HTML Basics

Overview

The hypertext markup language (HTML) is the standard language of the World Wide Web. A markup language is a way of describing, using instructions embedded within a document, what the document text means, or what it is supposed to look like. Simply, it is a collection of tags used to mark blocks of text and assign them special meaning.

Introduction

HyperText Markup Language (HTML) is the language used to prepare Web hypertext documents. HTML contains commands, called tags or elements, to mark the text as paragraphs, headings, lists, characters, tables and more. An element is a fundamental component of the structure of a text document. Think of it this way: you use HTML tags to mark the elements of a file for your browser. Elements can contain plain text, other elements, or both.

To denote the various elements in an HTML document, you use *tags*. HTML tags consist of a left angle bracket (<), a tag name, and a right angle bracket (>). Tags are usually paired (e.g., <H1> and </H1>) to start and end the tag instruction. The end tag looks just like the start tag except a slash (/) precedes the text within the brackets.

Some elements may include one or more attributes, which are additional information that is included inside the start tag. For example, you can specify the alignment of images (top, middle, or bottom) by including the appropriate attribute with the image source HTML code.

Basic Format:
<tag attribute = "value">Text to display goes here</tag>

HTML is not case sensitive. <title> is equivalent to <TITLE> or <TiTlE>. There are a few exceptions noted in character entities such as the left angle bracket (<), the right angle bracket (>), and the ampersand (&)--have special meanings in HTML and therefore cannot be used "as is" in text. (The angle brackets are used to indicate the beginning and end of HTML tags, and the ampersand is used to indicate the beginning of an escape sequence.).

Not all tags are supported by all World Wide Web browsers. If a browser does not support a tag, it will simply ignore it. Any text placed between a pair of unknown tags will still be displayed, however.

Objectives

By the end of the HTML portion of this class, you should understand how to:
- Lay out a Web site
- Create a Web page using basic HTML structures
- Add and alter text
- Add various lists
- Create links
- Place ownership on pages
- Insert and alter graphics
- Create basic tables for data usage and layout

Getting Started

It is so tempting to just jump in and start creating pages, or start changing existing pages. But, it's a good idea to start by asking three simple questions:

1. **Why are you building the site *or* why is this site here?** Many web sites exist just to keep up with "technology". Have a purpose or reason for existing on the web.

2. **Who is the intended audience for the site?** Determine if the site is for the internal group, internal division, internal Lab, a specific community, or the general population.

3. **What is the format for your site?** There are several ways to layout a site. Decide if the user needs to follow a certain path, or if they can freely explore any direction.

Folders vs. Files

One of the first steps to organizing a site is to visualize how it should flow. If the site is of minimal size, one directory with all the files will work. If it's a larger site, one directory with several sub-directories may be necessary.

Design and Layout

Designing and laying out your site is a very subjective project. The entire Web is a subjective state; therefore, use your best judgment as to how you lay the site out, and what is published.

Some sites that provide guidance include:

http://www.webpagesthatsuck.com/begin.htm

http://www.sev.com.au/webzone/design.asp

http://www.zdnet.com/anchordesk/story/story_1893.html

As with any published information, make sure to test, test and retest your site. Also, make certain that the information is kept up to date and current.

Necessary Tools

HTML is basically plain text with embedded HTML tags. Therefore, any simple text editor will work. Listed below are generic editors:

- Unix: Emacs, vi, Pico
- PC: Notepad, Word Pad or UltraEdit
- Mac: SimpleText or BBEdit

Any word processor that will save it in "text" mode will also work.

Microsoft Word (Office 95 version or higher) will take any document and convert it to HTML for you. A word of caution, though, much of the formatting will also be lost.

You can also use a Web Editor such as Microsoft FrontPage, Claris HomePage, and Dreamweaver; or a text editor such as HotDog, HomeSite, UltraEdit and BBEdit. These products help create the Web pages, and in some cases, do not require HTML knowledge.

Once you have created your page in the text editor, you will want to preview it in your Web browser (either Netscape or Internet Explorer). Although we can dictate how we want the page to look overall, the browser is responsible for how the element is represented. Some standards in representation can be expected, but the overall "look" will vary on different browsers and systems. Therefore, it is very important that you test on differing platforms and in different browsers.
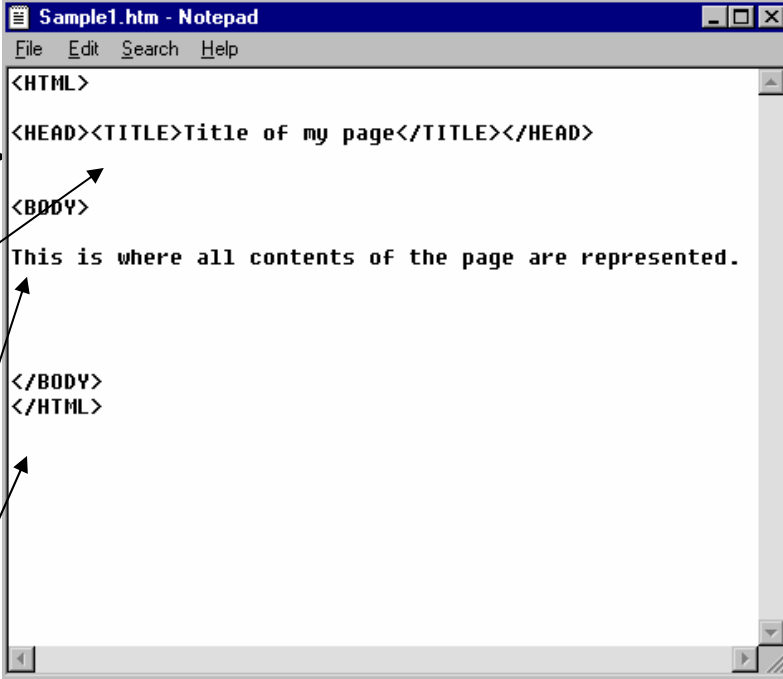
Document Structure

