Creating a Web Page Using HTML
Part 1: Creating the Basic Structure of the Web Site

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Contents

Introduction **2**

Downloading the Data Files **2**

Creating a New Web Page **2**
Studying Basic Tags 3
Structure of HTML Tags 3
Tag Modifiers 4
Head and Body Tags 4

Putting the Framework for the Page in Place **4**
Saving the Page 4
Setting the Page Title 4
Creating a Section for CSS Styling Tags 5
Setting the Background 5

Checkpoint One **6**

Centering Page Elements **6**

Creating a Table for Content Placement **7**
Creating a New Table Row, Cells, and Closing the Table 8

Adding the Title Banner **8**

Checkpoint Two **9**

Adding a Bar for the Menu **10**
Creating a New Table Row for the Menu 10

Adding Text for Menu Links **10**
Creating the CSS Style for the Links 11
Adding the Text for the Hyperlinks 11
Defining the Hyperlinks 12

Checkpoint Three **12**

Appendix **13**

Introduction

Web sites can be created by using one of many coding languages (e.g., HTML, JSP, PHP, ASP, ASP.net, or Perl). Among those languages, HTML is the most basic text-based language that has been used in Web design since 1989. HTML consists of two parts: 1) content that will be displayed in a Web browser and 2) markup or tags, which are encoded information that is generally hidden from Web page viewers. This three-part workshop series will help students create a basic Web site using fundamental HTML knowledge that they can build on with more advanced techniques.

This first part handout will introduce the basics of Web design that includes tables to arrange page elements, menu bar to link multiple pages, and CSS 1.0 to enhance Web page elements.

Downloading the Data Files

This handout includes sample data files that can be used for hands-on practice. The data files are stored in a self-extracting archive. The archive must be downloaded and executed in order to extract the data files.

The data files used with this handout are available for download at `http://www.calstatela.edu/its/training/datafiles/htmlp1.exe`.

Instructions on how to download and extract the data files are available at `http://www.calstatela.edu/its/docs/download.php`.

Creating a New Web Page

The first page that has to be created for any Web site is the home page. Home page is the page that will be displayed when the URL (Uniform Resource Locator) of the Web site is entered into the browser's Address Bar (e.g., http://www.calstatela.edu). When the URL is entered, the browser will automatically look for the home page, which is also recognized as the "index" or "default" page.

This page can be created in one of many Web formats including: **HTML** (.html - *Hypertext Markup Language*), **XML** (.XML – *Extensible Markup Language*), **PHP** (.php – *Hypertext Preprocessor*), **CGI** (.cgi – *Common Gateway Interface*), and **ASP** (.asp – *Application Service Provider*). For the purpose of this workshop, .html, the most basic format will be used. The program that will be used for creating a Web page will be **Notepad**. Any text editor such as WordPad will do as well.

To create a new Web page:

1. Click the **Start** menu 

located at the bottom left hand corner of the screen.
2. Mouse over the **All Programs** option to open the sub menu.
3. Mouse over the **Accessories** option.
4. Click the **Notepad** shortcut (see Figure 1).

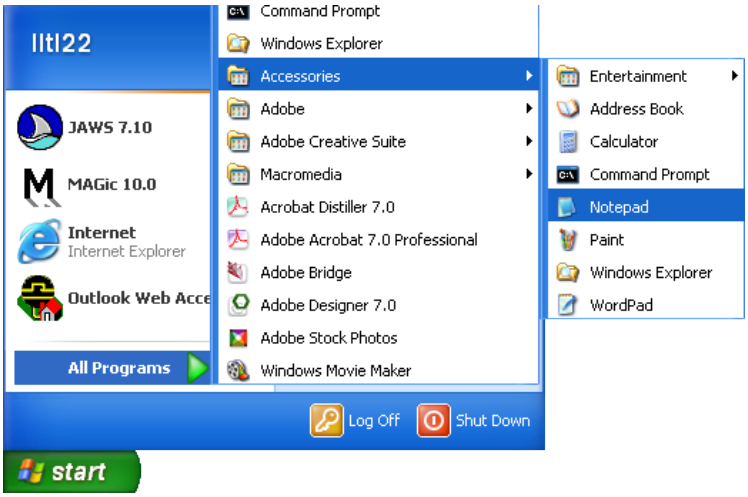

Figure 1 – Starting Notepad

5. Select the **File** menu**.**
6. Click **Open**.
7. Open the ***"index.html"*** file from the student data file directory.

