

HTML stands for Hyper Text Markup Language, which is the most widely used language on Web to develop web pages. HTML was created by Berners-Lee in late 1991 but "HTML 2.0" was the first standard HTML specification which was published in 1995. HTML 4.01 was a major version of HTML and it was published in late 1999. Though HTML 4.01 version is widely used but currently we are having HTML-5 version which is an extension to HTML 4.01, and this version was published in 2012.

Why to Learn HTML?

Originally, **HTML** was developed with the intent of defining the structure of documents like headings, paragraphs, lists, and so forth to facilitate the sharing of scientific information between researchers. Now, HTML is being widely used to format web pages with the help of different tags available in HTML language.

HTML is a MUST for students and working professionals to become a great Software Engineer specially when they are working in Web Development Domain. I will list down some of the key advantages of learning HTML:

- Create Web site You can create a website or customize an existing web template if you know HTML well.
- **Become a web designer** If you want to start a carrer as a professional web designer, HTML and CSS designing is a must skill.
- Understand web If you want to optimize your website, to boost its speed and performance, it is good to know HTML to yield best results.
- **Learn other languages** Once you understands the basic of HTML then other related technologies like javascript, php, or angular are become easier to understand.

Applications of HTML

As mentioned before, HTML is one of the most widely used language over the web. I'm going to list few of them here:

- **Web pages development** HTML is used to create pages which are rendered over the web. Almost every page of web is having html tags in it to render its details in browser.
- **Internet Navigation** HTML provides tags which are used to navigate from one page to another and is heavily used in internet navigation.
- **Responsive UI** HTML pages now-a-days works well on all platform, mobile, tabs, desktop or laptops owing to responsive design strategy.
- **Offline support** HTML pages once loaded can be made available offline on the machine without any need of internet.
- **Game development** HTML5 has native support for rich experience and is now useful in gaming developent arena as well.

HTML stands for $\underline{\mathbf{H}}$ yper $\underline{\mathbf{t}}$ ext $\underline{\mathbf{M}}$ arkup $\underline{\mathbf{L}}$ anguage, and it is the most widely used language to write Web Pages.

- **Hypertext** refers to the way in which Web pages (HTML documents) are linked together. Thus, the link available on a webpage is called Hypertext.
- As its name suggests, HTML is a **Markup Language** which means you use HTML to simply "mark-up" a text document with tags that tell a Web browser how to structure it to display.

Originally, HTML was developed with the intent of defining the structure of documents like headings, paragraphs, lists, and so forth to facilitate the sharing of scientific information between researchers.

Now, HTML is being widely used to format web pages with the help of different tags available in HTML language.

Basic HTML Document

In its simplest form, following is an example of an HTML document –

HTML Tags

As told earlier, HTML is a markup language and makes use of various tags to format the content. These tags are enclosed within angle braces <Tag Name>. Except few tags, most of the tags have their corresponding closing tags. For example, <html> has its closing tag </html> and <body> tag has its closing tag </hody> tag etc.

Above example of HTML document uses the following tags –

Sr.No

Tag & Description

<html>

This tag encloses the complete HTML document and mainly comprises of document header which is represented by <head>...</head> and document body which is represented by <body>...</body> tags.

<head>

This tag represents the document's header which can keep other HTML tags like <title>, keep etc.

<title>

3

The <title> tag is used inside the <head> tag to mention the document title.

<body>

4

This tag represents the document's body which keeps other HTML tags like <h1>, <div>, etc.

<h1>

5

This tag represents the heading.

>

6

This tag represents a paragraph.

To learn HTML, you will need to study various tags and understand how they behave, while formatting a textual document. Learning HTML is simple as users have to learn the usage of different tags in order to format the text or images to make a beautiful webpage.

World Wide Web Consortium (W3C) recommends to use lowercase tags starting from HTML 4.

HTML Document Structure

A typical HTML document will have the following structure –

We will study all the header and body tags in subsequent chapters, but for now let's see what is document declaration tag.

Heading Tags

Any document starts with a heading. You can use different sizes for your headings. HTML also has six levels of headings, which use the elements <h1>, <h2>, <h3>, <h4>, <h5>, and <h6>. While displaying any heading, browser adds one line before and one line after that heading.

```
<html>
<head>
    <title>Heading Example</title>
</head>

<body>
    <h1>This is heading 1</h1>
    <h2>This is heading 2</h2>
    <h3>This is heading 3</h3>
    <h4>This is heading 4</h4>
    <h5>This is heading 5</h5>
    <h6>This is heading 6</h6>
</body>

</html>
```

Paragraph Tag

The tag offers a way to structure your text into different paragraphs. Each paragraph of text should go in between an opening and a closing tag as shown below in the example –

Example

Line Break Tag

Whenever you use the </br> element, anything following it starts from the next line. This tag is an example of an **empty** element, where you do not need opening and closing tags, as there is nothing to go in between them.

Preserve Formatting

Sometimes, you want your text to follow the exact format of how it is written in the HTML document. In these cases, you can use the preformatted tag **pre>**.

