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Introduction
Introduction

HyperText Markup Language (HTM) is a language used to display content in a web page. A browser (client) will request an HTML page from a web server using the HyperText Transfer Protocol (HTTP). The web page is returned and displayed within a browser.

HTML consists of a series of tag which determine how information is displayed. A tag is text enclosed between a `<` and `>` symbols. For most tag there is a matching ending tag that uses a `/` after the `<` symbol. An HTML document typically has the following structure:

```html
<html>
<head>
<title>Title of page</title>
</head>
<body>
This body of the page
</body>
</html>
```

The HTML tag serves to indicate that the document is an HTML document. The HEAD tag contains general information regarding the page. The enclosed TITLE tag is the text that appears as a caption on the browser. The BODY tag is where the bulk of the web page is displayed.

The page would look as follows in Firefox:

![Firefox HTML Example](image)

HTML tags are not case-sensitive. An HTML document is typically stored in a file with a .html or .htm extension.
Common “Simple” Tags

Common tags include:

<table>
<thead>
<tr>
<th>Tag</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>b</td>
<td>Bolded text</td>
</tr>
<tr>
<td>br</td>
<td>A line break</td>
</tr>
<tr>
<td>i</td>
<td>Italicized text</td>
</tr>
<tr>
<td>big</td>
<td>Displays the text in a larger font</td>
</tr>
<tr>
<td>small</td>
<td>Displays the text in a smaller font</td>
</tr>
<tr>
<td>pre</td>
<td>Displays the text preserving its format</td>
</tr>
<tr>
<td>code</td>
<td>Displays snippets of code</td>
</tr>
<tr>
<td>em</td>
<td>Used to emphasize text – Similar to italics</td>
</tr>
<tr>
<td>h1-h6</td>
<td>Headers from large to small</td>
</tr>
<tr>
<td>p</td>
<td>New paragraph</td>
</tr>
<tr>
<td>u</td>
<td>Underlines text</td>
</tr>
<tr>
<td>image</td>
<td>Displays an image</td>
</tr>
</tbody>
</table>
These tags are illustrated below with the web page shown on the next page.

```html
<html>
<head>
<title>An Example of Simple Tags</title>
</head>
<body>
A series of tags are illustrated here.
<br>
<b>Bolded</b><br>
<i>Italicized</i><br>
<big>Big</big><br>
<small>Small</small><br>
<em>Emphasized</em><br>
<u>Underlined</u><br>
<pre>
public void tableChanged(TableModelEvent e) {
    int row = e.getFirstRow();
    int column = e.getColumn();
    TableModel model = (TableModel)e.getSource();
    String columnName = model.getColumnName(column);
    Object data = model.getValueAt(row, column);

    System.out.println(data.toString());
}
</pre>
</body>
</html>
```
A series of tags are illustrated here.

**Bolded**

*Italicized*

Big

Small

*Emphasized*

**Underlined**

```java
public void tableChanged(TableModelEvent e) {
    int row = e.getFirstRow();
    int column = e.getColumn();
    TableCellModel model = (TableCellModel)e.getSource();
    String columnName = model.getColumnModel(column);
    Object data = model.getValueAt(row, column);

    System.out.println(data.toString());
}
```

```java
public void tableChanged(TableModelEvent e) {
    int row = e.getFirstRow(); int column = e.getColumn();
    TableCellModel model = (TableCellModel)e.getSource();
    String columnName = model.getColumnModel(column);
    Object data = model.getValueAt(row, column);
    System.out.println(data.toString());
}
```
Image Tag

The `<image>` tag is used to display an image. Attributes of the `<image>` include:

- **src** – The location of the image
- **alt** – A short description of the image that would be displayed if the image is not available

At minimum it needs to use a `src` attribute to specify where the image is found.

```html
<html>
<body>
<h1>Image Tag Example</h1>
<image src="clouds.jpg">
</body>
</html>
```
Lists
Unordered List Tag

The `<ul>` tag is used in conjunction with the `<li>` tag to generate unordered lists.

```html
<html>
<head>
<title>An Example of An Unordered List</TITLE>
</head>
<body>
<ul>
  <li>Java</li>
  <li>Python</li>
  <li>C++</li>
</ul>
</body>
</html>
```
Lists can be nested.

