

## The Hypertext Markup Language

*The Hypertext Markup Language is referred to as HTML by the Internet Community. It is not officially recognized as a programming language, but it is a good place to start if you want to learn about programming and/ or building webpages.*

**H**TML is a series of commands (or tags) that tell a web browser to do something. A typical web document (or webpage) may consist of text, images, sounds, and movies. A typical simple webpage created in a text editor such as notepad is show at left.

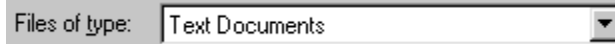
### Example

```
<html>
<head>
<title>Replace these words
with a meaningful title
</title>
</head>
<body>
<!-- All HTML tags such as
<h1> that controls the text
size or  are put in the
body section. The symbols <!--
and --> tell the browser that
these instructions are
comments only and won't be
read as tags. -->
</body>
</html>
```

To create a simple webpage you should follow the instructions listed below:

- 1) Locate and open Notepad.
- 2) Begin by typing the simple tags listed in the example. You do not need to include the <!-- or anything up to and including the -->. You should, however, replace the words in between <title> and </title> as this will be the title which will appear in the upper left corner of your browser.
- 3) Save your webpage using File>Save as... and type a meaningful name like webpage1.html. The last part (.html) is an extension which tells the browser that this is a webpage. You may also choose to use .htm.
- 4) Open your webpage browser.
- 5) Choose File>Open Page>Choose File and locate the webpage that you just created. Click open.
- 6) You've just created your first blank webpage.
- 7) To add some text, return to notepad and add the tag <h1> below the <body> tag. Go down one line (Hit the Enter key). Type your name or appropriate text. Go down one line (Hit the Enter key). Close the <h1> tag with the </h1> tag.

Note: If you closed notepad, you must reopen it, choose file>open, locate the file type window and change it to All Files. You should now be able to choose your webpage and open it.



- 8) Choose File>Save.
- 9) Return to your web browser. Click Reload. If you closed your web browser, return to and repeat steps 4 and 5.
- 10) Change the colors. See next page...



## Example

```
<html>
<title>Exmple</title>
<body bgcolor="FF0000">

</body>
</html>
```

## The Body Tag

You will find that many HTML tags contain attributes. Attributes are nothing more than extras that allow you to do something special. For instance, the `<body>` tag attribute *bgcolor* allows you to set the background color. See example at left. The *background* attribute allows you to use an image that will be display behind whatever put on your webpage. The *text* attribute allows you to change the text color of all text on the webpage. The *link*, *alink*, and *vlink* attributes control the unvisited, active, and visited hyperlink colors, respectively. There are other attributes available for the body tag but they are beyond the scope of this discussion.

## Example

```
<h1>Example</H1>
would yield:
```

## Example

```
Whereas:
<font size=7>Example</font>
would yield:
```

## Example

## Heading and Font Tags

The heading tag allows you to change the size of text displayed on your webpage. Previously you observed that if you place text inside the `<h1>` and `</h1>` tags it appeared large. The smallest available heading size would be `<h7>`. The numbers next to the h work in reverse order. This differs from the `<font>` tag that uses the attribute *size* to increase the size of the text. See example at left. A nice feature of the `<font>` tag is it's ability to change the color via the *color* attribute and the font face via the *face* attribute.

## The List Tag

The list tag allows you to create an ordered or unordered list. A list is created using the `<ol>` or `<ul>` ordered or unordered list tags, respectively. The *type* attribute may used to determine a style as set forth by *The Chicago Manual of Style*. Styles include *type=I* for Roman numerals, *type=A* for uppercase, *type=1* for numbers and *type=a* for lowercase. You may additionally enhance your unordered list style by adjusting bullets. The default is ● followed by ◻ ending with ○ but may be modified by adding the *type=circle*, *type=square* or *type=disc* to the `<li>` tag.

