

What is HTML?

- HTML stands for Hyper Text Markup Language
- HTML is the standard markup language for creating Web pages
- HTML describes the structure of a Web page
- HTML consists of a series of elements
- HTML elements tell the browser how to display the content
- HTML elements label pieces of content such as "this is a heading", "this is a paragraph", "this is a link", etc.

A Simple HTML Document

Example

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

Example Explained

- The `<!DOCTYPE html>` declaration defines that this document is an HTML5 document
- The `<html>` element is the root element of an HTML page
- The `<head>` element contains meta information about the HTML page
- The `<title>` element specifies a title for the HTML page (which is shown in the browser's title bar or in the page's tab)
- The `<body>` element defines the document's body, and is a container for all the visible contents, such as headings, paragraphs, images, hyperlinks, tables, lists, etc.
- The `<h1>` element defines a large heading
- The `<p>` element defines a paragraph

What is an HTML Element?

An HTML element is defined by a start tag, some content, and an end tag:

```
<tagname> Content goes here... </tagname>
```

The HTML **element** is everything from the start tag to the end tag:

```
<h1>My First Heading</h1>
<p>My first paragraph.</p>
```

Start tag	Element content	End tag
<h1>	My First Heading	</h1>
<p>	My first paragraph.	</p>
 	<i>none</i>	<i>none</i>

Note: Some HTML elements have no content (like the
 element). These elements are called empty elements. Empty elements do not have an end tag!

ADVERTISEMENT

Web Browsers

The purpose of a web browser (Chrome, Edge, Firefox, Safari) is to read HTML documents and display them correctly. A browser does not display the HTML tags, but uses them to determine how to display the document:

HTML Page Structure

Below is a visualization of an HTML page structure:

```
<html>
<head>
<title>Page title</title>
</head>
<body>
<h1>This is a heading</h1>
<p>This is a paragraph.</p>
<p>This is another paragraph.</p>
</body>
</html>
```

Note: The content inside the <body> section (the white area above) will be displayed in a browser. The content inside the <title> element will be shown in the browser's title bar or in the page's tab.

HTML History

Since the early days of the World Wide Web, there have been many versions of HTML:

Year	Version
1989	Tim Berners-Lee invented www
1991	Tim Berners-Lee invented HTML
1993	Dave Raggett drafted HTML+
1995	HTML Working Group defined HTML 2.0
1997	W3C Recommendation: HTML 3.2

1999	W3C Recommendation: HTML 4.01
2000	W3C Recommendation: XHTML 1.0
2008	WHATWG HTML5 First Public Draft
2012	WHATWG HTML5 Living Standard
2014	W3C Recommendation: HTML5
2016	W3C Candidate Recommendation: HTML 5.1
2017	W3C Recommendation: HTML5.1 2nd Edition
2017	W3C Recommendation: HTML5.2

HTML Headings

HTML headings are defined with the `<h1>` to `<h6>` tags.

`<h1>` defines the most important heading. `<h6>` defines the least important heading:

Example

```
<h1>This is heading 1</h1>
<h2>This is heading 2</h2>
<h3>This is heading 3</h3>
```

HTML Paragraphs

HTML paragraphs are defined with the `<p>` tag:

Example

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

HTML Links

HTML links are defined with the `<a>` tag:

Example

```
<a href="https://www.w3schools.com">This is a link</a>
```

The link's destination is specified in the `href` attribute.

Attributes are used to provide additional information about HTML elements.

You will learn more about attributes in a later chapter.

HTML Images

HTML images are defined with the `` tag.

The source file (`src`), alternative text (`alt`), `width`, and `height` are provided as attributes:

Example

```

```

HTML is Not Case Sensitive

HTML tags are not case sensitive: `<P>` means the same as `<p>`.

The HTML standard does not require lowercase tags, but W3C **recommends** lowercase in HTML, and **demand**s lowercase for stricter document types like XHTML.

At W3Schools we always use lowercase tag names.

HTML Tag Reference

W3Schools' tag reference contains additional information about these tags and their attributes.