An HTML tag is set off by angle brackets *<tag>* and the code is placed within these brackets. Most tags come in pairs, with the tags placed before (and often after) the affected text. A bracket with a slash *</tag>* marks the end of a format command.

<B>text**</B>**   bolds the text within the tags

Tags (also called elements) are not case sensitive (i.e., HtmL) with the exception of file names or network resource names.

Basic Formatting Elements

Any page on the Web contains at least the following tags, in the following structure:

<HTML> - required tag; defines document as an HTML document

<HEAD></HEAD> - required tags; defines the header of the page.

<TITLE></TITLE> - required tags; type in text to appear in the title bar of browser when the file is viewed.

<BODY></BODY> - required tags; this is where everything else is typed in.

</HTML> - required tag; ends the HTML document.

```
Sample1.htm - Notepad
File  Edit  Search  Help

<HTML>

<HEAD><TITLE>Title of my page</TITLE></HEAD>


<BODY>

This is where all contents of the page are represented.




</BODY>
</HTML>
```

Other commonly used tags:

<B>**bolds text**</B>   <I>*italicizes text*</I>

_{subscript}   ^{^{superscript}}

<BIG>enlarges text</BIG>   <SMALL>reduces text</SMALL>

<PRE>pre-formats text</PRE>

Format Elements

The web has changed immensely over the past few years. More and more tags are now acceptable, with more attributes for certain ones. An attribute is an additional function of the tag that allows differing options for the tag.

<HEAD>

The **<META>** tag is used to indicate special instructions for the client browser or the server. The <META> tag must be placed within the HEAD tags in an HTML document.

<META NAME="keywords" CONTENT="*words that describe the topic of the page, separated by commas***">**

<META NAME="description" CONTENT="*summary of page; type in a few concise sentences about the page***">**

<BODY>

The **<P>** tag or "paragraph" denotes the beginning and ending of sentences to be displayed as a single paragraph. The <P> will leave a blank line between paragraphs.

<P> *leaves blank line in-between paragraphs*

<P ALIGN="LEFT", "RIGHT", "CENTER">*aligns text on the page***</P>**

The **
** tag inserts a line break in the document. The <BR> has the same effect as a carriage return on a typewriter.

The **<HR>** tag draws a horizontal rule that is self-justifying and shaded for a 3D look by default.

<HR>

<HR ALIGN="LEFT", "RIGHT", "CENTER"> *aligns rule on the page*

<HR NOSHADE> *removes the 3D look*

<HR SIZE="*n*"> *increases the height of the rule*

<HR WIDTH="*n*"> *increases the width of the rule*

Altering Display and Layout of Text

Until recently, HTML did not allow the designer to do a whole lot with the layout. There are now many tags that can alter the structure and appearance of text on the Web page.

Alignment

Alignment allows the designer to create distinct divisions within a Web page. The type of alignment will align the text with respect to the window of the browser: left, center, right, or justified. There are two ways to create this alignment; and either will work with current browsers:

<P ALIGN="left, center, right, justify"> … </P>

<DIV ALIGN="left, center, right, justify">…</DIV>

Blockquote

The block quote tag can be used to enclose large quotations or to indent sections of text.

<BLOCKQUOTE>…</BLOCKQUOTE>

Altering Text

There are two main ways to change the size of the font in HTML: heading tags and font tags with size attributes. With HTML 4.*x*, font tags are used more prominently.

Headings:

<H1>Heading 1**</H1>** First Level Heading

<H2>Heading 2**</H2>** Second Level Heading

<H3>Heading 3**</H3>** Third Level Heading

<H4>Heading 4**</H4>** Fourth Level Heading

<H5>Heading 5**</H5>** Fifth Level Heading

<H6>Heading 6**</H6>** Sixth Level Heading

Font Sizes (don't use this too much):

The **<FONT></FONT>** tags apply size to specific pieces of text. Unlike the heading tags that affect the entire line of text, you may use font tags with a size attribute to create differing effects on the text. Font sizes range from 1 to 7; a font size of 3 is the default size that the browser window is set to.