An unordered list <code>&lt;ul&gt;</code> with 5 items	An ordered list <code>&lt;ol&gt;</code> with 5 items
Example: <code>&lt;ul&gt;</code> <pre>      &lt;li&gt;Wrestling       &lt;li&gt;Basketball       &lt;li&gt;Soccer       &lt;li&gt;Football       &lt;li&gt;Track       &lt;/ul&gt;</pre>	Example: <code>&lt;ol&gt;</code> <pre>      &lt;li&gt;Wrestling       &lt;li&gt;Basketball       &lt;li&gt;Soccer       &lt;li&gt;Football       &lt;li&gt;Track       &lt;/ol&gt;</pre>
would appear: <ul style="list-style-type: none"><li>• Wrestling</li><li>• Basketball</li><li>• Soccer</li><li>• Football</li><li>• Track</li></ul>	would appear: <ol style="list-style-type: none"><li>1 Wrestling</li><li>2 Basketball</li><li>3 Soccer</li><li>4 Football</li><li>5 Track</li></ol>

Additionally, you may make nested lists which include both ordered and unordered elements, but that is beyond the scope of this discussion.

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## About web colors

There are 216 "web safe" colors that you can use in a web browser. However, as most computers are capable of displaying millions of colors this really isn't important unless you are attempting to create a webpage that can be displayed to all computers and all web browsers.

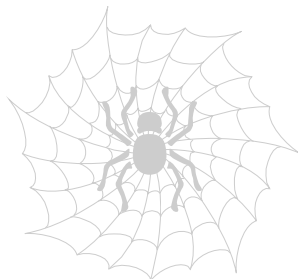
There are several ways to control colors in a webpage. Foremost, they are controlled in the <body> tag. The <body> tag uses *attributes* to set colors in a webpage. To set a background color of black and a text color of red you would use the tag :

```
<body bgcolor="000000" text="ff0000">
```

Colors are used using an RGB (Red, Green, Blue) hex value system whereby weight is added to a particular color in the order: "0123456789abcdef" with "0" adding no color and "f" adding the most color. Therefore, blue would be defined as "0000ff".

The following colors are offered:

White rgb=#FFFFFF	Feldspar rgb=#D19275	New Tan rgb=#EBC79E
Red rgb=#FF0000	Firebrick rgb=#8E2323	Old Gold rgb=#CFB53B
Green rgb=#00FF00	Forest Green rgb=#238E23	Orange rgb=#FF7F00
Blue rgb=#0000FF	Gold rgb=#CD7F32	Orange Red rgb=#FF2400
Magenta rgb=#FF00FF	Goldenrod rgb=#DDB700	Orchid rgb=#DB70DB
Cyan rgb=#00FFFF	Grey rgb=#C0C0C0	Pale Green rgb=#8FBC8F
Yellow rgb=#FFFF00	Green Copper rgb=#527F76	Pink rgb=#BC8F8F
Black rgb=#000000	Green Yellow rgb=#93DB70	Plum rgb=#EAADEA
Aquamarine rgb=#70DB93	Hunter Green rgb=#215E21	Quartz rgb=#D9D9F3
Baker's Chocolate rgb=#5C3317	Indian Red rgb=#4E2F2F	Rich Blue rgb=#5959AB
Blue Violet rgb=#9F5F9F	Khaki rgb=#9F9F5F	Salmon rgb=#6F4242
Brass rgb=#B5A642	Light Blue rgb=#C0D9D9	Scarlet rgb=#8C1717
Bright Gold rgb=#D9D919	Light Grey rgb=#A8A8A8	Sea Green rgb=#238E68
Brown rgb=#A62A2A	Light Steel Blue rgb=#8F8FBD	Semi-Sweet Chocolate rgb=#6B4226
Bronze rgb=#8C7853	Light Wood rgb=#E9C2A6	Sienna rgb=#8E6B23
Bronze II rgb=#A67D3D	Lime Green rgb=#32CD32	Silver rgb=#E6E8FA
Cadet Blue rgb=#5F9F9F	Mandarin Orange rgb=#E47833	Sky Blue rgb=#3299CC
Cool Copper rgb=#D98719	Maroon rgb=#8E236B	Slate Blue rgb=#007FFF
Copper rgb=#B87333	Medium Aquamarine rgb=#32CD99	Spicy Pink rgb=#FF1CAE
Coral rgb=#FF7F00	Medium Blue rgb=#3232CD	Spring Green rgb=#00FF7F
Corn Flower Blue rgb=#42426F	Medium Forest Green rgb=#6B8E23	Steel Blue rgb=#236B8E
Dark Brown rgb=#5C4033	Medium Goldenrod rgb=#EAEAAE	Summer Sky rgb=#38B0DE
Dark Green rgb=#2F4F2F	Medium Orchid rgb=#9370DB	Tan rgb=#DB9370
Dark Green Copper rgb=#4A766E	Medium Sea Green rgb=#426F42	Thistle rgb=#D8BFD8
Dark Olive Green rgb=#4F4F2F	Medium Slate Blue rgb=#7F00FF	Turquoise rgb=#AEEAEA
Dark Orchid rgb=#9932CD	Medium Spring Green rgb=#7FFF00	Very Dark Brown rgb=#5C4033
Dark Purple rgb=#871F78	Medium Turquoise rgb=#70DBDB	Very Light Grey rgb=#CDCDCD
Dark Slate Blue rgb=#6B238E	Medium Violet Red rgb=#DB7093	Violet rgb=#4F2F4F
Dark Slate Grey rgb=#2F4F4F	Medium Wood rgb=#A68064	Violet Red rgb=#CC3299
Dark Tan rgb=#97694F	Midnight Blue rgb=#2F2F4F	Wheat rgb=#D8D8BF
Dark Turquoise rgb=#7093DB	Navy Blue rgb=#23238E	Yellow Green rgb=#99CC32
Dark Wood rgb=#855E42	Neon Blue rgb=#4D4DFF	
Dim Grey rgb=#545454	Neon Pink rgb=#FF6EC7	
Dusty Rose rgb=#856363	New Midnight Blue rgb=#00009C	