Tag	Description
<html>	Defines the root of an HTML document
<body>	Defines the document's body
<h1> to <h6>	Defines HTML headings

Chapter Summary

- All HTML elements can have **attributes**
- The `href` attribute of `<a>` specifies the URL of the page the link goes to
- The `src` attribute of `` specifies the path to the image to be displayed
- The `width` and `height` attributes of `` provide size information for images
- The `alt` attribute of `` provides an alternate text for an image
- The `style` attribute is used to add styles to an element, such as color, font, size, and more
- The `lang` attribute of the `<html>` tag declares the language of the Web page
- The `title` attribute defines some extra information about an element

HTML Paragraphs

The HTML `<p>` element defines a paragraph.

A paragraph always starts on a new line, and browsers automatically add some white space (a margin) before and after a paragraph.

Example

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

HTML Horizontal Rules

The `<hr>` tag defines a thematic break in an HTML page, and is most often displayed as a horizontal rule.

The `<hr>` element is used to separate content (or define a change) in an HTML page:

Example

```
<h1>This is heading 1</h1>
<p>This is some text.</p>
<hr>
<h2>This is heading 2</h2>
<p>This is some other text.</p>
<hr>
```

The `<hr>` tag is an empty tag, which means that it has no end tag.

HTML Line Breaks

The HTML `
` element defines a line break.

Use `
` if you want a line break (a new line) without starting a new paragraph:

Example

```
<p>This is<br>a paragraph<br>with line breaks.</p>
```

The `
` tag is an empty tag, which means that it has no end tag.

The HTML `<pre>` Element

The HTML `<pre>` element defines preformatted text.

The text inside a `<pre>` element is displayed in a fixed-width font (usually Courier), and it preserves both spaces and line breaks:

Example

```
<pre>
  My Bonnie lies over the ocean.

  My Bonnie lies over the sea.

  My Bonnie lies over the ocean.

  Oh, bring back my Bonnie to me.
</pre>
```

The HTML Style Attribute

Setting the style of an HTML element, can be done with the `style` attribute.

The HTML `style` attribute has the following syntax:

```
<tagname style="property:value;">
```

The ***property*** is a CSS property. The ***value*** is a CSS value.

You will learn more about CSS later in this tutorial.

Background Color

The CSS `background-color` property defines the background color for an HTML element.

Example

Set the background color for a page to powderblue:

```
<body style="background-color:powderblue;">
```

```
<h1>This is a heading</h1>  
<p>This is a paragraph.</p>
```

```
</body>
```

Example

Set background color for two different elements:

```
<body>
```

```
<h1 style="background-color:powderblue;">This is a heading</h1>  
<p style="background-color:tomato;">This is a paragraph.</p>
```

```
</body>
```

Text Color

The CSS `color` property defines the text color for an HTML element:

Example

```
<h1 style="color:blue;">This is a heading</h1>  
<p style="color:red;">This is a paragraph.</p>
```

Fonts

The CSS `font-family` property defines the font to be used for an HTML element:

Example

```
<h1 style="font-family:verdana;">This is a heading</h1>  
<p style="font-family:courier;">This is a paragraph.</p>
```

Text Size

The CSS `font-size` property defines the text size for an HTML element:

Example

```
<h1 style="font-size:300%;">This is a heading</h1>  
<p style="font-size:160%;">This is a paragraph.</p>
```

Text Alignment

The CSS `text-align` property defines the horizontal text alignment for an HTML element:

Example

```
<h1 style="text-align:center;">Centered Heading</h1>  
<p style="text-align:center;">Centered paragraph.</p>
```

Chapter Summary

- Use the `style` attribute for styling HTML elements
- Use `background-color` for background color
- Use `color` for text colors
- Use `font-family` for text fonts
- Use `font-size` for text sizes
- Use `text-align` for text alignment

HTML Formatting Elements

Formatting elements were designed to display special types of text:

- `` - Bold text
- `` - Important text
- `<i>` - Italic text
- `` - Emphasized text
- `<mark>` - Marked text
- `<small>` - Smaller text
- `` - Deleted text
- `<ins>` - Inserted text
- `<sub>` - Subscript text
- `<sup>` - Superscript text