<FONT SIZE="1">Font Size 1**</FONT>**

<FONT SIZE="2">Font Size 2**</FONT>**

<FONT SIZE="3">Font Size 3**</FONT>**   default base font size

<FONT SIZE="4">Font Size 4**</FONT>**

<FONT SIZE="5">Font Size 5**</FONT>**

<FONT SIZE="6">Font Size 6**</FONT>**

<FONT SIZE="7">Font Size 7**</FONT>**

Using a + or - with the font size will increase or decrease the font size relative to the base font. Your font and sizes cannot add up to more than 7 or less than 1.

<**FONT SIZE="+2"**>Font Size 5</**FONT**>

Font Color

Color is one of the biggest attractions (next to graphics) on the Web. You may specify the color of text by adding the **COLOR** attribute to the **<FONT>** tag.

Color and the Web

In HTML, color is either specified by a simple name or a complicated color numeric format.

Of all the colors on the palette, only 16 are understood by name: **aqua** (cyan)**, black, blue, fuchsia** (magenta)**, gray, green, lime, maroon, navy, olive, purple, red, silver, teal, white, and yellow**.

For more specific color, use color numeric format #RRGGBB. By specifying the red, green, and blue color values (from 0 to 255 in hexadecimal notation), you can create 16.7 million different color choices.

However, keep in mind that (older) computers, monitors, and browsers may be limited to how many colors they can display. If they are unable to display a specified color, it may distort the image on your browser. To be safe, there are 216 colors, called the "safe palette", which can be correctly displayed by all types of hardware/software. By using combinations of the color values 00, 33, 66, 99, CC and FF, you can obtain these 216 "safe" colors. Note that the color black is 000000 and the color white is FFFFFF.

<FONT SIZE="5" **COLOR="AQUA"**>Text</FONT>

      or

<FONT SIZE="5" **COLOR="#00FFFF"**>Text</FONT>

Sites for help with Color:

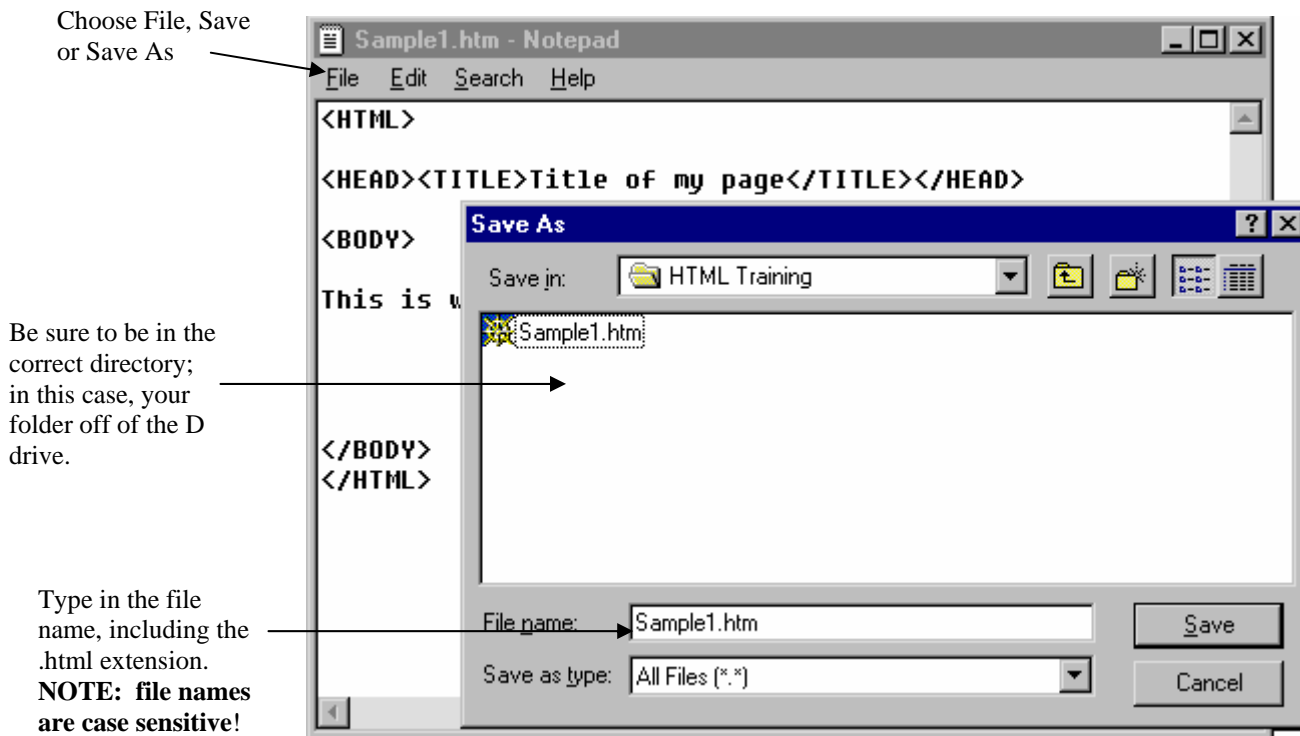- http://www.lynda.com/hexh.html
- http://www.cookwood.com/html4_4e/colors/

Saving Pages

There are several ways an HTML document can be saved. For the ease of this class, we will be saving all files in the folder you have created on the D drive.