## Example

```
<center>
Items to be centered
</center>

<br>

<h1 align="center">
Big Words
</h1>
```

## Formatting tags and attributes

You may wish to align words in the center or to the right. You may also wish to put spaces between elements. To center an item use either the `<center>` and closing `</center>` tag or the `align="center"` attribute in conjunction with the desired tag. See example at left. You may also use the `<br>` that requires no closing tag to put a space in between elements. See **Figure 2** at left. To italicize items you should follow the same pattern placing elements between `<i>` and `</i>` To underline or bold items you should use the `<u>` with `</u>` and `<b>` with `</b>` respectively.

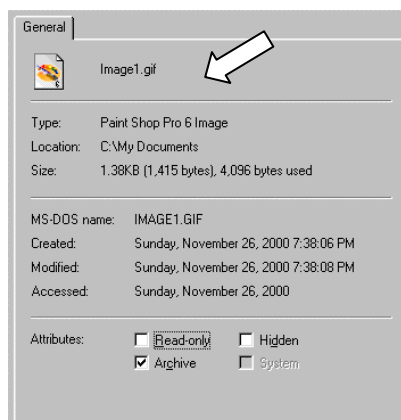
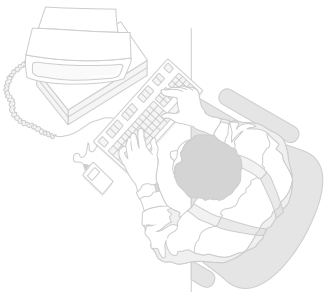
## About Images

Another basic element of most webpages is the addition of images. Care should be given when adding images, as it is important to remember that images take a long time to download. Each image should add something to a webpage. They should not be haphazardly added. All images should be of exceptional quality and as small as possible. Also, images should be arranged in an orderly manner. Tables, which will be discussed later, provide webpage designers with tools to organize their images. Images may be placed on a webpage using the following tag:

```

```

Note that the image tag does not require a closing tag. It is also important to consider the 2 primary types of image formats found in webpages on the internet. These are .jpg and .gif. You must include the full name of the image (short names are usually better) plus its identifying extension. (.gif or .jpg) If you are unsure of the type of the image that you wish to post, you may identify it by locating it on your computer, right mouse clicking on its icon and selecting properties. The name of the image with its appropriate extension should appear in the information window which opens.