<html>
<head>
<title>An Example of An Unordered List</TITLE>
</head>
<body>
<ul>
  <li>Java Stack</li>
  <li>Windows Stack</li>
  <li>LAMP
      <ul>
        <li>Linux</li>
        <li>Apache</li>
        <li>MySQL</li>
        <li>Python/Pearl/PHP</li>
      </ul>
  </li>
</ul>
</body>
</html>
List Tag Type Attribute

The `<ul>` tag attribute, type, can be used to control the type of bullets displayed. Possible values include:

- disc – Filled in circle
- square – An outline of a square
- circle – An outline of a circle

```html
<html>
<head>
<title>An Example of An Unordered List</TITLE>
</head>
<body>
<ul>
  <li>Java Stack</li>
  <li>Windows Stack</li>
  <li>LAMP
    <ul type="square">
      <li>Linux</li>
      <li>Apache</li>
      <li>MySQL</li>
      <li>Python/Pearl/PHP</li>
    </ul>
  </li>
</ul>
</body>
</html>
```
Ordered List Tag

The `<ol>` tag is used in conjunction with the `<li>` tag to generate ordered lists. An ordered list is one that is “numbered”.

```html
<html>
<head>
<title>An Example of An Unordered List</TITLE>
</head>
<body>
<ul>
    <li>Java Stack</li>
    <li>Windows Stack</li>
    <li>LAMP
        <ol>
            <li>Linux</li>
            <li>Apache</li>
            <li>MySQL</li>
            <li>Python/Pearl/PHP</li>
        </ol>
    </li>
</ul>
</body>
</html>
```
The type attribute is used to specify how a list is numbered. Values include:

- 1 - Default. Numerical ordered list (1, 2, 3, 4)
- a - lowercase alphabetically ordered list (a, b, c, d)
- A - uppercase alphabetically ordered list (A, B, C, D)
- i - lowercase roman numeral ordered list (i, ii, iii, iv)
- I - uppercase roman numeral ordered list (I, II, III, IV)

```html
<html>
<head>
<title>An Example of An Unordered List</TITLE>
</head>
<body>
  <ul>
    <li>Java Stack</li>
    <li>Windows Stack</li>
    <li>LAMP
      <ol type="i">
        <li>Linux</li>
        <li>Apache</li>
        <li>MySQL</li>
        <li>Python/Pearl/PHP</li>
      </ol>
    </li>
  </ul>
</body>
</html>
```
Tables
Tables in HTML

The table tag is used to create a table. Within the tag are tags to define a row, \(<\text{tr}\>\) tag, and tags used to define a column within a row, \(<\text{td}\>\). The following example creates a table with two rows and two columns. The \(<\text{td}\>\) tags have been indented to improve the readability of the code.

\[
\begin{html}
\begin{table}
\begin{tr}
  \begin{td}
    \text{row 1, cell 1}
  \end{td}
  \begin{td}
    \text{row 1, cell 2}
  \end{td}
\end{tr}
\begin{tr}
  \begin{td}
    \text{row 2, cell 1}
  \end{td}
  \begin{td}
    \text{row 2, cell 2}
  \end{td}
\end{tr}
\end{table}
\end{html}
\]

![Browser Preview](image-url)
Table Borders

To provide borders for the table use the `<border>` tag.

```html
<table border="1">
  <tr>
    <td>row 1, cell 1</td>
    <td>row 1, cell 2</td>
  </tr>
  <tr>
    <td>row 2, cell 1</td>
    <td>row 2, cell 2</td>
  </tr>
</table>
```

The larger the border value the more distinct the border will become:

```html
<html>
<table border="5">
  <tr>
    <td>row 1, cell 1</td>
    <td>row 1, cell 2</td>
  </tr>
  <tr>
    <td>row 2, cell 1</td>
    <td>row 2, cell 2</td>
  </tr>
</table>
</html>
```
Table Headers

Headers can be added to the table by first adding a row then use the `<th>` tag for each header.

```html
<tr>
  <th>Heading 1</th>
  <th>Heading 2</th>
</tr>
```