STUDYING BASIC TAGS

HTML is comprised mostly of **tags**. Tags define how the page is formatted and displayed. For every HTML based Web page, there are several tags that will always be inserted into the document (see Figure 2).

```
1  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
2  <html xmlns="http://www.w3.org/1999/xhtml">
3  <head>
4  <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
5  <title>Untitled Document</title>
6  </head>
7
8  <body>
9  </body>
10 </html>
```

Figure 2 – Default Page

Structure of HTML Tags

There are two formats for HTML tags. One format defines where the tag starts affection (the opening tag) and where the tag stops affection (the closing tag).

Opening HTML tags are all structured in the same way. First, they will start with a left pointing angle bracket (<); second, the function/name of the tag (for example, Body, to define the body of the document); and finally, close with a right pointing angle bracket (>). Angle brackets are also referred to as "chevrons". A complete HTML tag will look something like this: **<body>**. Now look at the page that was created, notice some of the tags that have been created: <html>, <head>, <title>, and <body> these are structural tags which define the layout of the page.

Closing HTML tags are similar to opening tag in that they contain angle brackets and the function of the tag contained between the two. The difference is that after the left pointing angle bracket there is a forward slash (/). This tells the browser that the tag will not affect any elements of the page after that point. For example: **</body>** defines the end of the body tag.

Tag Modifiers

Each HTML tag has default attributes; however, every tag can also be changed by using modifiers. What attributes do, is allows for changes to the way the tag displays information. In order to create an attribute for a tag, a space is added within the opening tag and the attributes are typed in after the name of the tag, but before the right pointing angle bracket. For example, adding a background color (**"bgcolor"**) attribute to the body tag will look something like this: **<body bgcolor="white">**.

Head and Body Tags

The head and body tags are used to organize the code into two major areas. The parts of the code that are more back-end oriented (not seen by the viewer) are usually placed within the <head> tag area. Examples include: CSS scripting and Java scripting. Information contained within the <Body> tag will generally appear on the screen when the page loads. Examples include: text and images.

Putting the Framework for the Page in Place

With a new page ready to go, there are a few small things that have to be done before content can be placed onto the page to ensure smooth workflow.

SAVING THE PAGE

Saving the page right away serves many purposes. First, it is good habit to save work whenever periodically so that nothing is lost in the event of a system error. Second, it gives a name to the file that is being worked on, so that it can be referenced to from other files. Third, and most importantly from a Web design standpoint, it allows links from one page to another to be relative (i.e., links will look like `"webpage_2.html"` instead of `"http://www.mywebsite.com/webpage_2.html"`). This helps make it easier to seamlessly work on the Web page offline as well as online, as links are referring to files in subdirectories or in the same folder.

To save the Web page:

1. Select the **File** menu.
2. Select the **Save** command.
3. Click **Save**.

Or:

1. Press [**Ctrl] + [S]**.
2. Click **Save**.

SETTING THE PAGE TITLE

The page title will appear in the title bar of the Web browser, and is what displays when the page is minimized.

To set the page title:

1. Highlight the text between the opening (`<title>`) and closing title (`</title>`) tags and type **[Basic Web Site Workshop]**.
2. Double click the ***"index.html"*** file from the student data file directory to see the result in a browser window.

CREATING A SECTION FOR CSS STYLING TAGS

Cascading Style Sheets (CSS) is a language used to help style different elements of a Web page, and is much more powerful and flexible. CSS can be placed in one central location (in the head tag, using what's called internal CSS), at the point of modification (inline CSS), and via a separate CSS file (external CSS). For this workshop, the Internal CSS method will be used.

To create a section for CSS:

1. Create a new line below the `<title>` tags.
2. Type **[<style type="text/css">]**.
3. Create another new line and type **[<!--]**.
4. Create another new line and type **[-->]**.

   NOTE: Steps 3 and 4 create what are called comment tags. These tags define an area of the document that does not become displayed by the browser. This is an excellent way to prevent many lines of code being directly placed into page if there is a display error, as it is considered a page comment.