Your file names must be all one word (no spaces), and it is recommended that you type them all lower case (file names are case sensitive).

From within the notepad, click on Save. Type in your file name; be sure to type in the file extension **.htm** (.html is also accepted). Also make sure that you "Save in" your folder on the hard drive before you choose Save!

Choose File, Save or Save As

```
Sample1.htm - Notepad

File   Edit   Search   Help

<HTML>

<HEAD><TITLE>Title of my page</TITLE></HEAD>

<BODY>

This is w

</BODY>
</HTML>
```

Be sure to be in the correct directory; in this case, your folder off of the D drive.

Save As

Save in: HTML Training

Sample1.htm

Type in the file name, including the .html extension. **NOTE: file names are case sensitive**!

File name: Sample1.htm

Save as type: All Files (*.*)

Save

Cancel

Previewing Pages

Once you have saved your page, you will need to preview it in the browser. It is important to use the types of Browsers that your visitors will have and use. For this class, you should at least look at it in both Internet Explorer and Netscape.

For example, open up Internet Explorer. From the File menu, choose Open Page. Click on Choose File; go to the C drive and select your folder. Next, select your web page. Choose Open. Your page should appear in the browser.
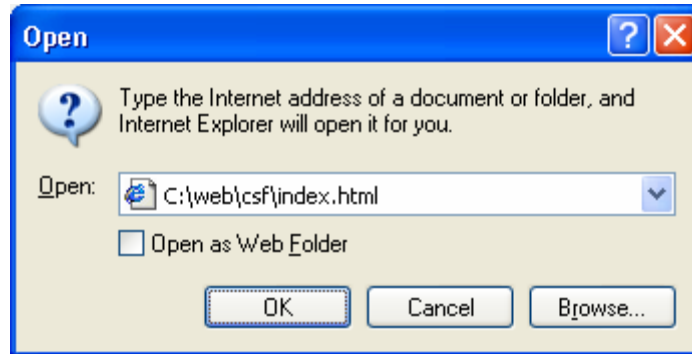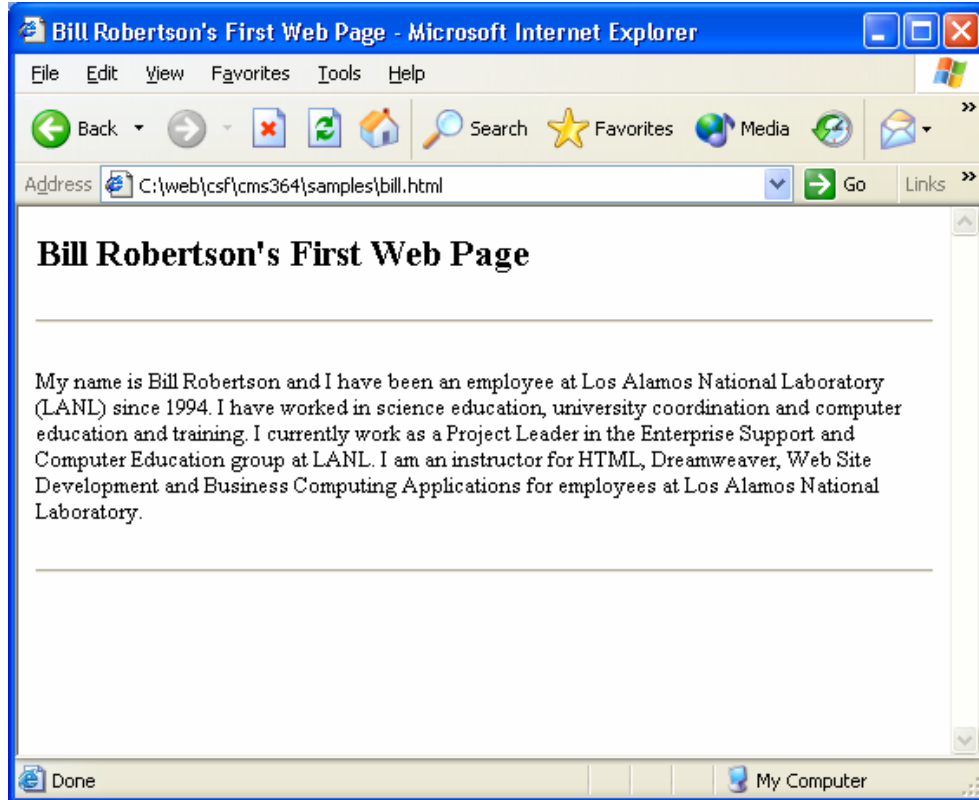

If you cannot find your file, you may have saved it wrong, or in the wrong place. Go back to Notepad and resave the file.

- Another way to view your file is to minimize your Internet Explorer so that it is open, yet you can still see the Windows desktop. Open your folder on the D drive. Drag and drop the file to be viewed onto Internet Explorer. These techniques will also work with Netscape and most standard browsers.

