



HTML FUNDAMENTALS

**SUBJECT: BASICS OF WEB DESIGN
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CONTENT

- Introduction to HTML
- Different versions of HTML
- Html vs html5
- HTML Elements and Attributes
- Basic Tags and Other Tags
- Text Formatting Tags
- HTML Block and Inline Element

Introduction to HTML

HTML stands for Hyper Text Markup Language which use for creating Web pages.

HTML describes the structure of a Web page.

HTML consists of a series of elements and that 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

<code><!DOCTYPE html></code>	Shows we are using HTML5
<code><html></code>	Represents Root of HTML document
<code><head></code>	Shows start of Doc, title etc
<code><title>Test Page</title></code>	Title of the page
<code></head></code>	End of head tag
<code><body></code>	Represents the Content
<code><!--Our code is written here --></code>	Comment
<code></body></code>	End of body tag
<code></html></code>	End of html tag

Versions of HTML

Year	Version
1991	HTML 1
1993	HTML +
1995	HTML 2.0
1997	HTML 3.2
1999	HTML 4.01
2000	XHTML 1.0
2014	HTML 5
2016	HTML 5.1
2017	HTML 5.1 [2 ND EDITION]
2017	HTML 5.2

HTML VS HTML5

HTML	HTML5
It didn't support audio and video without the use of flash player support.	It supports audio and video controls with the use of <audio> and <video> tags.
Does not allow JavaScript to run in browser.	Allows JavaScript to run in background. This is possible due to JS Web worker API in HTML5.
It does not allow drag and drop effects.	It allow drag and drop effects.
Not possible to draw shapes like circle, rectangle, triangle etc.	HTML5 allows to draw shapes like circle, rectangle, triangle etc.
It works with all old browsers.	It supported by all new browser like Firefox, Mozilla, Chrome, Safari, etc.
Elements like nav, header were not present.	New element like nav, header, footer etc.

HTML ELEMENTS

- HTML documents are made up by HTML elements.
- HTML elements are written with a **start** tag, with an **end** tag, with the **content** in between:

`<tagname>content</tagname>`

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

`<p>My first HTML paragraph.</p>`

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"**
- List:
 - href
 - src
 - alt
 - style
 - lang

The href Attribute

- The <a> tag defines a hyperlink. The href attribute specifies the URL of the page the link goes to:
- Example:
`Visit google`

The src Attribute

- The tag is used to embed an image in an HTML page. The src attribute specifies the path to the image to be displayed:
- Example:
``
- 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.google.com/images/img_girl.jpg"`.
 2. Relative URL - Links to an image that is hosted within the website.
 - 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"`.

The alt Attribute

- The required alt attribute for the 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:
``

The lang Attribute

- The <lang> tag is used 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>
```

The style Attribute

- The style attribute is used to add styles to an element, such as color, font, size, and more.
- The HTML style attribute has the following syntax:
`<tagname style="property:value;">`
- The property is a CSS property. The value is a CSS value.
- Example:
`<p style="color:red;">This is a red paragraph.</p>`

Properties:

➤ **Background Color :**

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

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

➤ **Text Color :**

The 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 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 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 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>`

➤ Border Color:

You can set the color of borders.

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

➤ Color Values:

In HTML, colors can also be specified using RGB values, HEX values.

Example: `<h1 style="background-color:rgb(255, 99, 71);">...</h1>`
`<h1 style="background-color:#ff6347;">...</h1>`

Basic Tags

<body>

You met the **<body>** element in the first example we created. Everything inside this element is shown inside the main browser window.

<head>

Before the **<body>** element you will often see a **<head>** element. This contains information *about* the page (rather than information that is shown within the main part of the browser window that is highlighted in blue on the opposite page). You will usually find a **<title>** element inside the **<head>** element.

<title>

The contents of the **<title>** element are either shown in the top of the browser, above where you usually type in the URL of the page you want to visit, or on the tab for that page (if your browser uses tabs to allow you to view multiple pages at the same time).

HTML Headings

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

Example:

<h1>This is a heading 1**</h1>**

<h2>This is a heading 2**</h2>**

<h3>This is a heading 3**</h3>**

<h4>This is a heading 4**</h4>**

<h5>This is a heading 5**</h5>**

<h6>This is a heading 6**</h6>**

Result of heading tag

This is heading 1

This is heading 2

This is heading 3

This is heading 4

This is heading 5

This is heading 6

HTML Paragraphs

- The HTML **<p>** element defines a **paragraph**.
- HTML documents are divided into paragraphs.

Example

<p>

This paragraph
contains a lot of lines
in the source code,
but the browser
ignores it.

</p>