To add headers in the first column use the `<th>` tag within a row and before the `<td>` tags.

```html
<tr>
  <th>Header 1</th>
  <td>row 1, cell 1</td>
  <td>row 1, cell 2</td>
</tr>
<tr>
  <th>Header 2</th>
  <td>row 2, cell 1</td>
  <td>row 2, cell 2</td>
</tr>
```
Notice that a table may have different number of columns per row.

```
<html>
<table border="1">
<tr>
<th>Heading 1</th>
<th>Heading 2</th>
</tr>
<tr>
<td>row 1, cell 1</td>
<td>row 1, cell 2</td>
</tr>
<tr>
<td>row 2, cell 1</td>
</tr>
</table>
</html>
```

In IE the border is missing around the empty cell.
To avoid this problem use a non-breaking space (&nbsp;)

Both row and columns headers can present at the same time and the non-breaking space proves useful in the upper left hand corner. 

```
<html>
<table border="1">
<tr>
<tr>
<th>&nbsp;</th>
<th>Heading 1</th>
<th>Heading 2</th>
</tr>
<tr>
<th>Header 1</th>
<td>row 1, cell 1</td>
<td>row 1, cell 2</td>
</tr>
<tr>
<th>Header 2</th>
<td>row 2, cell 1</td>
<td>row 2, cell 2</td>
</tr>
</table>
</html>
```
Table Caption

A table caption can be added using the `<caption>` tag.

```
<html>
<table border="1">
  <caption>Table Caption</caption>
  ...
</table>
</html>
```
Spanning Cells

Cells can span multiple rows or columns using the colspan attribute of the row or column tag. Assigning a numeric value to the attribute results in the row or column span of that many cells.

```html
<html>
<body>
<h3>Spanning two columns:</h3>
<table border="1">
  <tr>
    <th>Book</th>
    <th colspan="2">Author</th>
  </tr>
  <tr>
    <td>Tables from HTML</td>
    <td>Henry Taylor</td>
    <td>Mark Long</td>
  </tr>
  <tr>
    <td>HTML Humor</td>
    <td>Brake Spacy</td>
    <td>Cal Spam</td>
  </tr>
</table>
<h3>Spanning two rows:</h3>
<table border="1">
  <tr>
    <th>Book</th>
    <td>HTML Humor</td>
  </tr>
  <tr>
    <th rowspan="2">Author</th>
    <td>Brake Spacy</td>
  </tr>
  <tr>
    <td>Cal Spam</td>
  </tr>
</table>
</body>
</html>
```
Embedded HTML in Tables

Other HTML tags can be embedded inside of a table. The following illustrates embedding a table inside of a table.

```html
<html>
<body>
<table border="1">
<tr>
<th>Header 1</th>
<th>Header 2</th>
</tr>
<tr>
<td>Simple cell</td>
<td>
<table border="1">
<tr>
<td>Alpha</td>
<td>Beta</td>
<td>Gamma</td>
</tr>
<tr>
<td>Delta</td>
<td>Epsilon</td>
<td>Theta</td>
</tr>
</table>
</td>
</tr>
</table>
</body>
</html>
```
The following contains a simple list.

```html
<html>
<body>
<table border="1">
<tr>
<th>Header 1</th>
<th>Header 2</th>
</tr>
<tr>
<td>Simple cell</td>
<td>
<ul>
<li>Item 1</li>
<li>Item 2</li>
<li>Item 3</li>
</ul>
</td>
</tr>
</table>
</body>
</html>
```
Table Cell Spacing and Padding

Cell spacing and padding is used to spread out the contents of a table better. The table attribute, cellspacing, determines the amount of space between cells. The attribute, cellpadding, determines the amount of distance between the content of the cell and its borders.

```html
<html>
<body>
<h3>No Spacing or Padding</h3>
<table border="1">
  <tr>
    <th>Header 1</th>
    <th>Header 2</th>
  </tr>
  <tr>
    <td>Cell 1</td>
    <td>Cell 2</td>
  </tr>
  <tr>
    <td>Cell 3</td>
    <td>Cell 4</td>
  </tr>
</table>

<h3>Cell Spacing</h3>
<table border="1" cellspacing="10">
  <tr>
    <th>Header 1</th>
    <th>Header 2</th>
  </tr>
  <tr>
    <td>Cell 1</td>
    <td>Cell 2</td>
  </tr>
  <tr>
    <td>Cell 3</td>
    <td>Cell 4</td>
  </tr>
</table>

<h3>Cell Padding</h3>
<table border="1" cellpadding="10">
  <tr>
    <th>Header 1</th>
    <th>Header 2</th>
  </tr>
  <tr>
    <td>Cell 1</td>
    <td>Cell 2</td>
  </tr>
  <tr>
    <td>Cell 3</td>
    <td>Cell 4</td>
  </tr>
</table>
</body>
</html>
Table Background Color and Image

The bgcolor attribute of the table tags specifies the background color of the table.

