

Introduction to HTML

What is an HTML File?

- HTML stands for **H**yper **T**ext **M**arkup **L**anguage
- An HTML file is a text file containing small **markup tags**
- The markup tags tell the Web browser **how to display** the page
- An HTML file must have an **htm** or **html** file extension
- An HTML file can be created using a **simple text editor**

If you are running Windows, start Notepad.

Type in the following text:

```
<html>
<head>
<title>Title of page</title>
</head>
<body>
This is my first homepage. <b>This text is bold</b>
</body>
</html>
```

Save the file as "mypage.htm".

Start your Internet browser. Select "Open" (or "Open Page") in the File menu of your browser. A dialog box will appear. Select "Browse" (or "Choose File") and locate the HTML file you just created - "mypage.htm" - select it and click "Open". Now you should see an address in the dialog box, for example "C:\MyDocuments\mypage.htm". Click OK, and the browser will display the page.

Example Explained

The first tag in your HTML document is <html>. This tag tells your browser that this is the start of an HTML document. The last tag in your document is </html>. This tag tells your browser that this is the end of the HTML document.

The text between the <head> tag and the </head> tag is header information. Header information is not displayed in the browser window.

The text between the <title> tags is the title of your document. The title is displayed in your browser's caption.

The text between the <body> tags is the text that will be displayed in your browser.

The text between the and tags will be displayed in a bold font.

HTM or HTML Extension?

When you save an HTML file, you can use either the .htm or the .html extension. We have used .htm in our examples. It might be a bad habit inherited from the past when some of the commonly used software only allowed three letter extensions.

With newer software we think it will be perfectly safe to use .html.

Note on HTML Editors:

You can easily edit HTML files using a WYSIWYG (what you see is what you get) editor like FrontPage, Claris Home Page, or Adobe PageMill instead of writing your markup tags in a plain text file.

But if you want to be a skillful Web developer, we strongly recommend that you use a plain text editor to learn your primer HTML.

HTML Elements

HTML documents are text files made up of HTML elements.

HTML elements are defined using HTML tags.

HTML Tags

- HTML tags are used to mark-up HTML **elements**
- HTML tags are surrounded by the **two characters < and >**
- The surrounding characters are called **angle brackets**
- HTML tags normally **come in pairs** like and
- The first tag in a pair is the **start tag**, the second tag is the **end tag**
- The text between the start and end tags is the **element content**
- HTML tags are **not case sensitive**, means the same as

HTML Elements

Remember the HTML example from the previous page:

```
<html>
<head>
<title>Title of page</title>
</head>
<body>
This is my first homepage. <b>This text is bold</b>
</body>
</html>
```

This is an HTML element:

```
<b>This text is bold</b>
```

The HTML element starts with a **start tag**: ``
The **content** of the HTML element is: This text is bold
The HTML element ends with an **end tag**: ``

The purpose of the `` tag is to define an HTML element that should be displayed as bold.

This is also an HTML element:

```
<body>  
This is my first homepage. <b>This text is bold</b>  
</body>
```

This HTML element starts with the start tag `<body>`, and ends with the end tag `</body>`.

The purpose of the `<body>` tag is to define the HTML element that contains the body of the HTML document.

Why do We Use Lowercase Tags?

We have just said that HTML tags are not case sensitive: `` means the same as ``. When you surf the Web, you will notice that most tutorials use uppercase HTML tags in their examples. We always use lowercase tags. Why?

If you want to prepare yourself for the next generations of HTML you should start using lowercase tags. The World Wide Web Consortium (W3C) recommends lowercase tags in their HTML 4 recommendation, and XHTML (the next generation HTML) demands lowercase tags.

Tag Attributes

Tags can have attributes. Attributes can provide additional information about the HTML elements on your page.

This tag defines the body element of your HTML page: `<body>`. With an added `bgcolor` attribute, you can tell the browser that the background color of your page should be red, like this: `<body bgcolor="red">`.

This tag defines an HTML table: `<table>`. With an added `border` attribute, you can tell the browser that the table should have no borders: `<table border="0">`

Attributes always come in name/value pairs like this: `name="value"`.

Attributes are always added to the start tag of an HTML element.

Quote Styles, "red" or 'red'?

Attribute values should always be enclosed in quotes. Double style quotes are the most common, but single style quotes are also allowed.