## Example

```
<h1>My text</h1>
```

or

```
<h1>  
My text  
</h1>
```

## Example

```
<html>  
<head>  
<title>  
Your title  
</title>  
</head>  
<body>  
<table border=1>  
<tr>  
<td>  
Cell One  
</td>  
<td>  
Cell Two  
</td>  
</tr>  
</table>  
</body>  
</html>
```



## Example

### Relative link

```
<a href="mypage.html">  
My clickable text  
</a>
```

### Absolute link

```
<a href="http://www.yahoo.com/">  
Yahoo  
</a>
```

## HTML webpage style notes

A web browser does not read webpage tags in the same way as a webpage author. You could, but should not, write an entire webpage on a single line. Your browser would have no problem deciphering the HTML. You, or another person trying to help, would have a very difficult time of spotting an error. It is therefore important to place your tags in a logical order. You could place each tag on its own line. You might also keep a related set of opening and closing tags on single line. See the example at left. The important thing is to stay organized. The next section, tables, requires that you open and close your tags properly. Failure to do so might result in your webpage displaying incorrectly or not at all.

## HTML Tables

Table tags are relatively simple. They consist of `<table>`, `<tr>` and `<td>`. There are some additional attributes, but we'll get to them later. To create a table you must 1) have a table tag present, 2) include a table row tag `<tr>` and a table data cell tag `<td>`, 3) include some content (i.e. text or images) and ensure that you close the table tag. To create a simple table, copy the HTML at left (Figure 3) into a notepad document and save it as something like tables.html (Remember: no spaces or special characters). If you did everything correctly, you should see:

Cell One	Cell Two
----------	----------

OK, now for the details. You might first ask what does "border=1" do? This attribute controls the width of the border around the cells. If you want to make it bigger increase the value. If you want to make it go away, change it to "border=0" or remove it altogether.

## FAQ (Frequently Asked Questions) and...

**Question:** My table doesn't show up.

**Answer:** Check to make sure you have closed it correctly using the `</table>` tag.

## Things to try

**Question:** How do I make the cells do up and down?

**Answer:** Remember, the `<tr>` tag controls the rows and the `<td>` tag controls the data cells (or what might be thought of as columns). You would need to close the row containing data cell one (or `<td>Cell One</td>`) by adding a `</tr>` below the first `</td>` tag. You would then need to add a new `<tr>` tag after (or below) the `</tr>` tag.

## Hyperlinks

The World Wide Web has abundant resources. The gateways to most of these resources lie in hyperlinks. Hyperlinks, if you recall, are bits of clickable text or an image that take you from one web resource to another. They are relatively simple to create and can be extremely useful. The simplest form of a hyperlink is illustrated at left. It is created by combining an anchor (the "a") with a hyper-reference (the "href"). Two basic types of hyperlinks exist. The *relative link* connects to a file on the current computer. An *absolute link* connects to another web server and requires `http://www.` (minus the quotes). You should

notice that, in each case the `<a href="">` is required with `</a>`. Hyperlinks may be placed within the body section (between `<body>` and `</body>` as is true with font adjustment tags and image tags. The link colors can be controlled by adding to the body tag the attributes `link="cccccc"`, `alink="cccccc"` and `vlink="999999"` with the link color controlling the color a visitor views when they first arrive and the vlink color controlling the hue when they return. The alink color controls the shade when a viewer clicks on the link... not very useful now, but interesting in an HTML frames layout. An example is shown below along with a background image (`background="image.jpg"`) a background color (`bgcolor="cdcdcd"`) and a text color adjustment (`text="0000ff"`).

```
<body background ="image.jpg" bgcolor="cdcdcd" text ="0000ff" link="ff0000" alink="cc0000" vlink="00ff00">
```

Notice the space between each attribute. They are required and will not work if they are absent. That's about all for links other than the "Things to try section".

## Things to try...

Create a table of contents. Put a link to each of the webpages that you created previously in a cell of a table. When you get done it should look something like this...

<a href="#">webpage1</a>	<a href="#">webpage2</a>	<a href="#">webpage3</a>	<a href="#">webpage4</a>
--------------------------	--------------------------	--------------------------	--------------------------