```
<html>
<body>
<table border="1" bgcolor="lightblue">
<tr>
  <th>Header 1</th>
  <th>Header 2</th>
</tr>
<tr>
  <td>Cell 1</td>
  <td>Cell 2</td>
</tr>
<tr>
  <td>Cell 3</td>
  <td>Cell 4</td>
</tr>
</table>
</body>
</html>
```
The background attribute of the table tag specifies an image that serves as the table’s background.

```html
<html>
<body>
<table border="1" background="clouds.jpg">
<tr>
  <th>Header 1</th>
  <th>Header 2</th>
</tr>
<tr>
  <td>Cell 1</td>
  <td>Cell 2</td>
</tr>
<tr>
  <td>Cell 3</td>
  <td>Cell 4</td>
</tr>
</table>
</body>
</html>
```
Using the bgcolor or background attributes as part of a <td> tag will change the background of that cell.

```html
<html>
<body>
<table border="1">
<tr>
<th>Header 1</th>
<th>Header 2</th>
</tr>
<tr>
<td background="clouds.jpg">Cell 1</td>
<td>Cell 2</td>
</tr>
<tr>
<td>Cell 3</td>
<td bgcolor="magenta">Cell 4</td>
</tr>
</table>
</body>
</html>
```
Table Cell Alignment

The align attribute of a `<td>` controls the alignment of the content of the cell.

```html
<html>
<body>
<table border="1">
<tr>
  <th>Header 1</th>
  <th>Header 2</th>
</tr>
<tr>
  <td>Cell 1</td>
  <td align="center">Cell 2</td>
</tr>
<tr>
  <td align="left">Cell 3</td>
  <td align="right">Cell 4</td>
</tr>
</table>
</body>
</html>
```
Table Frame Border

The border attribute of the table tag determines the type of “border” around the table. This can be used with or without the border attribute. A value of “border” or “box” gives similar results with Firefox.

```html
<html>
<body>
<table frame="border">
  <tr>
    <th>Header 1</th>
    <th>Header 2</th>
  </tr>
  <tr>
    <td>Cell 1</td>
    <td>Cell 2</td>
  </tr>
  <tr>
    <td>Cell 3</td>
    <td>Cell 4</td>
  </tr>
</table>
</body>
</html>
```
It has the same effect of `border="1"` with IE

A value of “void” for the frame attribute results in no border.
Frames
Frames

Frames are used to divide a page into rectangular regions. Each region is called a frame. An advantage of a frame is that it allows one part of a page to remain stationary while another part changes.

Frames are popular but not all browsers do a good job in supporting frames.
FRAMESET

The frameset controls how different frames are laid out. The Frameset tag possess attributes to control:

- **ROWS** – The number and size of the rows
- **COLS** – The number and size of the columns
- **FRAMEBORDER** – Determines if the frames should have a border or not
- **FRAMESPACING** – The amount of space between the frames (IE)
- **BORDER** – The amount of space between the frames (Netscape)
- **BORDERCOLOR** – The color of the frameset borders

```html
<HTML>
<HEAD>
<TITLE>Frame</TITLE>
</HEAD>
<FRAMESET COLS="25%,75%">
  <FRAME SRC="FrameOne.html">
  <FRAME SRC="FrameTwo.html">
</FRAMESET>
</HTML>
```
ROWS/ COLS Attributes

The rows and cols attributes determine how much space is dedicated to a row or column of the Frameset. The values can be either:

- **Integer** – That specifies the distance in pixels
- **Percentage** – Indicates the amount of space as a percentage of the Frameset size
- ***** - Indicates that the remaining space is to be used for a row

Examples