In some rare situations, like when the attribute value itself contains quotes, it is necessary to use single quotes:

```
name='John "ShotGun" Nelson'
```

Basic HTML Tags

The most important tags in HTML are tags that define headings, paragraphs and line breaks.

Headings

Headings are defined with the <h1> to <h6> tags. <h1> defines the largest heading. <h6> defines the smallest heading.

```
<h1>This is a heading</h1>
<h2>This is a heading</h2>
<h3>This is a heading</h3>
<h4>This is a heading</h4>
<h5>This is a heading</h5>
<h6>This is a heading</h6>
```

HTML automatically adds an extra blank line before and after a heading.

Paragraphs

Paragraphs are defined with the <p> tag.

```
<p>This is a paragraph</p>
<p>This is another paragraph</p>
```

HTML automatically adds an extra blank line before and after a paragraph.

Line Breaks

The
 tag is used when you want to end a line, but don't want to start a new paragraph. The
 tag forces a line break wherever you place it.

```
<p>This <br> is a para<br>graph with line breaks</p>
```

The
 tag is an empty tag. It has no closing tag.

Comments in HTML

The comment tag is used to insert a comment in the HTML source code. A comment will be ignored by the browser. You can use comments to explain your code, which can help you when you edit the source code at a later date.

```
<!-- This is a comment -->
```

Note that you need an exclamation point after the opening bracket, but not before the closing bracket.

Basic HTML Tags

Tag	Description
<u><html></u>	Defines an HTML document
<u><body></u>	Defines the document's body
<u><h1> to <h6></u>	Defines header 1 to header 6
<u><p></u>	Defines a paragraph
<u>
</u>	Inserts a single line break
<u><hr></u>	Defines a horizontal rule
<u><!--></u>	Defines a comment

HTML Text Formatting

HTML defines a lot of elements for formatting output, like bold or italic text.

How to View HTML Source

Have you ever seen a Web page and wondered "How do they do that?"

To find out, simply click on the VIEW option in your browsers toolbar and select SOURCE or PAGE SOURCE. This will open a window that shows you the actual HTML of the page.

Text Formatting Tags

Tag	Description
<u></u>	Defines bold text
<u><big></u>	Defines big text
<u></u>	Defines emphasized text
<u><i></u>	Defines italic text
<u><small></u>	Defines small text
<u></u>	Defines strong text
<u><sub></u>	Defines subscripted text
<u><sup></u>	Defines superscripted text

<code><ins></code>	Defines inserted text
<code></code>	Defines deleted text
<code><s></code>	Deprecated. Use <code></code> instead
<code><strike></code>	Deprecated. Use <code></code> instead
<code><u></code>	Deprecated. Use styles instead

HTML Character Entities

Some characters like the `<` character, have a special meaning in HTML, and therefore cannot be used in the text.

To display a less than sign (`<`) in HTML, we have to use a character entity.

Character Entities

Some characters have a special meaning in HTML, like the less than sign (`<`) that defines the start of an HTML tag. If we want the browser to actually display these characters we must insert character entities in the HTML source.

A character entity has three parts: an ampersand (`&`), an entity name or a `#` and an entity number, and finally a semicolon (`;`).

To display a less than sign in an HTML document we must write: **`<`** or **`<`**;

The advantage of using a name instead of a number is that a name is easier to remember. The disadvantage is that not all browsers support the newest entity names, while the support for entity numbers is very good in almost all browsers.

Note that the entities are case sensitive.

Non-breaking Space

The most common character entity in HTML is the non-breaking space.

Normally HTML will truncate spaces in your text. If you write 10 spaces in your text HTML will remove 9 of them. To add spaces to your text, use the ` ` character entity.

The Most Common Character Entities:

Result	Description	Entity Name	Entity Number
	non-breaking space	<code>&nbsp;</code>	<code>&#160;</code>
<code><</code>	less than	<code>&lt;</code>	<code>&#60;</code>
<code>></code>	greater than	<code>&gt;</code>	<code>&#62;</code>
<code>&</code>	ampersand	<code>&amp;</code>	<code>&#38;</code>

"	quotation mark	"	"
'	apostrophe	'	'

Some Other Commonly Used Character Entities:

Result	Description	Entity Name	Entity Number
¢	cent	¢	¢
£	pound	£	£
¥	yen	¥	¥
§	section	§	§
©	copyright	©	©
®	registered trademark	®	®
×	multiplication	×	×
÷	division	÷	÷

The Anchor Tag and the Href Attribute

HTML uses the `<a>` (anchor) tag to create a link to another document.