Exercise

1. Create a simple homepage for yourself including all of the following information:
   - Your Name
   - What You Do
   - Some interesting fact about you
2. Incorporate the use of color and font size in your layout.
3. Also use the horizontal rule and other fixed type styles as needed.
4. Save your file as *yourname*.htm (e.g. bill.htm).
5. Preview your file in the browser.

Your end result should look similar to this:

The code for your exercise should look similar to this:

List Formats

There are three main list formats in HTML: ordered, unordered and definition. Using lists can break up your page, add a little style, or just make the layout look a little smarter.

Ordered Lists

An ordered list is a numbered list. The browser will automatically number the list items for you.

<OL> Ordered list opening tag
<LI> First item on list
<LI> Second item on list…
</OL> Closing tag

You may also change the type attribute of the numbers; they can be changed to letters, Roman numerals, or you can set a starting number.

<OL **TYPE="A"**> Creates upper case letters
  …"a"> Creates lower case letters
  …"I"> Creates upper case Roman numerals
  …"i"> Creates lower case Roman numerals

<OL **START="2"**> Sets the starting number (you may use any number here)

Unordered Lists

An unordered list is a bulleted list. Browsers will automatically bullet line items for you.

<UL> Ordered list opening tag
<LI> First item on list
<LI> Second item on list…
</UL> Closing tag

You may also change the type attribute of the bullets; they can be changed to squares, discs, or circles.

<UL **TYPE="square"**> Creates square/box bullets
  …"disc"> Creates typical round, black bullets
  …"circle"> Creates round bullets, with a clear center

Definition List

A definition list contains two parts: the term and the definition. There are no bullets or numbers in definition lists.

<DL> Definition list opening tag
<DT> Term
<DD> Definition of the term
</DL>Definition list closing tag

Below is a sample of all three list types:

Sample HTML for list types

```
lists.html - Notepad
File  Edit  Format  View  Help
<html>
<head><title>Bill Robertson's Sample of Lists</title></head>
<body>

<h2>Bill Robertson's Sample of Lists</h2>
<hr>

<p>Here are some courses that I like to teach:</p>

<ol>
<li>HTML</li>
<li>Dreamweaver</li>
<li>Computer Basics</li>
</ol>

<p>Here are some activities I enjoy</p>

<ul>
<li>Running</li>
<li>Skateboarding</li>
<li>Weight Lifting</li>
<li>Golf</li>
</ul>

<h3>What is HTML?</h3>

<dl>
<dt>HTML
<dd>Hypertext Markup Language - the universal language for the
world wide web.
</dl>

<hr>
</body>
</html>
```
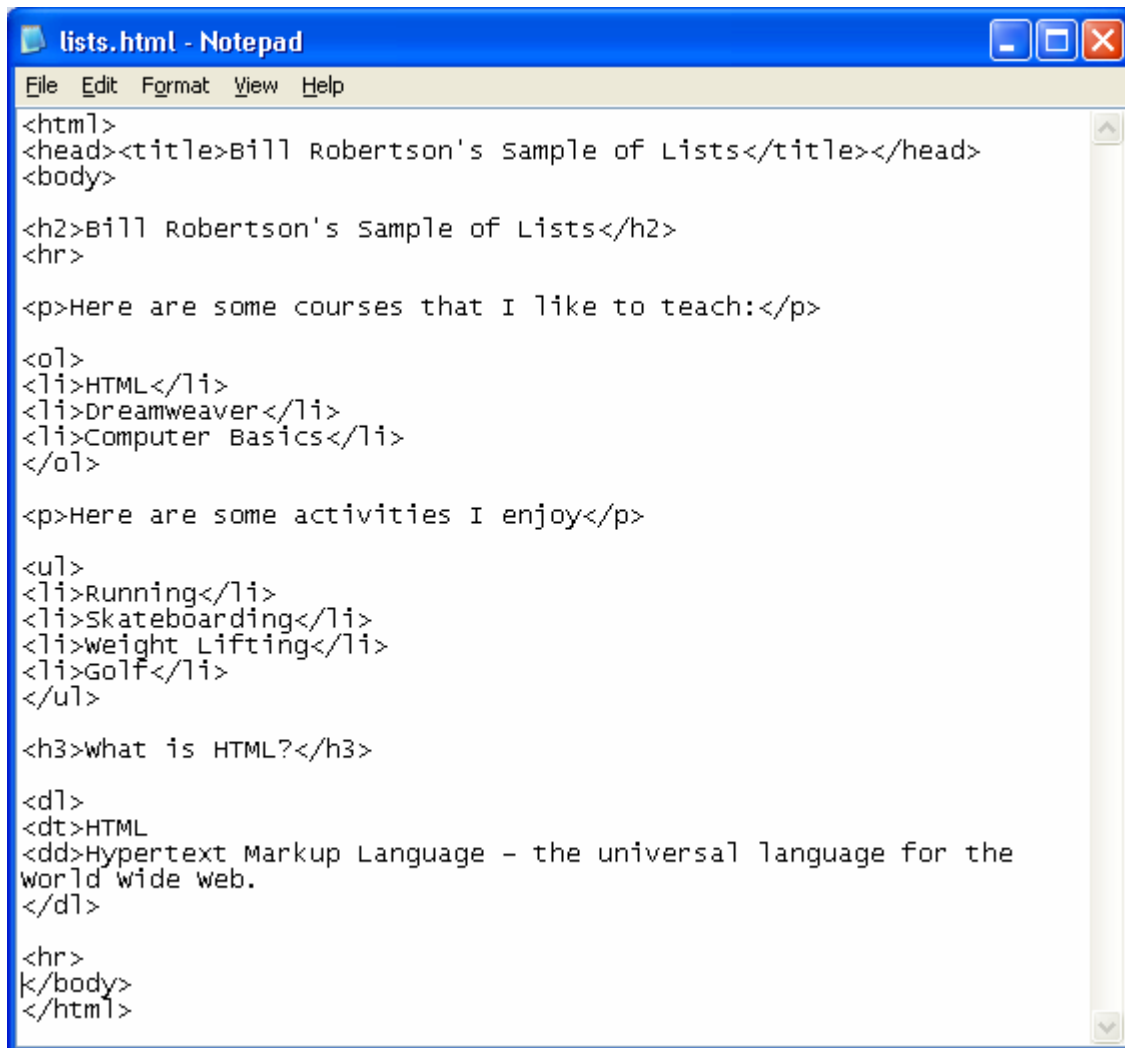
Exercise