5. Create another new line and close the style tag by typing **[</style>]**. The Head section of the document should look similar to Figure 3.

```
3   <head>
4   <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
5   <title>Basic Website Workshop</title>
6   <style type="text/css">
7   <!--
8   -->
9   </style>
10
11  </head>
```

Figure 3 – Adding a CSS Styles Section

SETTING THE BACKGROUND

The background of the page set the undertone for the entire site. When creating/setting a background, it is important to have something simple. It is something that serves to enhance the content, not overpower it. Two types of backgrounds can be used: single solid color or image. The background will be created using CSS styling. The two background types can be combined if a non-repeating picture background is used, however, the picture will always overlap the color background.

To set a background (solid white with a picture in the center):

1. Create a new line between the comment tags that were just created (in steps 4 and 5 of the previous section).
2. Enter the text **[body {]**. Create a line break by pressing **[Enter]**.
3. Type **[background-attachment: fixed;]**. Create a line break by pressing **[Enter]**.
4. Type **[background-color: #FFFFFF;]**. Create a line break by pressing **[Enter]**.
5. Type **[background-image: url(images/background_image.gif);]**. Create a line break by pressing **[Enter]**.
6. Type **[background-repeat: no-repeat;]**. Create a line break by pressing **[Enter]**.
7. Type **[background-position: center center;]**. Create a line break by pressing **[Enter]**.
8. Type **[}]** to close the body CSS modifiers.

9. Double click the ***"index.html"*** file from the student data file directory to see the result in a browser window.

Checkpoint One

This is the first of several checkpoints within this handout. At each checkpoint, make sure that the document that is being created is similar enough (some discrepancies are acceptable). The code should look similar to Figure 4, depending on the background type that was chosen (solid color or image). If the page appears too different from the checkpoint page, open the ***"checkpoint_1.html"*** file from the data file directory.

```
<html>
<head>
<title>Untitled Document</title>
<style type="text/css">
<!--
hr {color: sienna}
p {margin-left: 20px}
body {
    background-attachment: fixed;
    background-color: #FFFFFF;
    background-image: url(images/background_image.gif);
    background-repeat: no-repeat;
    background-position: center center;
}


-->
</style>

</head>

<body>
</body>
</html>

```

Figure 4 – Checkpoint One

To open the checkpoint_1.html file (only if necessary):

1. Select the **File** menu.
2. Click **Open**.
3. Change the ***Files of type:*** to All files.
4. Locate the student data file directory.
5. Select the ***"checkpoint_1.html"*** file.
6. Click **Open**.
7. Save the file as ***"index.html"*** in the student data file directory.

Centering Page Elements

Before anything will be added to the page, the center HTML tag will be used to place all the elements of the page in the center. Page elements can also be aligned to the left or to the right. Centering however, makes sure that everything will always appear in the middle of the screen. This is merely a design choice.

To center everything:

1. Place the cursor after the **<*body*>** tag and press **[Enter]** to create a line break.
2. Type **[ ] and press [Enter] to create a line break**.
3. Type [</**center**>].

Creating a Table for Content Placement

Tables allow for a greater level of control for all elements of the page, giving the creator a higher level accuracy for placing objects and text. Each table has several major accompanying tags. The **<tr>** tag defines new rows in the table, and the **<td>** tag defines new cells in a row. The <td> must be contained inside the <tr> tags, and the <tr> tags must be contained in the **<table>** tag. These are subordinate tags of one another. To see an example of this see Figure 5. Notice how the subordinate tags are embedded within parent tags. Figure 6 illustrates the structure of the table in a more graphical format. The table is the entire structure, rows (<TR>) are defined inside the table, and cells (<TD>) are defined inside the rows.

```
26  <table cellpadding="0" cellspacing="0" border="0">
27      <tr>
28          <td></td>
29      </tr>
30  </table>
```