An anchor can point to any resource on the Web: an HTML page, an image, a sound file, a movie, etc.

The syntax of creating an anchor:

```
<a href="url">Text to be displayed</a>
```

The `<a>` tag is used to create an anchor to link from, the href attribute is used to address the document to link to, and the words between the open and close of the anchor tag will be displayed as a hyperlink.

This anchor defines a link to W3Schools:

```
<a href="http://www.w3schools.com/">Visit W3Schools!</a>
```

The line above will look like this in a browser:

[Visit W3Schools!](http://www.w3schools.com/)

The Target Attribute

With the target attribute, you can define **where** the linked document will be opened.

The line below will open the document in a new browser window:

```
<a href="http://www.w3schools.com/" target="_blank">Visit W3Schools!</a>
```

The Anchor Tag and the Name Attribute

The name attribute is used to create a named anchor. When using named anchors we can create links that can jump directly into a specific section on a page, instead of letting the user scroll around to find what he/she is looking for.

Below is the syntax of a named anchor:

```
<a name="label">Text to be displayed</a>
```

The name attribute is used to create a named anchor. The name of the anchor can be any text you care to use.

The line below defines a named anchor:

```
<a name="tips">Useful Tips Section</a>
```

You should notice that a named anchor is not displayed in a special way.

To link directly to the "tips" section, add a # sign and the name of the anchor to the end of a URL, like this:

```
<a href="http://www.w3schools.com/html_links.asp#tips">
Jump to the Useful Tips Section</a>
```

A hyperlink to the Useful Tips Section from WITHIN the file "html_links.asp" will look like this:

```
<a href="#tips">Jump to the Useful Tips Section</a>
```

Link Tags

Tag	Description
<u><a></u>	Defines an anchor

HTML Frames

With frames, you can display more than one Web page in the same browser window.

Examples

Vertical frameset

This example demonstrates how to make a vertical frameset with three different documents.

Horizontal frameset

This example demonstrates how to make a horizontal frameset with three different documents.

How to use the <noframes> tag

This example demonstrates how to use the <noframes> tag.

(You can find more examples at the bottom of this page)

Frames

With frames, you can display more than one HTML document in the same browser window. Each HTML document is called a frame, and each frame is independent of the others.

The disadvantages of using frames are:

- The web developer must keep track of more HTML documents
- It is difficult to print the entire page

The Frameset Tag

- The <frameset> tag defines how to divide the window into frames
- Each frameset defines a set of rows **or** columns
- The values of the rows/columns indicate the amount of screen area each row/column will occupy

The Frame Tag

- The <frame> tag defines what HTML document to put into each frame

In the example below we have a frameset with two columns. The first column is set to 25% of the width of the browser window. The second column is set to 75% of the width of the browser window. The HTML document "frame_a.htm" is put into the first column, and the HTML document "frame_b.htm" is put into the second column:

```
<frameset cols="25%,75%">
  <frame src="frame_a.htm">
  <frame src="frame_b.htm">
</frameset>
```

Basic Notes - Useful Tips

If a frame has visible borders, the user can resize it by dragging the border. To prevent a user from doing this, you can add noresize="noresize" to the <frame> tag.

Add the <noframes> tag for browsers that do not support frames.

Frame Tags

Tag	Description
<frameset>	Defines a set of frames
<frame>	Defines a sub window (a frame)
<noframes>	Defines a noframe section for browsers that do not handle frames
<iframe>	Defines an inline sub window (frame)

HTML Tables

With HTML you can create tables.

Tables

Tables are defined with the <table> tag. A table is divided into rows (with the <tr> tag), and each row is divided into data cells (with the <td> tag). The letters td stands for "table data," which is the content of a data cell. A data cell can contain text, images, lists, paragraphs, forms, horizontal rules, tables, etc.

```
<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>
```

How it looks in a browser:

row 1, cell 1	row 1, cell 2
row 2, cell 1	row 2, cell 2

Tables and the Border Attribute

If you do not specify a border attribute the table will be displayed without any borders. Sometimes this can be useful, but most of the time, you want the borders to show.