```
<!DOCTYPE html>
<html>
<body>

<p>
This paragraph
contains a lot of lines
in the source code,
but the browser
ignores it.
</p>

</head>
</html>
```

This paragraph contains a lot of lines in the source code,
but the browser ignores it.

`<p>`

This paragraph
contains a lot of spaces
in the source code,
but the browser
ignores it.

`</p>`

Edit This Code:

See Result »

Result:

```
<!DOCTYPE html>
<html>
<body>

<p>
This paragraph
contains      a lot of spaces
in the source  code,
but the      browser
ignores it.
</p>

</body>
</html>
```

This paragraph contains a lot of spaces in the source code, but the browser ignores it.

HTML Links

- HTML links are defined with the **<a>** tag:

Example:

```
<a href="http://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.

Result of link tag:

Edit This Code:

See Result »

Result:

```
<!DOCTYPE html>
<html>
<body>

<a href="../index.html">This is a link</a>

</body>
</html>
```

[This is a link](#)

HTML Image

- HTML images are defined with the **** tag.
- The source file (**src**), alternative text (**alt**), and size (**width** and **height**) are provided as **attributes**:

Example:

```

```

```
<h2>Spectacular Mountain</h2>
```

```

```

META Tag

- The `<meta>` tag defines metadata about an HTML document. Metadata is data (information) about data.
- `<meta>` tags always go inside the `<head>` element, and are typically used to specify character set, page description, keywords, author of the document, and viewport settings.
- Metadata is used by browsers (how to display content or reload page), search engines (keywords), and other web services.

Example:

```
<head>  
  <meta charset="UTF-8">  
  <meta name="description" content="Free Web tutorials">  
  <meta name="keywords" content="HTML, CSS, JavaScript">  
  <meta name="author" content="John Doe">  
  <meta name="viewport" content="width=device-width, initial scale=1.0">  
</head>
```

Result of Meta tag:

```
<!DOCTYPE html>
<html>
<head>
  <meta charset="UTF-8">
  <meta name="description" content="Free Web
tutorials">
  <meta name="keywords"
content="HTML,CSS,XML,JavaScript">
  <meta name="author" content="John Doe">
  <meta name="viewport"
content="width=device-width, initial-
scale=1.0">
</head>
<body>

<p>All meta information goes in the head
section...</p>

</body>
</html>
```

All meta information goes in the head section...

ATTRIBUTES

Attribute	Value	Description
<u>charset</u>	<i>character_set</i>	Specifies the character encoding for the HTML document
<u>content</u>	<i>text</i>	Specifies the value associated with the http-equiv or name attribute
<u>http-equiv</u>	content-security-policy content-type default-style refresh	Provides an HTTP header for the information/value of the content attribute
<u>name</u>	application-name author description generator keywords viewport	Specifies a name for the metadata

Preformatted Tag

- The `<pre>` tag defines preformatted text.
- Text in a `<pre>` element is displayed in a fixed-width font, and the text preserves both spaces and line breaks. The text will be displayed exactly as written in the HTML source code.
- Example:

```
<pre>
write your name....
write your name....
write your name....
write your name....
</pre>
```

Example and Result:

```
<!DOCTYPE html>
<html>
<body>

<h1>The pre element</h1>

<pre>
Text in a pre element
is displayed in a fixed-width
font, and it preserves
both      spaces and
line breaks
</pre>

</body>
</html>
```

The pre element

Text in a pre element
is displayed in a fixed-width
font, and it preserves
both spaces and
line breaks

Comment Tag

- HTML comments are not displayed in the browser, but they can help document your HTML source code.
- You can add comments to your HTML source by using the following syntax:
`<!-- Write your comments here -->`

Example and Result

```
<!DOCTYPE html>
<html>
<body>

<!-- This is a comment -->
<p>This is a paragraph.</p>
<!-- Comments are not displayed in the
browser -->

</body>
</html>
```

This is a paragraph.