HTML Text Formatting Elements

Tag	Description
<code></code>	Defines bold text
<code></code>	Defines emphasized text
<code><i></code>	Defines a part of text in an alternate voice or mood
<code><small></code>	Defines smaller text
<code></code>	Defines important text
<code><sub></code>	Defines subscripted text
<code><sup></code>	Defines superscripted text
<code><ins></code>	Defines inserted text
<code></code>	Defines deleted text

`<mark>`

Defines marked/highlighted text

HTML `<abbr>` for Abbreviations

The HTML `<abbr>` tag defines an abbreviation or an acronym, like "HTML", "CSS", "Mr.", "Dr.", "ASAP", "ATM".

Marking abbreviations can give useful information to browsers, translation systems and search-engines.

Tip: Use the global title attribute to show the description for the abbreviation/acronym when you mouse over the element.

Example

```
<p>The <abbr title="World Health Organization">WHO</abbr> was founded in 1948.</p>
```

Hide Content

Comments can be used to hide content.

Which can be helpful if you hide content temporarily:

Example

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

```
<!-- <p>This is another paragraph </p> -->
```

```
<p>This is a paragraph too.</p>
```

Background Color

You can set the background color for HTML elements:

Example

```
<h1 style="background-color:DodgerBlue;">Hello World</h1>
```

```
<p style="background-color:Tomato;">Lorem ipsum...</p>
```

Text Color

You can set the color of text

Example

```
<h1 style="color:Tomato;">Hello World</h1>
```

```
<p style="color:DodgerBlue;">Lorem ipsum...</p>
```

```
<p style="color:MediumSeaGreen;">Ut wisi enim...</p>
```

Border Color

You can set the color of borders:

Example

```
<h1 style="border:2px solid Tomato;">Hello World</h1>
```

```
<h1 style="border:2px solid DodgerBlue;">Hello World</h1>
```

```
<h1 style="border:2px solid Violet;">Hello World</h1>
```

Color Values

Example

```
<h1 style="background-color:rgb(255, 99, 71);">...</h1>
```

```
<h1 style="background-color:#ff6347;">...</h1>
```



```
<h1 style="background-color:hsl(9, 100%, 64%);">...</h1>
```

```
<h1 style="background-color:rgba(255, 99, 71, 0.5);">...</h1>
```

```
<h1 style="background-color:hsla(9, 100%, 64%, 0.5);">...</h1>
```

RGB Color Values

In HTML, a color can be specified as an RGB value, using this formula:

`rgb(red, green, blue)`

Each parameter (red, green, and blue) defines the intensity of the color with a value between 0 and 255.

This means that there are $256 \times 256 \times 256 = 16777216$ possible colors!

For example, `rgb(255, 0, 0)` is displayed as red, because red is set to its highest value (255), and the other two (green and blue) are set to 0.

Another example, `rgb(0, 255, 0)` is displayed as green, because green is set to its highest value (255), and the other two (red and blue) are set to 0.

To display black, set all color parameters to 0, like this: `rgb(0, 0, 0)`.

To display white, set all color parameters to 255, like this: `rgb(255, 255, 255)`.

Experiment by mixing the RGB values below:

`rgb(255, 99, 71)`

RED

255

GREEN

99

BLUE

71

Example

`rgb(255, 0, 0)`

`rgb(0, 0, 255)`

`rgb(60, 179, 113)`

`rgb(238, 130, 238)`

`rgb(255, 165, 0)`

```
rgb(106, 90, 205)
```

RGBA Color Values

RGBA color values are an extension of RGB color values with an Alpha channel - which specifies the opacity for a color.

An RGBA color value is specified with:

```
rgba(red, green, blue, alpha)
```

HSL Color Values

In HTML, a color can be specified using hue, saturation, and lightness (HSL) in the form:

```
hsl(hue, saturation, lightness)
```

Hue is a degree on the color wheel from 0 to 360. 0 is red, 120 is green, and 240 is blue.