To display a table with borders, you will have to use the border attribute:

```
<table border="1">
```

```
<tr>
<td>Row 1, cell 1</td>
<td>Row 1, cell 2</td>
</tr>
</table>
```

Headings in a Table

Headings in a table are defined with the `<th>` tag.

```
<table border="1">
<tr>
<th>Heading</th>
<th>Another Heading</th>
</tr>
<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>
```

How it looks in a browser:

Heading	Another Heading
row 1, cell 1	row 1, cell 2
row 2, cell 1	row 2, cell 2

Empty Cells in a Table

Table cells with no content are not displayed very well in most browsers.

```
<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></td>
</tr>
</table>
```

How it looks in a browser:

row 1, cell 1	row 1, cell 2
row 2, cell 1	

Note that the borders around the empty table cell are missing.

To avoid this, add a non-breaking space () to empty data cells, to make the borders visible:

```
<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>&nbsp;</td>
</tr>
</table>
```

How it looks in a browser:

row 1, cell 1	row 1, cell 2
row 2, cell 1	

Table Tags

Tag	Description
<u><table></u>	Defines a table
<u><th></u>	Defines a table header
<u><tr></u>	Defines a table row
<u><td></u>	Defines a table cell
<u><caption></u>	Defines a table caption
<u><colgroup></u>	Defines groups of table columns
<u><col></u>	Defines the attribute values for one or more columns in a table
<u><thead></u>	Defines a table head
<u><tbody></u>	Defines a table body
<u><tfoot></u>	Defines a table footer

HTML Lists

HTML supports ordered, unordered and definition lists.

Unordered Lists

An unordered list is a list of items. The list items are marked with bullets (typically small black circles).

An unordered list starts with the `` tag. Each list item starts with the `` tag.

```
<ul>
<li>Coffee</li>
<li>Milk</li>
</ul>
```

Here is how it looks in a browser:

- Coffee
- Milk

Inside a list item you can put paragraphs, line breaks, images, links, other lists, etc.

Ordered Lists

An ordered list is also a list of items. The list items are marked with numbers.

An ordered list starts with the `` tag. Each list item starts with the `` tag.

```
<ol>
<li>Coffee</li>
<li>Milk</li>
</ol>
```

Here is how it looks in a browser:

1. Coffee
2. Milk

Inside a list item you can put paragraphs, line breaks, images, links, other lists, etc.

Definition Lists

A definition list is **not** a list of items. This is a list of terms and explanation of the terms.

A definition list starts with the `<dl>` tag. Each definition-list term starts with the `<dt>` tag. Each definition-list definition starts with the `<dd>` tag.

```
<dl>
<dt>Coffee</dt>
<dd>Black hot drink</dd>
<dt>Milk</dt>
<dd>White cold drink</dd>
</dl>
```

Here is how it looks in a browser:

Coffee
 Black hot drink
Milk
 White cold drink

Inside a definition-list definition (the `<dd>` tag) you can put paragraphs, line breaks, images, links, other lists, etc.

List Tags

Tag	Description
<code></code>	Defines an ordered list
<code></code>	Defines an unordered list
<code></code>	Defines a list item
<code><dl></code>	Defines a definition list
<code><dt></code>	Defines a definition term
<code><dd></code>	Defines a definition description
<code><dir></code>	Deprecated. Use <code></code> instead
<code><menu></code>	Deprecated. Use <code></code> instead

HTML Forms and Input

HTML Forms are used to select different kinds of user input.

Forms

A form is an area that can contain form elements.

Form elements are elements that allow the user to enter information (like text fields, textarea fields, drop-down menus, radio buttons, checkboxes, etc.) in a form.

A form is defined with the `<form>` tag.

```
<form>
  <input>
  <input>
</form>
```

Input

The most used form tag is the `<input>` tag. The type of input is specified with the `type` attribute. The most commonly used input types are explained below.

Text Fields

Text fields are used when you want the user to type letters, numbers, etc. in a form.

```
<form>
First name:
<input type="text" name="firstname">
<br>
Last name:
<input type="text" name="lastname">
</form>
```

How it looks in a browser:

First name:
Last name:

Note that the form itself is not visible. Also note that in most browsers, the width of the text field is 20 characters by default.

Radio Buttons

Radio Buttons are used when you want the user to select one of a limited number of choices.

```
<form>
<input type="radio" name="sex" value="male"> Male
<br>
<input type="radio" name="sex" value="female"> Female
</form>
```

How it looks in a browser:

Male
 Female

Note that only one option can be chosen.