1. In your root folder, create a blank page using notepad. Remember to save it in the "All files" format, not in the .txt format. Save it as lists.html (for example)
2. Insert basic HTML tags, including the html, head, title and body tags.
3. Make the term "My Lists in HTML" your title in the head.
4. Make the term "Using HTML" using a heading tag.
5. Insert ordered list tags around text for 5 classes you have taken at CSF.
6. Insert unordered list tags around text for hobbies you enjoy.
7. Insert definition list tags around the HTML and definition text.
8. Insert a horizontal rule in between each section.
9. Incorporate color and other attributes as needed.
10. Save the file as lists.html (for example)
11. View your page in both browsers.

Hyperlinks

A hyperlink is the link or jump to another destination, typically another document.

Hyperlink Format

The first step is to identify the place(s) you wish to link to and determine which type of hyperlink you need to use (absolute vs. document relative vs. relative).
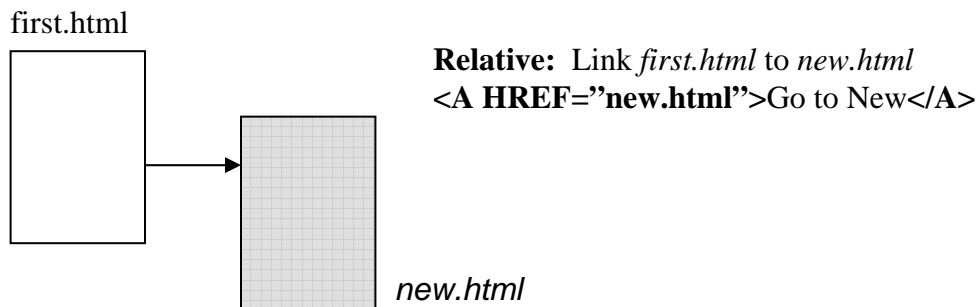
The main HTML linking tag is:

        <A HREF="*address/filename.html***">**text or image to be a link**</A>**
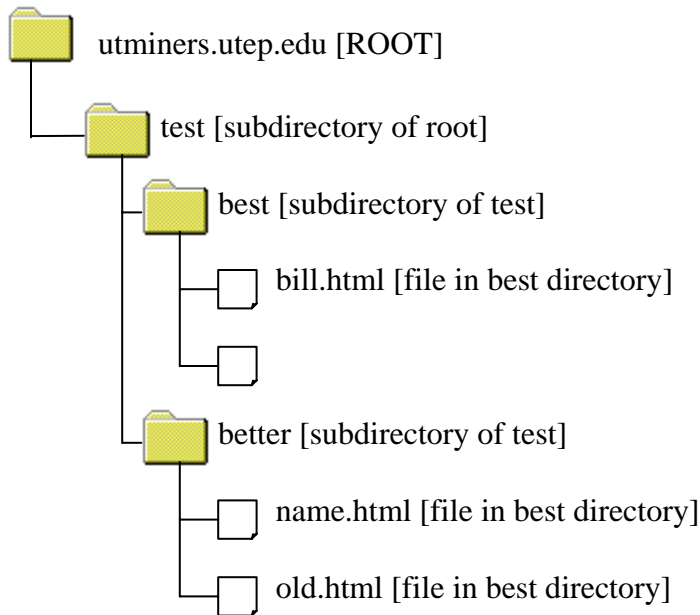
Hyperlink Types

There are three types of hyperlinks:

1. **Relative**: a relative link just contains a file name, as all files are contained within the same directory. For example:

first.html

Relative: Link *first.html* to *new.html*
<A HREF="new.html">Go to New**</A>**

new.html

2. **Document-relative paths** are relative to the directory containing the current document. For example, **bill.html** specifies a document in the current directory, **../bill.html** specifies a document in the directory above the current directory [test], and **best/bill.html** specifies a document in a subdirectory named "best" in the current directory.

utminers.utep.edu [ROOT]

test [subdirectory of root]

best [subdirectory of test]

bill.html [file in best directory]

better [subdirectory of test]

name.html [file in best directory]

old.html [file in best directory]

So, if the link is from **old.html** to **new.html**, the structure would be:
<A HREF="../best/new.html">Go to new**</A>**

3. **Absolute**: an absolute link contains the entire, exact address (URL). For example:
http://www.lanl.gov/internal/

first.htm

Absolute: Link *first.htm* to the search engine *yahoo!*
<A HREF="http://www.yahoo.com">Go to Yahoo!**</A>**
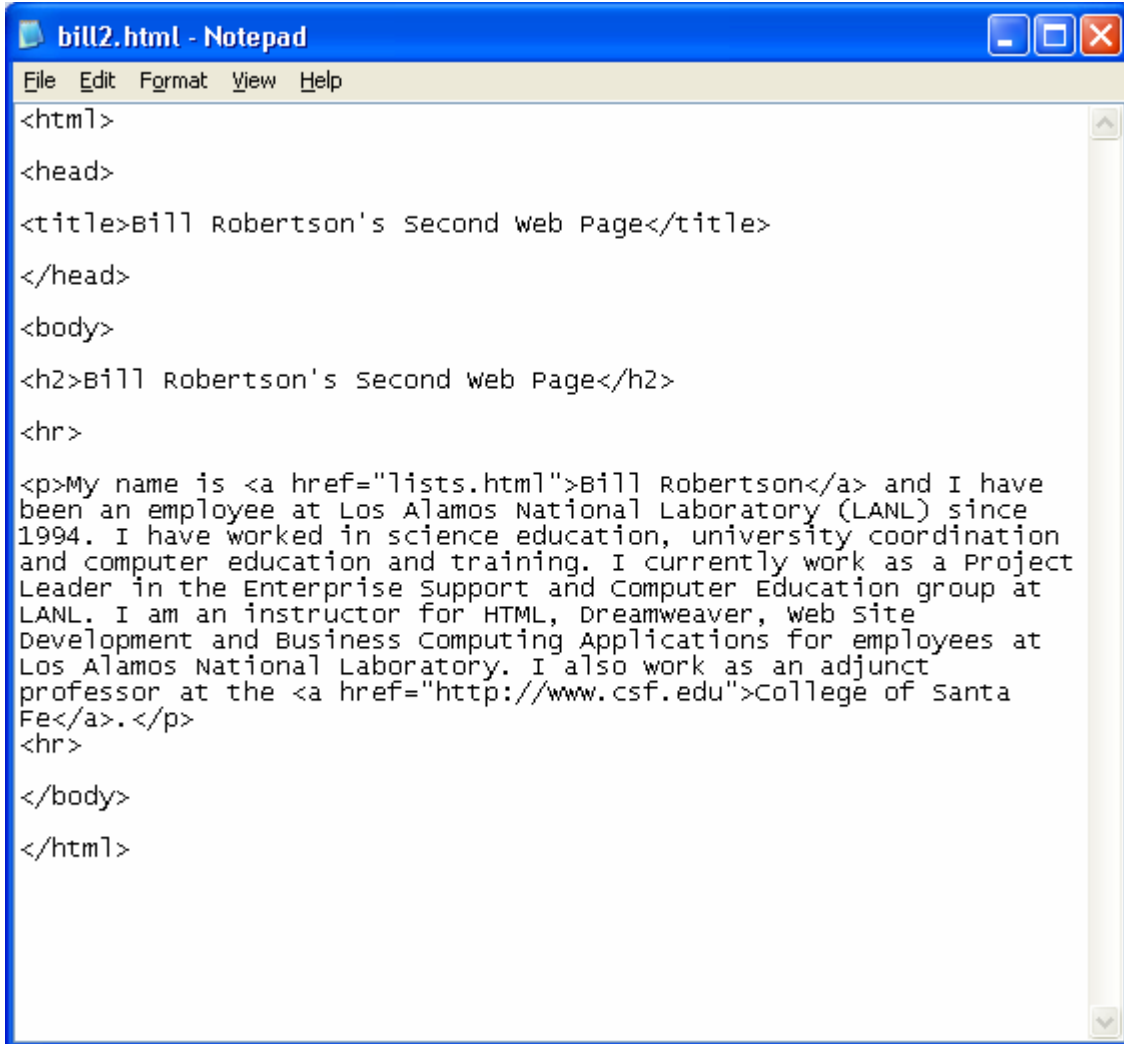
http://www.yahoo.com