Saturation is a percentage value, 0% means a shade of gray, and 100% is the full color.

Lightness is also a percentage value, 0% is black, and 100% is white.

Example

```
hsl(0, 100%, 50%)
```

```
hsl(240, 100%, 50%)
```

```
hsl(147, 50%, 47%)
```

```
hsl(300, 76%, 72%)
```

```
hsl(39, 100%, 50%)
```

```
hsl(248, 53%, 58%)
```

HTML Links - Syntax

The HTML `<a>` tag defines a hyperlink. It has the following syntax:

```
<a href="url">Link text</a>
```

HTML Links - The target Attribute

By default, the linked page will be displayed in the current browser window. To change this, you must specify another target for the link.

The `target` attribute specifies where to open the linked document.

The `target` attribute can have one of the following values:

- `_self` - Default. Opens the document in the same window/tab as it was clicked
- `_blank` - Opens the document in a new window or tab
- `_parent` - Opens the document in the parent frame
- `_top` - Opens the document in the full body of the window

Example

Use `target="_blank"` to open the linked document in a new browser window or tab:

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

Absolute URLs vs. Relative URLs

Both examples above are using an **absolute URL** (a full web address) in the `href` attribute.

A local link (a link to a page within the same website) is specified with a **relative URL** (without the "https://www" part):

Example

```
<h2>Absolute URLs</h2>
<p><a href="https://www.w3.org/">W3C</a></p>
<p><a href="https://www.google.com/">Google</a></p>

<h2>Relative URLs</h2>
<p><a href="html_images.asp">HTML Images</a></p>
<p><a href="/css/default.asp">CSS Tutorial</a></p>
```

HTML Links - Use an Image as a Link

To use an image as a link, just put the `` tag inside the `<a>` tag:

Example

```
<a href="default.asp">

</a>
```

Button as a Link

To use an HTML button as a link, you have to add some JavaScript code.

JavaScript allows you to specify what happens at certain events, such as a click of a button:

Example

```
<button onclick="document.location='default.asp'">HTML Tutorial</button>
```

Link Titles

The `title` attribute specifies extra information about an element. The information is most often shown as a tooltip text when the mouse moves over the element.

Example

```
<a href="https://www.w3schools.com/html/" title="Go to W3Schools HTML section">Visit our HTML Tutorial</a>
```

Chapter Summary

- Use the `<a>` element to define a link
- Use the `href` attribute to define the link address
- Use the `target` attribute to define where to open the linked document
- Use the `` element (inside `<a>`) to use an image as a link
- Use the `mailto:` scheme inside the `href` attribute to create a link that opens the user's email program

Define an HTML Table

A table in HTML consists of table cells inside rows and columns

Example

A simple HTML table:

```
<table>
  <tr>
    <th>Company</th>
    <th>Contact</th>
    <th>Country</th>
  </tr>
  <tr>
    <td>Alfreds Futterkiste</td>
    <td>Maria Anders</td>
    <td>Germany</td>
  </tr>
  <tr>
    <td>Centro comercial Moctezuma</td>
    <td>Francisco Chang</td>
    <td>Mexico</td>
  </tr>
</table>
```

HTML Table Tags

Tag	Description
<table>	Defines a table
<th>	Defines a header cell in a table
<tr>	Defines a row in a table
<td>	Defines a cell in a table
<caption>	Defines a table caption
<colgroup>	Specifies a group of one or more columns in a table for formatting
<col>	Specifies column properties for each column within a <colgroup> element
<thead>	Groups the header content in a table
<tbody>	Groups the body content in a table

[<tfoot>](#)

Groups the footer content in a table

How To Add a Border

When you add a border to a table, you also add borders around each table cell:

To add a border, use the CSS `border` property on `table`, `th`, and `td` elements:

Example

```
table, th, td {  
  border: 1px solid black;  
}
```

Collapsed Table Borders

To avoid having double borders like in the example above, set the CSS `border-collapse` property to `collapse`.