```html
<FRAMESET ROWS="30%, 30%, *" COLS="100%">

Frame One

Frame Two

Done
```

Three rows and one column. The first two rows are allocated 30% of the height with the remaining row using the remaining 40%.
Two rows with the first using 30% and the second using 70%. One column.

Two rows and two columns. The first row take 200 pixels and the second row uses the remainder. Two columns with the first column occupying 25% of the horizontal space and the second column using 75%.
FRAMEBORDER Attribute

This attribute controls the border of the frames. The attribute takes on one of four values:

- YES – A 3-D border is used (default)
- 1 – Same as YES
- NO – A plain border
- 0 – Same as NO

```html
<html>
<head>
<title>Frame</title>
</head>
<frameset cols="30%, *" frameborder="NO">
  <frame src="FrameOne.html">
  <frame src="FrameTwo.html">
</frameset>
</html>
```
FRAMESPACING/ BORDER Attributes

IE uses FRAMESPACING and Netscape uses BORDER otherwise they have the same meaning. They control how much space exist between frames.

```html
<HTML>
<HEAD>
<TITLE>Frame</TITLE>
</HEAD>
<FRAMESET COLS="30%, *" border="40">
  <FRAME SRC="FrameOne.html">
  <FRAME SRC="FrameTwo.html">
</FRAMESET>
</HTML>
```
BORDERCOLOR Attribute

The value assigned to this attribute is a color expression.

```
<HTML>
<HEAD>
<TITLE>Frame</TITLE>
</HEAD>
<FRAMESET COLS="30%, *" bordercolor="green">
  <FRAME SRC="FrameOne.html">
  <FRAME SRC="FrameTwo.html">
</FRAMESET>
</HTML>
```
FRAME

The attributes of a frame include:

- SRC – The file to include within the frame
- NAME – The name of the frame
- SCROLLING – Controls the presence of the scrollbar
- NORESIZE – Determines if the user is able to resize the frame
- BORDERCOLOR – The color of the border
- MARGINWIDTH – The width of the margin
- MARGINHEIGHT – The height of the border

SRC Attribute

This specifies the source of the file to be displayed in the frame.

```
<FRAME SRC="FrameOne.html">
```

NAME Attribute

A name can be given to a frame using the name attribute. The name can be used for a number of purposes including using it in conjunction with the A tag.

```
<FRAME SRC="FrameOne.html" NAME="FrameOne">
<FRAME SRC="FrameOne.html" NAME="FrameTwo">
```

The FrameOne.html page in this example contains a link to the FrameTwo frame.

```
<HTML>
<HEAD>
<TITLE>Frame A</TITLE>
</HEAD>
<A HREF="FrameTwo.html">Frame Two</A>
</HTML>
```
SCROLLING Attribute

Scrollbars can be specified using this attribute with one of the following values:

YES – Scrollbars will be there even if they are not needed
NO – Scrollbars will not be present
AUTO – Scrollbars will become visible if they are needed

<FRAME SRC="FrameTwo.html" SCROLLING=YES>
**NORESIZE Attribute**

The NORESIZE attribute indicates that the user is not able to resize the frame. In this example, the user is not able to resize the frame:

```xml
<FRAME SRC="FrameOne.html" NORESIZE>
```

When the attribute is missing then the user can resize the frame.

```xml
<FRAME SRC="FrameOne.html">
```

**BORDERCOLOR Attribute**

The value assigned to this attribute is a color expression.

```xml
<HTML>
<HEAD>
<TITLE>Frame</TITLE>
</HEAD>
<FRAMESET COLS="30%, *">
  <FRAME SRC="FrameOne.html" bordercolor="red">
  <FRAME SRC="FrameTwo.html">
</FRAMESET>
</HTML>
```
MARGINWIDTH / MARGINHEIGHT Attribute

The intent of these attributes is to control the margins of the page in pixels. However, the behavior is somewhat inconsistent.

```html
<HTML>
<HEAD>
<TITLE>Frame</TITLE>
</HEAD>
<FRAMESET COLS="30%, *">
  <FRAME SRC="FrameOne.html" marginwidth="30">
  <FRAME SRC="FrameTwo.html">
</FRAMESET>
</HTML>
```
NOFRAMES Tag

The intent of the Noframes tag is to provide an alternate display if frames are not supported. This tag should be placed inside of the Frames tag.