Figure 5 – Simple Table

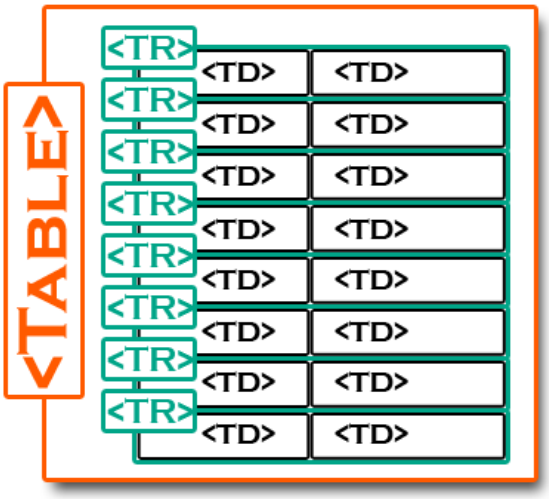

Figure 6 – Structure of a Table

NOTE: Figure 7 below shows an example of how cellpadding and spacing works. Every row of the table has these elements. The cellpadding is the area of the cell that surrounds the cell content, this is extra "padding" from the border. The cell spacing is the gap that is placed between two cells. Both of these attributes are defined in pixel units.

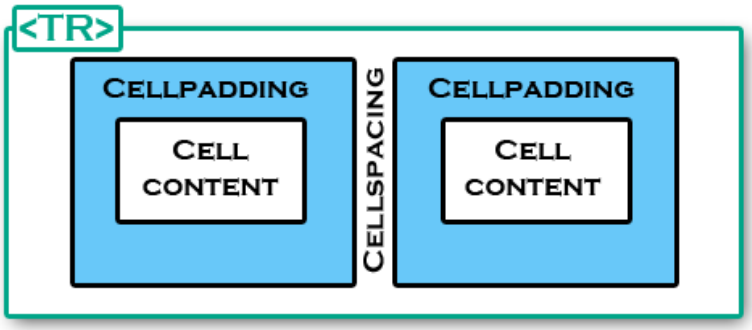

Figure 7 – Cellpadding/Cellspacing Example

To create a table:

1. Place the cursor after the **<*center*>** tag and press **[Enter]** to create a line break.
2. Type **[<table]**.
3. Type **[cellpadding="0"]**.
4. Type **[cellspacing="0"]**.
5. Type **[border="0"]**.
6. Type **[width="750"]**.
7. Type **[>]** to close the table tag.

CREATING A NEW TABLE ROW, CELLS, AND CLOSING THE TABLE

As mentioned earlier, the table tag does nothing on its own, other than defining the placement of the table. The <TR> and <TD> tags are needed to define both the rows and individual cells of a table.

To define a new row and cells:

1. Place the cursor after the end of the **<table>** tag and press **[Enter]** to create a line break.
2. Type **[<tr>]** to define a new row and Press **[Enter]** to create another line break.
3. Type **[<td>]** to define a new cell.
4. Type **[</td>]** to close the cell.
5. Press **[Enter]** to create a line break.
6. Type **[</tr>]** to close the table row.
7. Press **[Enter]** to create a line break.
8. Type **[</table>]** to close the table. The page should look like Figure 8.

```
10  body {
11      background-attachment: fixed;
12      background-color: #FFFFFF;
13      background-image: url(images/background_image.gif);
14      background-repeat: no-repeat;
15      background-position: center center;
16  }
17
18
19  -->
20  </style>
21
22  </head>
23
24  <body>
25  <center>
26  <table cellpadding="0" cellspacing="0" border="0">
27      <tr>
28          <td>
29          </td>
30      </tr>
31  </table>
32  </body>
33  </html>
34
```

Figure 8 – Adding a New Table

Adding the Title Banner

With the framework of the page complete, it is time to begin adding content to the page. The first element that will be added to the page will be the title graphic/banner. This graphic serves as a logo of sorts that quickly identifies the Web site to browsers of the page.

To insert a title graphic:

1. Place the cursor after the **<td>** tag, created in the previous section.
2. Type **[]**.

Checkpoint Two

The code should look similar to Figure 9. The browser view (accessed by opening the page in a Web browser) of the page should look similar to Figure 10.