Checkboxes

Checkboxes are used when you want the user to select one or more options of a limited number of choices.

```
<form>
<input type="checkbox" name="bike">
I have a bike
<br>
<input type="checkbox" name="car">
I have a car
</form>
```

How it looks in a browser:

- I have a bike
- I have a car

The Form's Action Attribute and the Submit Button

When the user clicks on the "Submit" button, the content of the form is sent to another file. The form's action attribute defines the name of the file to send the content to. The file defined in the action attribute usually does something with the received input.

```
<form name="input" action="html_form_action.asp"
method="get">
Username:
<input type="text" name="user">
<input type="submit" value="Submit">
</form>
```

How it looks in a browser:

Username:

If you type some characters in the text field above, and click the "Submit" button, you will send your input to a page called "html_form_action.asp". That page will show you the received input.

Form Tags

Tag	Description
<code><form></code>	Defines a form for user input
<code><input></code>	Defines an input field

<code><textarea></code>	Defines a text-area (a multi-line text input control)
<code><label></code>	Defines a label to a control
<code><fieldset></code>	Defines a fieldset
<code><legend></code>	Defines a caption for a fieldset
<code><select></code>	Defines a selectable list (a drop-down box)
<code><optgroup></code>	Defines an option group
<code><option></code>	Defines an option in the drop-down box
<code><button></code>	Defines a push button
<code><isindex></code>	Deprecated. Use <code><input></code> instead

HTML Images

With HTML you can display images in a document.

The Image Tag and the Src Attribute

In HTML, images are defined with the `` tag.

The `` tag is empty, which means that it contains attributes only and it has no closing tag.

To display an image on a page, you need to use the `src` attribute. `src` stands for "source". The value of the `src` attribute is the URL of the image you want to display on your page.

The syntax of defining an image:

```

```

The URL points to the location where the image is stored. An image named "boat.gif" located in the directory "images" on "www.w3schools.com" has the URL: <http://www.w3schools.com/images/boat.gif>.

The browser puts the image where the image tag occurs in the document. If you put an image tag between two paragraphs, the browser shows the first paragraph, then the image, and then the second paragraph.

The Alt Attribute

The `alt` attribute is used to define an "alternate text" for an image. The value of the `alt` attribute is an author-defined text:

```

```

The "alt" attribute tells the reader what he or she is missing on a page if the browser can't load images. The browser will then display the alternate text instead of the image. It is a good practice to include the "alt" attribute for each image on a page, to improve the display and usefulness of your document for people who have text-only browsers.

Image Tags

Tag	Description
<code></code>	Defines an image
<code><map></code>	Defines an image map
<code><area></code>	Defines an area inside an image map

HTML Backgrounds

A good background can make a Web site look really great.

Backgrounds

The `<body>` tag has two attributes where you can specify backgrounds. The background can be a color or an image.

Bgcolor

The `bgcolor` attribute sets the background to a color. The value of this attribute can be a hexadecimal number, an RGB value, or a color name.

```
<body bgcolor="#000000">  
<body bgcolor="rgb(0,0,0)">  
<body bgcolor="black">
```

The lines above all set the background color to black.

Background

The `background` attribute sets the background to an image. The value of this attribute is the URL of the image you want to use. If the image is smaller than the browser window, the image will repeat itself until it fills the entire browser window.

```
<body background="clouds.gif">  
<body background="http://www.w3schools.com/clouds.gif">
```

The URL can be relative (as in the first line above) or absolute (as in the second line above).

HTML Fonts

The `` tag in HTML is deprecated. It is supposed to be removed in a future version of HTML.

Even if a lot of people are using it, you should try to avoid it, and use styles instead.

The HTML `` Tag

With HTML code like this, you can specify both the size and the type of the browser output :

```
<p>
<font size="2" face="Verdana">
This is a paragraph.
</font>
</p>
<p>
<font size="3" face="Times">
This is another paragraph.
</font>
</p>
```

Font Attributes

Attribute	Example	Purpose
size="number"	size="2"	Defines the font size
size="+number"	size="+1"	Increases the font size
size="-number"	size="-1"	Decreases the font size
face="face-name"	face="Times"	Defines the font-name
color="color-value"	color="#eeff00"	Defines the font color
color="color-name"	color="red"	Defines the font color

The `` Tag Should NOT be Used

The `` tag is deprecated in the latest versions of HTML (HTML 4 and XHTML).