```html
<FRAMESET ROWS="30%, *" COLS="100%">
  <FRAME SRC="FrameOne.html">
  <FRAME SRC="FrameTwo.html">
  <NOFRAMES>
  Alternative text
  </NOFRAMES>
</FRAMESET>
```
Cascading Style Sheets
Cascading Style Sheets

A style determines how an HTML element is displayed. One or more styles are contained in a style sheet. Multiple style definitions can be combined, or cascaded together into a single style. The term, Cascading Style Sheets (CSS), refers to a collection of styles that are applied to a document.

CSS can be used maintain a web site. It permits changes across the site where similar elements used the same style sheet. When the style sheet changes so does the appearance of each associated element. Style sheets can be defined inside:

- A single element (Inline style sheet)
- In the <head> Element of a HTML files (Internal style sheet)
- In an external file (External style sheet) called CSS files

The cascading aspect of CSS is reflected by a hierarchy of style sheets. There are four levels of style sheets which have different priorities:

- Browser default
- External style sheet
- Internal style sheet
- Inline style sheet

The inline style sheet has the highest priority while the browser default style sheet has the lowest priority. When a style is applied to an element the highest priority style sheet is used and the others are ignored.

CSS comments use the C style comments.

;/* comment */
CSS Format

The format of a CSS is composed of three parts:

- Selector
- Property
- Value

The selector identifies the element that is being defined. The property is the specific attribute that is being specified with the value. For example, a header element may be specified to have the color red and bold.

h1 {color:red}

The first part specifies the element and is the selector. The property and its value are enclosed in a set of curly braces and are themselves separated with a colon.

If the value of the style consists of multiple words then the value is enclosed in parentheses.

h1 {font-family: “courier new”}

If multiple properties are being set the property/value pairs are separated with a semicolon.

h1 {color:red; font-family: “courier new”}

White spaces are effectively ignored so a CSS can be written on multiple lines potentially making the specification more readable:

h1
{
  color:red;
  font-family: “courier new”
}
Inline Style

An inline style is a style that is applied directly to a tag. This is not the best way of applying styles because this style applies only to that tag and cannot be shared between HTML elements.

```
<html>
<body>
<p style="color: green">This is a paragraph</p>
</body>
</html>
```
Internal Style Sheet

An internal style sheet is a style sheet whose scope is the document. They are defined using a <style> tag and are placed within the <head> section of the HTML page.

```html
<html>
<head>
<style>
    body { background: lightblue }
    h1 { color: green; font: bold 14px Helvetica }
    p { font: 12px Arial }
</style>
</head>
<body>
<h1>Internal Style Sheet Example</h1>
Paragraph one is short
<p>
Paragraph two is a bit longer
</p>
</body>
</html>
```
An external style sheet can be applied to multiple pages. The style sheet is defined in a separate file and is referenced using a <link> tag in the <head> section.

In this example, the external style sheet is defined in a file called externalstylesheet.css:

```css
body { background: lightblue } 
h1 { color: green; font: bold 14px Helvetica } 
p { font: 12px Arial }
```

The external style sheet is referenced using the <link> tag.

```html
<link rel="stylesheet" type="text/css" href="externalstylesheet.css" />
```

The rel attribute specifies that the link references an external style sheet. The type attribute indicates the file type: a text file containing a css. The href attribute specifies the location of the style sheet.

This example produces the same output as before except it uses an external style sheet.

```html
<html>
<head>
<link rel="stylesheet" type="text/css" href="externalstylesheet.css" />
</head>
<body>
<h1>Internal Style Sheet Example</h1>
Paragraph one is short
<p>
Paragraph two is a bit longer
</p>
</body>
</html>
```
Multiple Style Sheets

When multiple style sheets are present the highest priority settings are used when conflicts occur. The inline style sheet has the highest priority while the browser default style sheet has the lowest priority.

For example,

An external style sheet may have the following settings:

```
h1 { color: green; text-align: left; font: bold 14px Helvetica }
```

An internal style sheet may have these settings:

```
h1 { color: yellow; font: bold 10px Arial }
```

The resulting style applied will be:

```
h1 { color: yellow; text-align: left; font: bold 10px Arial }
```

Grouping Selectors

Several selectors can be used together, separated by commas, to specify that they all shared a common set of properties.

