), but your taste may be different, so if you like graphics to liven up your pages, go ahead and include them.

Linking allows a dynamic, interactive component to HTML. The browser's display depends on the person's decision to click one link or another.

Table 3.1 summarizes the tags used in this chapter. 

Insert Table 3.1 about here.
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Table 3.1. Tags creating links to email, to other pages, within a page and display image.

Tag	description
<code>&lt;A NAME="anyname"&gt;&lt;/A&gt;</code>	Anchors a line of text by giving it a name
<code>&lt;A HREF="mailto:nb@nowhere.edu" &gt;click&lt;/A&gt;</code>	Creates a link that when clicked will start an email message to the address specified after <code>mailto:</code>
<code>&lt;A HREF="#anyname"&gt;click here&lt;/A&gt;</code>	Creates a link in the same document to the anchored name. The same name must be defined in an anchored name tag.
<code>&lt;A HREF="address#anyname"&gt;click&lt;/A&gt;</code>	Links to another page at the address given and location that is defined in the other page.
<code>&lt;A HREF="name/file.htm"&gt;click&lt;/A&gt;</code>	Links to a file in the folder, <code>name</code> , to a page named <code>file.htm</code> .
<code>&lt;A HREF="../file.htm"&gt;click&lt;/A&gt;</code>	Links to the file, <i>file.htm</i> , in the parent directory of the current folder.
<code>&lt;IMG SRC="file.gif" ALT="computer mail" ALIGN="left" WIDTH=75 HEIGHT=75 BORDER=0&gt;</code>	Displays the image file, <i>file.htm</i> , left-justified, with width and height of 75 pixels and no border.

**H. Exercises**

1. Write a simple Web page to take a vote on some proposition; it will send email to one address if the person has one opinion, and to another address if they have the opposite opinion. Use two different email addresses. By counting the number of messages sent to the two addresses, one could count the number of people who vote each way. (One solution is in *Ch3\_ex6.htm*.) In chapter 5, you will see a much better way to do this that does not require two email addresses, and doesn't require handling of all of those emails.
2. Add an image to the link of *Ch3\_ex2.htm*. Use the image included on the CD named *MuseumTiny.gif*. This image is used with permission of Marielle Lange of the Museum of Perception and Cognition at Universite Libre of Brussels, Belgium. Arrange the page so that clicking on the logo sends the reader to the museum.
3. Develop a set of Web pages containing some instructional materials with a multiple-choice problem. When a student clicks on the correct answer, they should be sent to a page that tells them they were correct; if the answer was wrong, send them to a page that gives tailored additional instruction. Use one Web page for the test, and use links to send the student to appropriate additional instruction for each wrong answer, and to the next question if they are correct. You should supply a return link from each page of corrections.
4. Construct two questionnaires, one for males and one for females. Then create a page that asks the person to click according to their gender, with HTML to automatically send them to the appropriate questionnaire. Use relative addresses.
5. Write two Web pages. Make one a home page for a student. Make the other a list of hobbies and interests for the same student with sections for Academic interests,

Musical interests, Hobbies, Jokes, and Pictures. Put links at the beginning of the file to the sections in the same file. In the home page put a link to the Jokes in the Hobbies and Interests file.

6. Examine the Page source (HTML) of the file on your CD called *examples.htm*. You can open this file in NotePad, or open it in your browser, and select *Page Source* from the **View** menu. This file consists of links to examples and other addresses. You should now understand how this file (*examples.htm*) works.
7. Open your Word Processor, such as MS Word, and select Picture from the Insert menu. Look at the pictures that come with the word processor. Insert an image, and select Save as HTML from the File menu, being careful to note the folder in which you save it. Open the folder and look at the image files, which will have names such as *image1.gif*, *image2.gif*, etc. Open the image files from the browser. You can rename the images to more useful names. The images in *Ch3\_ex5.htm* were made by this procedure.

### **I. Links for Graphics**

Paint Shop Pro (for PC) and BME (for Mac) are inexpensive and can be used to do many of the same tasks as the more expensive (and powerful) program, Adobe PhotoShop.

Links to programs and graphic resources on the Web are included in the examples to this chapter. These sites will tell you the rules for using their images and animations.