Exercise: Hyperlinks

1. Open your home page (*yourname***.html or bill.html for example**).

2. Add a link from your home page to the exercise on the list (**list.html**) using an element on your page as the link.

3. Add a link from your home page to the CSF home page using your class list as the link.

4. Save the file as yourname2.html (bill2.html).

5. View your page in both browsers.

Sample of what your page should look like:

Link to the lists

Link to the CSF
home page
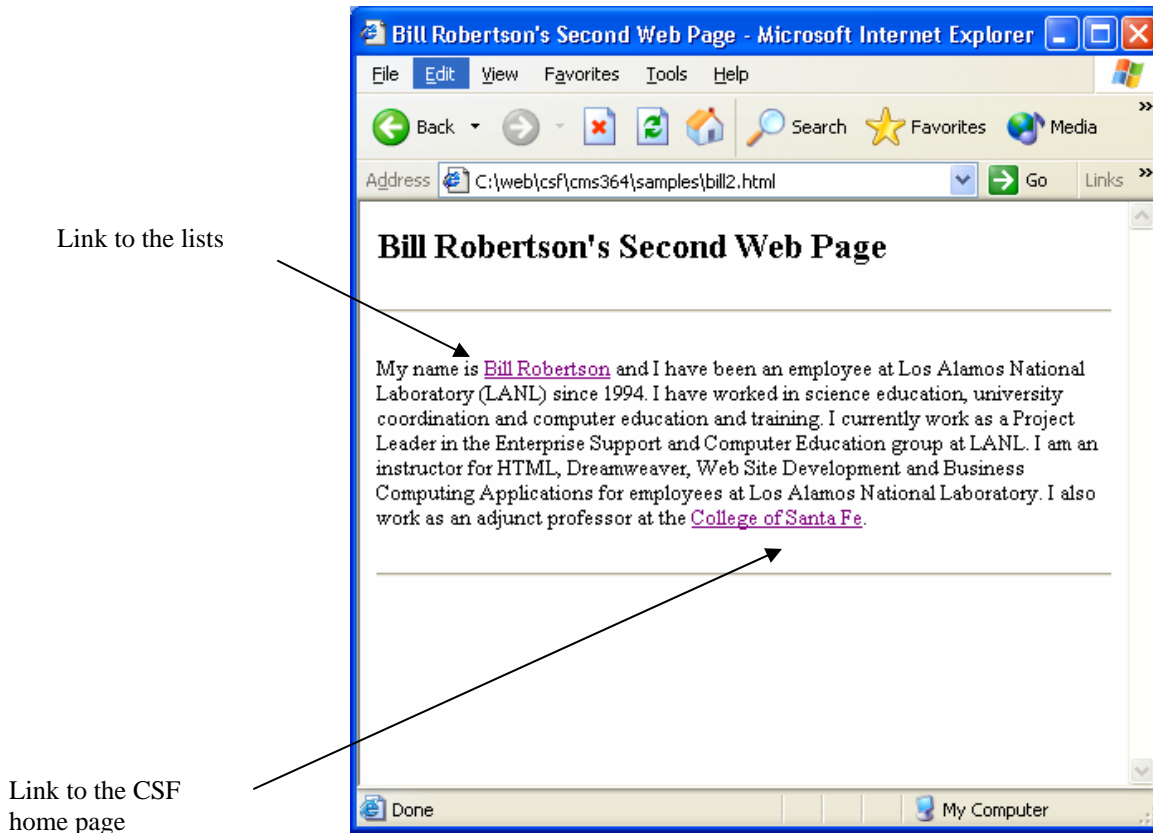
The code for your exercise should look similar to this:

```
bill2.html - Notepad
File  Edit  Format  View  Help

<html>

<head>

<title>Bill Robertson's Second Web Page</title>

</head>

<body>

<h2>Bill Robertson's Second Web Page</h2>

<hr>

<p>My name is <a href="lists.html">Bill Robertson</a> and I have
been an employee at Los Alamos National Laboratory (LANL) since
1994. I have worked in science education, university coordination
and computer education and training. I currently work as a Project
Leader in the Enterprise Support and Computer Education group at
LANL. I am an instructor for HTML, Dreamweaver, Web Site
Development and Business Computing Applications for employees at
Los Alamos National Laboratory. I also work as an adjunct
professor at the <a href="http://www.csf.edu">College of Santa
Fe</a>.</p>
<hr>

</body>

</html>
```

Ownership of Pages

It is important that on every page you publish that you place ownership on the page. This information usually shows up in the footer of the Web page.

E-Mail Contact

The majority of Web pages contain at least an E-mail link at the bottom for comments. This is similar to setting a hyperlink; but this link will open the Email of the browser (if the user has it set up) for messages:

<A HREF=**"mailto:*youremail*@lanl.gov"**>*Your Email Again*@lanl.gov</A>

Date

The date the page was created or last updated is generally placed at the bottom, right hand corner of the page. The recommended format is DD MON YYYY:

> 31 December 1999

Exercise: Placing Ownership

1. Open *yourpage*.html.
2. Place footer, and edit your Email and today's date at the bottom of the page.
3. Save the file and preview in the browser.