HTML Introduction

HTML is the standard markup language for creating Web pages.

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.

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>

 	none	_none_

- **Note:** Some HTML elements have no content (like the <br> element). These elements are called empty elements. Empty elements do not have an end tag!
- 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 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 Basic Examples

In this chapter we will show some basic HTML examples.

Don't worry if we use tags you have not learned about yet.

HTML Documents

All HTML documents must start with a document type declaration: <!DOCTYPE html>.

The HTML document itself begins with <html> and ends with </html>.

The visible part of the HTML document is between <body> and </body>.

The <!DOCTYPE> Declaration

The <!DOCTYPE> declaration represents the document type, and helps browsers to display web pages correctly.

It must only appear once, at the top of the page (before any HTML tags).

The <!DOCTYPE> declaration is not case sensitive.

The <!DOCTYPE> declaration for HTML5 is:

HTML Headings

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

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

HTML Paragraphs

HTML paragraphs are defined with the <p> tag:

HTML Links

HTML links are defined with the <a> tag:

This is a link

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 <img> tag.

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

Example

<img src="w3schools.jpg" alt="W3Schools.com" width="104" height="142">

HTML Elements

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

HTML Elements

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

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

Examples of some HTML elements:

<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>
 	none	*none*

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

Nested HTML Elements

HTML elements can be nested (this means that elements can contain other elements).

All HTML documents consist of nested HTML elements.

The following example contains four HTML elements (<html>, <body>, <h1> and <p>):

Example Explained

The <html> element is the root element and it defines the whole HTML document.

It has a start tag <html> and an end tag </html>.

Then, inside the <html> element there is a <body> element:

The <body> element defines the document's body.

It has a start tag <body> and an end tag </body>.

Then, inside the <body> element there are two other elements: <h1> and <p>:

The <h1> element defines a heading.

It has a start tag <h1> and an end tag </h1>:

<h1>My First Heading</h1>

The <p> element defines a paragraph.

It has a start tag <p> and an end tag </p>:

<p>My first paragraph.</p>Empty HTML Elements

HTML elements with no content are called empty elements.

The <br> tag defines a line break, and is an empty element without a closing tag:

Example

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

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 **demands** lowercase for stricter document
types like XHTML.

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

	Defines HTML headings

HTML Attributes

HTML attributes provide additional information about HTML elements.

HTML Attributes

- All HTML elements can have **attributes**
- Attributes provide **additional information** about elements
- Attributes are always specified in **the start tag**
- Attributes usually come in name/value pairs like: **name="value"**

The href Attribute

The <a> tag defines a hyperlink. The href attribute specifies the URL of the page the link goes to:

Example

Visit W3Schools

The src Attribute

The <img> tag is used to embed an image in an HTML page. The src attribute specifies the path to the image to be displayed:

Example

<img src="img_girl.jpg">

There are two ways to specify the URL in the src attribute:

1. Absolute URL - Links to an external image that is hosted on another website. Example: src="https://www.w3schools.com/images/img_girl.jpg".

Notes: External images might be under copyright. If you do not get permission to use it, you may be in violation of copyright laws. In addition, you cannot control external images; it can suddenly be removed or changed.

2. Relative URL - Links to an image that is hosted within the website. Here, the URL does not include the domain name. If the URL begins without a slash, it will be relative to the current page. Example: src="img_girl.jpg". If the URL begins with a slash, it will be relative to the domain. Example: src="/images/img_girl.jpg".

Tip: It is almost always best to use relative URLs. They will not break if you change domain.

The width and height Attributes

The <img> tag should also contain the width and height attributes, which specify the width and height of the image (in pixels):

Example

<img src="img_girl.jpg" width="500" height="600">

[Try it Yourself »](#)

The alt Attribute

The required alt attribute for the <img> tag specifies an alternate text for an image, if the image for some reason cannot be displayed. This can be due to a slow connection, or an error in the src attribute, or if the user uses a screen reader.

Example

<img src="img_girl.jpg" alt="Girl with a jacket">

The style Attribute

The style attribute is used to add styles to an element, such as color, font, size, and more.

Example

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

[Try it Yourself »](#)

The lang Attribute

You should always include the lang attribute inside the <html> tag, to declare the language of the Web page. This is meant to assist search engines and browsers.

The following example specifies English as the language:

```
<!DOCTYPE html>
<html lang="en">
<body>
...
</body>
</html>
```

Country codes can also be added to the language code in the lang attribute. So, the first two characters define the language of the HTML page, and the last two characters define the country.

The title Attribute

The title attribute defines some extra information about an element.

The value of the title attribute will be displayed as a tooltip when you mouse over the element:

Example

<p title="I'm a tooltip">This is a paragraph.</p>

[Try it Yourself »](#)

We Suggest: Always Use Lowercase Attributes

The HTML standard does not require lowercase attribute names.

The title attribute (and all other attributes) can be written with uppercase or lowercase like **title** or **TITLE**.

- 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 <img> specifies the path to the image to be displayed

- The width and height attributes of <img> provide size information for images

- The alt attribute of <img> 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 headings are titles or subtitles that you want to display on a webpage.

-

- **Example**

- **Heading 1**

- Heading 2

- **Heading 3**

- *Heading 4*

- **Heading 5**

- **Heading 6**

- <u>Try it Yourself »</u>

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- 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>Heading 1</h1>
  <h2>Heading 2</h2>
  <h3>Heading 3</h3>
  <h4>Heading 4</h4>

- `<h5>`Heading 5`</h5>`
- `<h6>`Heading 6`</h6>`
-

- **Note:** Browsers automatically add some white space (a margin) before and after a heading.

- Headings Are Important

- Search engines use the headings to index the structure and content of your web pages.