```
h1, h2, h3 {color:red}
```

Class Selector

A class selector can be used to apply different styles for the same element. The class name is appended to the element name with a period:

```
p.right {text-align: right}
p.left {text-align: left}
```
In this example, three class selectors have been defined: p.right, p.left and p.yellow. One specifies left alignment of a paragraph, one specifies right alignment and the last one specifies that the paragraph should be yellow. In a document they can be used by identifying the class to be used for a specific paragraph.

```html
<p class="left"> This paragraph will be left aligned</p>
<p class="right"> This paragraph will be right aligned</p>
```

Multiple classes can be applied to the same element.

```html
<p class="right yellow"> This paragraph is right aligned and displayed in yellow</p>
```

If an element name is not specified when declaring a class, the class can be used for multiple elements.

```html
.yellow {color:yellow}
```

It can then be used with different elements of a document.

```html
<p class="yellow"> This paragraph will be displayed in yellow</p>
<h1 class="yellow"> This header will be displayed in yellow</h1>
```
Form Tag
Form Tag

The `<form>` tag is used to enclose other form elements. It serves as a means of soliciting input from a user which is then sent to a server for processing. Form elements include among others:

- Text fields
- Text areas
- Menus
- Radio buttons
- Checkboxes

In the following example two input fields are used to gather the first and last names of an individual. The `<input>` tag has a type attribute that specifies the type of input field it is. The name attribute identifies the tag and will be explained in more detail later.

```html
<html>
<body>
<form>
First name: <input type="text" name="firstName">
<br>
Last name: <input type="text" name="lastName">
</form>
</body>
</html>
```
Radio Buttons

Radio buttons are a variation of the `<input>` tag and allows the user to select one of several options. Notice that both input tags share the same name. Only the last value selected by the user will be associated with that name. The checked attribute indicates that that button should be checked when first displayed.

```html
<form>
<input type="radio" name="martialStatus" value="married"> Married
<br>
<input type="radio" name="martialStatus" value="single" checked="checked"> Single
<br>
<input type="radio" name="martialStatus" value="other"> Other
</form>
```
**Checkbox**

The checkbox allows one or more selections by the user.

```
<form>
Traits:
<br>
Employed
<input type="checkbox" name="employedTrait" value="employed">
<br>
Home Owner
<input type="checkbox" name="ownerTrait" value="homeOwner">
<br>
Too busy
<input type="checkbox" name="busyTrait" value="busy">
</form>
```
Form Attributes

The form possesses several important attributes:

- Name – A name used to identify the form
- Action – The URL to which the name/value pair of form elements are sent
- Method – How the name/value pair information is sent

The input tag type submit is used to signal the browser to send the form information to the web server.

```html
<form name="input" action="someURL" method="get">
    Name:
    <input type="text" name="user">
    <input type="submit" value="Submit">
</form>
```
Div Tag

The <div> is a container for other tags. It is similar to the body tag except it applies only to a section of the document. A web page can be divided up into different section each being defined by a <div> tag. Almost any tag can be placed inside of a division.

The following tags can be used with the DIV tag:

- id – A name for the division
- title – The title of the division
- style – The style to be applied to the division

Two divisions on the same page is illustrated here.

```html
<html>
<body>
<div id="firstDivision" title="Tools" style="background: lightgreen">
<h5>Useful Tools</h5>
<ul>
  <li>Hammer</li>
  <li>Saw</li>
  <li>Drill</li>
</ul>
Use these tools carefully as misuse can result in injury
<br>
</div>
</div>

<div id="secondDivision" title="Countries" style="background: lightblue">
<h5>Countries I Would Like to Visit</h5>
<ul>
  <li>Portugal</li>
  <li>Argentina</li>
  <li>Japan</li>
</ul>
Traveling can be rewarding
<br>
</div>
</body>
</html>
```
The position and size of the division can be controlled as illustrated by adding the following division to the page:

```html
<div id="square" style="width: 100; height:100; border: 1px solid blue; background-color: yellow; position: absolute; top: 100; left: 350">
    Yellow Square
</div>
```
Useful Tools

- Hammer
- Saw
- Drill

Use these tools carefully as misuse can result in injury.

Countries I Would Like to Visit

- Portugal
- Argentina
- Japan

Traveling can be rewarding

Done