To open the file in a browser window:

1. Double click the ***"index.html"*** (open ***"checkpoint_1.html"***, or ***"checkpoint_2.html"***, if those are the files being used) file from the student data file directory.

```
<html>
<head>
<title>Basic Website Workshop</title>
<style type="text/css">
<!--
hr {color: sienna}
p {margin-left: 20px}
body {
    background-attachment: fixed;
    background-color: #FFFFFF;
    background-image: url(images/background_image.gif);
    background-repeat: no-repeat;
    background-position: center center;
}


-->
</style>

</head>

<body>
<center>
<table cellpadding="0" cellspacing="0" border="0">
    <tr>
        <td><img src="images/Banner_graphic.jpg" />
        </td>
    </tr>
</table>
</body>
</html>
```

Figure 9 – Checkpoint 2 Code View

Figure 10 – Checkpoint 2 in a Browser

Adding a Bar for the Menu

An important part of every Web page is the menu. The menu allows users of the page to navigate between different pages of information via hyperlinks. In order to create a menu, a new row will be added to table that has been previously created. Within that row a background will be added to differentiate the menu from the title graphic and body content below, and text will be used to create the hyperlinks.

CREATING A NEW TABLE ROW FOR THE MENU

Before the menu can be written in, a new table row must be added to the table.
To create a new table row:

1. Place the cursor after the closing table row tag (**</tr>**) and press **[Enter]** to create a line break.
2. Type **[<tr]** to define a new row.
3. Type **[Height="20">]**.
4. Press **[Enter]** to create another line break.
5. Type **[<td]** to define a new cell.
6. Type **[background="images/Menu_Bar.jpg">]**.
7. Type **[</td>]** to close the cell.
8. Press **[Enter]** to create a line break.
9. Type **[</tr>]** to close the table row. The page should look like Figure 11.

```
61  <body>
62  <center>
63  <table cellpadding="0" cellspacing="0" border="0" width="750">
64      <tr>
65          <td><img src="images/Banner_graphic.jpg" width="750" height="125" border="0" />     </td>
66      </tr>
67      <tr height="20">
68          <td background="images/Menu_Bar.jpg">
69          </td>
```

Figure 11 – Adding the Menu Bar

Adding Text for Menu Links

With area set in place for the table, the links can be added to the menu bar. Text links are the simplest but most effective types of links. There are several steps to creating the links. First, the

CSS styles for the links will be created. Second, the text will be inserted into the page. Last, the text will be hyperlinked.

CREATING THE CSS STYLE FOR THE LINKS

As mentioned earlier in the handout, CSS can be used to format the way different elements of the page. Fonts and Text are not excluded. Several different CSS elements will be used to make the hyperlinks appear different in several states (whether the browser has their mouse over the text for example). For now we will be focusing on just the default state of the hyperlink.

To create a New CSS style:

1. Place the cursor after the (}) line that was created in the *Setting the Background* section.
2. Type **[.menu_links {]**. Create a line break by pressing **[Enter]**.
3. Type **[font-family: Verdana, Arial, Helvetica, sans-serif;]**. Create a line break by pressing **[Enter]**.
4. Type **[font-size: 10px;]**. Create a line break by pressing **[Enter]**.
5. Type **[font-style: normal;]**. Create a line break by pressing **[Enter]**.
6. Type **[font-weight: bold;]**. Create a line break by pressing **[Enter]**.
7. Type **[font-variant: normal;]**. Create a line break by pressing **[Enter]**.
8. Type **[color: #FFFFFF;]**. Create a line break by pressing **[Enter]**.
9. Type **[text-decoration: none;]**. Create a line break by pressing **[Enter]**.
10. Type **[}]** to close the .menu_links CSS modifiers (see Figure 12).

```
14      background-repeat: no-repeat;
15      background-position: center center;
16  }
17  .menu_links {
18      font-family:Verdana, Arial, Helvetica, sans-serif;
19      font-size:10px;
20      font-style:normal;
21      font-weight:bold;
22      font-variant:normal;
23      color:#FFFFFF;
24      text-decoration:none;
25  }
```

Figure 12 – .menu_links CSS Style

ADDING THE TEXT FOR THE HYPERLINKS

The Web site that is being created will have several pages: a home page (the page that's being created now), a picture gallery, a media gallery, and an external link page. First we have to define the CSS style used for the text (the style that was just created), and then enter the necessary text.