- Users often skim a page by its headings. It is important to use headings to show the document structure.

- `<h1>` headings should be used for main headings, followed by `<h2>` headings, then the less important `<h3>`, and so on.

- **Note:** Use HTML headings for headings only. Don't use headings to make text **BIG** or **bold**.

- Bigger Headings

- Each HTML heading has a default size. However, you can specify the size for any heading with the style attribute, using the CSS font-size property:

- **Example**

- `<h1 style="font-size:60px;">`Heading 1`</h1>`

HTML Tag Reference

W3Schools' tag reference contains additional information about HTML elements and their attributes.

Tag	Description
<p>	Defines a paragraph
<hr>	Defines a thematic change in the content
 	Inserts a single line break

<pre>	Defines pre-formatted text

- 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 Text Formatting Elements

Tag	Description
<b>	Defines bold text
<em>	Defines emphasized text
<i>	Defines a part of text in an alternate voice or mood
<small>	Defines smaller text
<strong>	Defines important text
<sub>	Defines subscripted text
<sup>	Defines superscripted text
<ins>	Defines inserted text
<del>	Defines deleted text
<mark>	Defines marked/highlighted text

HTML Style Tags

Tag	Description
<style>	Defines style information for an HTML document
<link>	Defines a link between a document and an external resource

- 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 <img> 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

HTML Link Tags

Tag	Description
<a>	Defines a hyperlink

HTML Links - Create Bookmarks

HTML links can be used to create bookmarks, so that readers can jump to specific parts of a web page.

Create a Bookmark in HTML

Bookmarks can be useful if a web page is very long.

To create a bookmark - first create the bookmark, then add a link to it.

When the link is clicked, the page will scroll down or up to the location with the bookmark.

Chapter Summary

- Use the HTML <img> element to define an image
- Use the HTML src attribute to define the URL of the image
- Use the HTML alt attribute to define an alternate text for an image, if it cannot be displayed
- Use the HTML width and height attributes or the CSS width and height properties to define the size of the image

- Use the CSS float property to let the image float to the left or to the right

HTML Image Tags

Tag	Description
<img>	Defines an image
<map>	Defines an image map
<area>	Defines a clickable area inside an image map
<picture>	Defines a container for multiple image resources

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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

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

- Use the HTML <ol> element to define an ordered list
- Use the HTML type attribute to define the numbering type
- Use the HTML <li> element to define a list item
- Lists can be nested
- List items can contain other HTML elements
- A block-level element always starts on a new line and takes up the full width available
- An inline element does not start on a new line and it only takes up as much width as necessary
- The <div> element is a block-level and is often used as a container for other HTML elements
- The <span> element is an inline container used to mark up a part of a text, or a part of a document

HTML Tags

Tag	Description

[<div>](#)	Defines a section in a document (block-level)
[<span>](#)	Defines a section in a document (inline)

Aligning <div> elements side by side

When building web pages, you often want to have two or more <div> elements side by side, like this:

Float

The CSS float property was not originally meant to align <div> elements side-by-side, but has been used for this purpose for many years.

The CSS float property is used for positioning and formatting content and allow elements float next to each other instead of on top of each other.

Inline-block

If you change the <div> element's display property from block to inline-block, the <div> elements will no longer add a line break before and after, and will be displayed side by side instead of on top of each other.

Flex

The CSS Flexbox Layout Module was introduced to make it easier to design flexible responsive layout structure without using float or positioning.

To make the CSS flex method work, surround the <div> elements with another <div> element and give it the status as a flex container.

Grid

The CSS Grid Layout Module offers a grid-based layout system, with rows and columns, making it easier to design web pages without having to use floats and positioning.

Sounds almost the same as flex, but has the ability to define more than one row and position each row individually.

The CSS grid method requires that you surround the <div> elements with another <div> element and give the status as a grid container, and you must specify the width of each column.

- The HTML class attribute specifies one or more class names for an element
- Classes are used by CSS and JavaScript to select and access specific elements
- The class attribute can be used on any HTML element
- The class name is case sensitive
- Different HTML elements can point to the same class name
- JavaScript can access elements with a specific class name with the getElementsByClassName() method

- The id attribute is used to specify a unique id for an HTML element
- The value of the id attribute must be unique within the HTML document
- The id attribute is used by CSS and JavaScript to style/select a specific element
- The value of the id attribute is case sensitive
- The id attribute is also used to create HTML bookmarks
- JavaScript can access an element with a specific id with the getElementById() method

- An HTML iframe is used to display a web page within a web page.

- The HTML <iframe> tag specifies an inline frame
- The src attribute defines the URL of the page to embed
- Always include a title attribute (for screen readers)
- The height and width attributes specify the size of the iframe
- Use border:none; to remove the border around the iframe

<iframe>	Defines an inline frame

HTML Script Tags

Tag	Description
<script>	Defines a client-side script
<noscript>	Defines an alternate content for users that do not support client-side scripts

- The <head> element is a container for metadata (data about data)

- The <head> element is placed between the <html> tag and the <body> tag

- The <title> element is required and it defines the title of the document

- The <style> element is used to define style information for a single document

- The <link> tag is most often used to link to external style sheets

- The <meta> element is typically used to specify the character set, page description, keywords, author of the document, and viewport settings

- The <script> element is used to define client-side JavaScripts

- The <base> element specifies the base URL and/or target for all relative URLs in a page

HTML head Elements

Tag	Description

[<head>](#)	Defines information about the document
[<title>](#)	Defines the title of a document
[<base>](#)	Defines a default address or a default target for all links on a page
[<link>](#)	Defines the relationship between a document and an external resource
[<meta>](#)	Defines metadata about an HTML document
[<script>](#)	Defines a client-side script
[<style>](#)	Defines style information for a document