This will make the borders collapse into a single border:

Example

```
table, th, td {  
  border: 1px solid black;  
  border-collapse: collapse;  
}
```

Style Table Borders

If you set a background color of each cell, and give the border a white color (the same as the document background), you get the impression of an invisible border:

Example

```
table, th, td {  
  border: 1px solid white;  
  border-collapse: collapse;  
}  
th, td {  
  background-color: #96D4D4;  
}
```

Round Table Borders

With the `border-radius` property, the borders get rounded corners:









Example

```
table, th, td {
  border: 1px solid black;
  border-radius: 10px;
}
```

Dotted Table Borders

With the `border-style` property, you can set the appereance of the border.

The following values are allowed:

- `dotted` 
- `dashed` 
- `solid` 
- `double` 
- `groove` 
- `ridge` 
- `inset` 
- `outset` 
- `none`
- `hidden`

```
th, td {
  border-style: dotted;
```

HTML Table - Cell Padding

Cell padding is the space between the cell edges and the cell content.

By default the padding is set to 0.

To add padding on table cells, use the CSS `padding` property:

Example

```
th, td {
  padding: 15px;
}
```

Example

```
th, td {
  padding-top: 10px;
  padding-bottom: 20px;
  padding-left: 30px;
  padding-right: 40px;
}
```

HTML Table - Cell Spacing

Cell spacing is the space between each cell.

By default the space is set to 2 pixels.

To change the space between table cells, use the CSS `border-spacing` property on the `table` element:

Example

```
table {  
  border-spacing: 30px;  
}
```

HTML Table - Colspan

To make a cell span over multiple columns, use the `colspan` attribute:

Example

```
<table>  
  <tr>  
    <th colspan="2">Name</th>  
    <th>Age</th>  
  </tr>  
  <tr>  
    <td>Jill</td>  
    <td>Smith</td>  
    <td>43</td>  
  </tr>  
  <tr>  
    <td>Eve</td>  
    <td>Jackson</td>  
    <td>57</td>  
  </tr>  
</table>
```

HTML Table - Rowspan

To make a cell span over multiple rows, use the `rowspan` attribute:

Example

```
<table>  
  <tr>  
    <th>Name</th>  
    <td>Jill</td>  
  </tr>  
  <tr>  
    <th rowspan="2">Phone</th>  
    <td>555-1234</td>  
  </tr>  
  <tr>  
    <td>555-8745</td>  
  </tr>  
</table>
```

Unordered HTML List

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

The list items will be marked with bullets (small black circles) by default:

Example

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

Ordered HTML List

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

The list items will be marked with numbers by default:

Example

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

HTML Description Lists

HTML also supports description lists.

A description list is a list of terms, with a description of each term.

The `<dl>` tag defines the description list, the `<dt>` tag defines the term (name), and the `<dd>` tag describes each term:

Example

```
<dl>
  <dt>Coffee</dt>
  <dd>- black hot drink</dd>
  <dt>Milk</dt>
  <dd>- white cold drink</dd>
</dl>
```

HTML List Tags

Tag	Description
	Defines an unordered list
	Defines an ordered list
	Defines a list item
<dl>	Defines a description list
<dt>	Defines a term in a description list
<dd>	Describes the term in a description list

Unordered HTML List - Choose List Item Marker

The CSS `list-style-type` property is used to define the style of the list item marker. It can have one of the following values:

Value	Description
disc	Sets the list item marker to a bullet (default)

circle	Sets the list item marker to a circle
square	Sets the list item marker to a square
none	The list items will not be marked

Example - Disc

```
<ul style="list-style-type:disc;">
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ul>
```

Ordered HTML List - The Type Attribute

The `type` attribute of the `` tag, defines the type of the list item marker:

Type	Description
type="1"	The list items will be numbered with numbers (default)
type="A"	The list items will be numbered with uppercase letters
type="a"	The list items will be numbered with lowercase letters
type="I"	The list items will be numbered with uppercase roman numbers
type="i"	The list items will be numbered with lowercase roman numbers

Numbers:

```
<ol type="1">
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>
```