To add the text for future links:

1. Place the cursors within the menu bar table cell (after the "<td background="images/Menu_Bar.jpg">" text).
2. Type **[]**.
3. Type **[ ]**.
4. Type **[Home – Pictures – Media – External Links]**.
5. Type **[ ]**.
6. Type **[]** to close the font tag (see Figure 13).

```
64      <tr>
65          <td><img src="images/Banner_graphic.jpg" width="750" height="125" border="0" />     </td>
66      </tr>
67      <tr height="20">
68          <td background="images/Menu_Bar.jpg"><font class="menu_links">
69          Home - Pictures - Media - External Links</font></td>
70      </tr>
```

Figure 13 – Creating Text Links

DEFINING THE HYPERLINKS

Though the separate pages have not been created yet, the hyperlinks pointing to them can be still be made. They will be considered dead links until the targeted pages are created however. The class attribute uses the CSS style that was created to format the hyperlinks.

To create hyperlinks:

1. Place the cursor before the "Home" text.
2. Type **[]**.
3. Place the cursor after the "Home" text.
4. Type **[]** to close the tag.
5. Place the cursor before the "Pictures" text.
6. Type **[]**.
7. Place the cursor after the "Pictures" text.
8. Type **[]** to close the tag.
9. Place the cursor before the "Media" text.
10. Type **[]**.
11. Place the cursor after the "Media" text.
12. Type **[]** to close the tag.
13. Place the cursor before the "External Links" text.
14. Type **[]**.
15. Place the cursor after the "External Links" text.
16. Type **[]** to close the tag (see Figure 14).
17. Save the page as necessary.
18. Double click the ***"index.html"*** file from the student data file directory to see the result in a browser window.

```
63  <table cellpadding="0" cellspacing="0" border="0" width="750">
64      <tr>
65          <td><img src="images/Banner_graphic.jpg" width="750" height="125" border="0" />     </td>
66      </tr>
67      <tr height="20">
68          <td background="images/Menu_Bar.jpg"><a href="index.html" class="menu_links">Home</a> - <a href="pictures.html" class="menu_links"
    >Pictures</a> - <a href="media.html" class="menu_links">Media</a> - <a href="links.html" class="menu_links">External Links</a>
69          </td>
70      </tr>
```

Figure 14 – Adding Hyperlinks

Checkpoint Three

The code should look similar to Figure 14. Open the ***"checkpoint_3.html"*** to check if the ***"index.html"*** file looks the same as the ***"checkpoint_3.html."***

Appendix

Table 1 – Commonly Used HTML Color Codes

Color	Code	Color	Code
Red	#FF0000	White	#FFFFFF
Turquoise	#00FFFF	Light Grey	#C0C0C0
Light Blue	#0000FF	Dark Grey	#808080
Dark Blue	#0000A0	Black	#000000
Light Purple	#FF0080	Orange	#FF8040
Dark Purple	#800080	Brown	#804000
Yellow	#FFFF00	Burgundy	#800000
Pastel Green	#00FF00	Forest Green	#808000
Pink	#FF00FF	Grass Green	#408080
For more color code list, visit: Webmonkey - http://www.webmonkey.com/reference/color_codes/ Colourlovers - http://www.colourlovers.com/blog/2007/06/30/ultimate-html-color-hex-code-list/ ComputerHope - http://www.computerhope.com/htmcolor.htm			

Table 2 – Commonly Used HTML Tags

Tag	Name	Description
<A>	anchor	Make hyperlinks
<B>	bold	Bold the text
<BODY>	body of HTML document	Where to start the document and place the HTML codes
 	line break	Force to change line
<CENTER>	center	Center alignment
<EM>	emphasis	Emphasis the content
<FONT>	font	Change font set up
<FORM>	form	Insert a form inside the Web page
<H1>	heading 1	Heading Size
<HEAD>	heading of HTML document	Contains information about the page
<HR>	horizontal rule	Create a horizontal line
<HTML>	hypertext markup language	Begins the HTML document
<I>	italic	Italic the text
<IMG>	image	Image
<INPUT>	input field	Insert a input field
<LI>	list item	Create a listed item in an unordered or ordered list
<MENU>	menu	Insert a menu in a Web page
<OL>	ordered list	Numbered the list
<P>	paragraph	Create a line break and a space between lines.
<TABLE>	table	Insert a table inside a Web page
<TD>	table data	The cell of a table
<TH>	table header	The header of a table
<TITLE>	document title	The title in the title bar of the browser
<TR>	table row	The row of a table
<U>	underline	Underline the text
<UL>	unordered list	Bullets the list