HTML TEXT FORMATING

- HTML contains several elements for defining text with a special meaning.
- Example:

This text is bold.

This text is italic.

This is _{subscript} and ^{superscript}.

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 `` and `` Elements:

- The HTML `` element defines bold text, without any extra importance.

Example:

``This text is bold``

- The HTML `` element defines text with strong importance. The content inside is typically displayed in bold.

Example:

``This text is important!``

HTML `<i>` and `` Elements

- The HTML `<i>` element defines a part of text in an alternate voice or mood. The content inside is typically displayed in italic.

Example :

`<i>`This text is italic`</i>`

- The HTML `` element defines emphasized text. The content inside is typically displayed in italic.

Example :

``This text is emphasized``

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<p>This text is normal.</p>
```

```
<p><i>This text is italic.</i></p>
```

```
<p><em>This text is emphasized.</em>  
</p>
```

```
</body>
```

```
</html>
```

This text is normal.

This text is italic.

This text is emphasized.

HTML <small> Element

- The HTML <small> element defines smaller text.

Example:

```
<small>This is some smaller text.</small>
```

```
<!DOCTYPE html>
<html>
<body>

<p>This is some normal text.</p>
<p><small>This is some smaller text.
</small></p>

</body>
</html>
```

This is some normal text.

This is some smaller text.

HTML Marked Formatting

The HTML **<mark>** element defines **marked** or highlighted text:

Example :

`<h2>HTML <mark>Marked</mark> Formatting</h2>`

```
<!DOCTYPE html>
<html>
<body>

<h2>HTML <mark>Marked</mark>
Formatting</h2>

</body>
</html>
```

**HTML Marked
Formatting**

HTML Deleted Formatting

The HTML **** element defines **deleted** (removed) text.

Example:

`<p>My favorite color is blue red.</p>`

```
<!DOCTYPE html>
<html>
<body>
<p>The del element represents
deleted (removed) text.</p>
<p>My favorite color is
<del>blue</del> red.</p>
</body>
</html>
```

The del element represents deleted (removed) text.

My favorite color is ~~blue~~ red.

HTML SUBSCRIPT FORMATTING

The HTML **<sub>** element defines **subscripted** text.

Example:

<p>This is **_{**subscripted**}** text.**</p>**

```
<!DOCTYPE html>
<html>
<body>
<p>This is <sub>subscripted</sub>
text.</p>
</body>
</html>
```

This is subscripted text.

HTML Superscript Formatting

The HTML **<sup>** element defines **superscripted** text.

Example:

`<p>This is ^{superscripted} text.</p>`

```
<!DOCTYPE html>
<html>
<body>
<p>This is
<sup>superscripted</sup> text.</p>
</body>
</html>
```

This is ^{superscripted} text.

HTML INSERTED FORMATTING

The HTML **<ins>** element defines **inserted** (added) text.

Example

<p>My favorite **<ins>**color**</ins>** is red.**</p>**

```
<!DOCTYPE html>
<html>
<body>
<p>The ins element represent
inserted (added) text.</p>
<p>My favorite <ins>color</ins> is
red.</p>
</body>
</html>
```

The ins element represent inserted (added) text.

My favorite color is red.

HTML Block and Inline Elements

Block-level Elements:

- A block-level element always starts on a new line, and the browsers automatically add some space (a margin) before and after the element.
- A block-level element always takes up the full width available (stretches out to the left and right as far as it can).
- Two commonly used block elements are: `<p>` and `<div>`.
- The `<p>` element defines a paragraph in an HTML document.
- The `<div>` element defines a division or a section in an HTML document.

Here are the block-level elements in HTML:

<address>	<article>	<aside>	<blockquote>
<canvas>	<dd>	<div>	<dl>
<dt>	<fieldset>	<figcaption>	<figure>
<footer>	<form>	<h1>-<h6>	<header>
<hr>		<main>	<nav>
<noscript>		<p>	<pre>
<section>	<table>	<tfoot>	
<video>			

Example :

`<p>Hello World</p>`

`<div>Hello World</div>`

```
<!DOCTYPE html>
<html>
<body>
<p style="border: 1px solid
black">Hello World</p>
<div style="border: 1px solid
black">Hello World</div>
<p>The P and the DIV elements are
both block elements, and they will
always start on a new line and
take up the full width available
(stretches out to the left and
right as far as it can).</p>
</body>
</html>
```

Hello World

Hello World

The P and the DIV elements are both block elements, and they will always start on a new line and take up the full width available (stretches out to the left and right as far as it can).

Inline Elements:

- An inline element does not start on a new line.
- An inline element only takes up as much width as necessary.
- This is a `` element inside a paragraph.
- Example:

``Hello World``

```
<!DOCTYPE html>
<html>
<body>
<p>This is an inline span <span
style="border: 1px solid
black">Hello World</span> element
inside a paragraph.</p>
<p>The SPAN element is an inline
element, and will not start on a
new line and only takes up as much
width as necessary.</p>
</body>
</html>
```

This is an inline span Hello World element inside a paragraph.

The SPAN element is an inline element, and will not start on a new line and only takes up as much width as necessary.

Here are the inline elements in HTML:

<a>	<abbr>	<acronym>	
<bdo>	<big>	 	<button>
<cite>	<code>	<dfn>	
<i>		<input>	<kbd>
<label>	<map>	<object>	<output>
<q>	<samp>	<script>	<select>
<small>			<sub>
<sup>	<textarea>	<time>	<tt>
<var>			

Note: An inline element cannot contain a block-level element!

Special character

- HTML Entities, Symbol, Emojis, Charset included in special characters.

HTML Entities:

- Some characters are reserved in HTML.
- If you use the less than (<) or greater than (>) signs in your text, the browser might mix them with tags.
- Character entities are used to display reserved characters in HTML.
- A character entity looks like this: &entity_name; OR &#entity_number;
- To display a less than sign (<) we must write: < or <

Note: Entity names are case sensitive.

Some Useful HTML Character Entities

Result	Description	Entity Name	Entity Number
	non-breaking space	 	
<	less than	<	<
>	greater than	>	>
&	ampersand	&	&
"	double quotation mark	"	"
'	single quotation mark (apostrophe)	'	'
¢	cent	¢	¢
£	pound	£	£
¥	yen	¥	¥
€	euro	€	€
©	copyright	©	©
®	registered trademark	®	®

➤ **HTML Symbol Entities:**

- HTML entities were described in the previous chapter.
- Many mathematical, technical, and currency symbols, are not present on a normal keyboard.
- To add such symbols to an HTML page, you can use the entity name or the entity number (a decimal or a hexadecimal reference) for the symbol.

➤ **Example:**

Display the euro sign, €, with an entity name, a decimal, and a hexadecimal value:

<p>I will display €</p>

<p>I will display €</p>

<p>I will display €</p>

Will display as:

I will display €

I will display €

I will display €

Some Mathematical Symbols Supported by HTML

Char	Number	Entity	Description
\forall	∀	∀	FOR ALL
∂	∂	∂	PARTIAL DIFFERENTIAL
\exists	∃	∃	THERE EXISTS
\emptyset	∅	∅	EMPTY SETS
∇	∇	∇	NABLA
\in	∈	∈	ELEMENT OF
\notin	∉	∉	NOT AN ELEMENT OF
\ni	∋	∋	CONTAINS AS MEMBER
\prod	∏	∏	N-ARY PRODUCT
\sum	∑	∑	N-ARY SUMMATION