Any text between the opening tag and the closing tag will preserve the formatting of the source document.

HTML - Formatting

If you use a word processor, you must be familiar with the ability to make text bold, italicized, or underlined; these are just three of the ten options available to indicate how text can appear in HTML and XHTML.

Bold Text

Anything that appears within **\(b > ... \(/ b > \)** element, is displayed in bold as shown below **-**

Example

The following word uses a **bold** typeface.

Italic Text

Anything that appears within <i>...</i> element is displayed in italicized as shown below –

Example

```
<body>
     The following word uses an <i>italicized</i> typeface.
</body>
```

This will produce the following result –

The following word uses an italicized typeface.

Underlined Text

Anything that appears within <u>...</u> element, is displayed with underline as shown below –

Example

```
<body>
     The following word uses an <u>underlined</u> typeface.
</body>
```

This will produce the following result –

The following word uses an underlined typeface.

Strike Text

Anything that appears within **<strike>...</strike>** element is displayed with strikethrough, which is a thin line through the text as shown below –

Example

```
<body>
     The following word uses a <strike>strikethrough</strike> typeface.
</body>
```

This will produce the following result –

The following word uses a strikethrough typeface.

Teletype or Monospaced Font

The content of a <tt>...</tt> element is written in monospaced font. Most of the fonts are known as variable-width fonts because different letters are of different widths (for example, the letter 'm' is wider than the letter 'i'). In a monospaced font, however, each letter has the same width.

Example

```
<body>
  The following word uses a <tt>monospaced</tt> typeface.
</body>
```

This will produce the following result –

The following word uses a monospaced typeface.

Superscript Text

The content of a **^{...}** element is written in superscript; the font size used is the same size as the characters surrounding it but is displayed half a character's height above the other characters.

Example

```
<body>
  The following word uses a <sup>superscript</sup> typeface.
</body>
```

This will produce the following result –

The following word uses a subscript typeface.

Marked Text

Anything that appears with-in **\mark>...\/mark>** element, is displayed as marked with yellow ink.

Example

```
<body>
  The following word has been <mark>marked</mark> with yellow
</body>
```

This will produce the following result –

The following word has been marked with yellow

Text Abbreviation

You can abbreviate a text by putting it inside opening <abbr> and closing </abbr> tags. If present, the title attribute must contain this full description and nothing else.

Example

```
<body>
  My best friend's name is <abbr title = "Abhishek">Abhy</abbr>.
</body>
```

This will produce the following result –

My best friend's name is Abhy.

Text Direction

The **<bdo>...</bdo>** element stands for Bi-Directional Override and it is used to override the current text direction.

Example

```
<body>
    This text will go left to right.
    <bdo dir = "rtl">This text will go right to left.</bdo>
</body>
```

This will produce the following result –

This text will go left to right.

This text will go right to left.

Quoting Text

When you want to quote a passage from another source, you should put it in between **<blockquote>...</blockquote>** tags.

Text inside a <blockquote> element is usually indented from the left and right edges of the surrounding text, and sometimes uses an italicized font.

Example

This will produce the following result –

The following description of XHTML is taken from the W3C Web site:

XHTML 1.0 is the W3C's first Recommendation for XHTML, following on from earlier work on HTML 4.01, HTML 4.0, HTML 3.2 and HTML 2.0.

HTML - Images

Images are very important to beautify as well as to depict many complex concepts in simple way on your web page. This tutorial will take you through simple steps to use images in your web pages.

Insert Image

You can insert any image in your web page by using **img** tag. Following is the simple syntax to use this tag.

```
<img src = "Image URL" or path details>
```

The tag is an empty tag, which means that, it can contain only list of attributes and it has no closing tag.

Example

```
<body>
<img src= "D:/New Folder/image.jpg" alt = "Test Image" border = "3"/>
Or
<img src= "https://tinyurl.com/ksumw84c" alt = "Test Image" border = "3">
</body>
```

Set Image Alignment

By default, image will align at the left side of the page, but you can use **align** attribute to set it in the center or right.

```
<body>
<img src= "D:/New Folder/image.jpg" alt = "Test Image" border = "3" align="center">
```

Or

```
<img src= "https://tinyurl.com/ksumw84c" alt = "Test Image" border = "3" align="center">
</body>
```

HTML - Tables

The HTML tables allow web authors to arrange data like text, images, links, other tables, etc. into rows and columns of cells.

The HTML tables are created using the tag in which the **>** tag is used to create table rows and tag is used to create data cells. The elements under are regular and left aligned by default

Colspan and Rowspan Attributes

You will use **colspan** attribute if you want to merge two or more columns into a single column. Similar way you will use **rowspan** if you want to merge two or more rows.

Example

```
<body>
  >
     Column 1
     Column 2
     Column 3
   Row 1 Cell 1
     Row 1 Cell 2
     Row 1 Cell 3
   Row 2 Cell 2
     Row 2 Cell 3
   Row 3 Cell 1
   </body>
```

This will produce the following result –

Column 1	Column 2	Column 3
----------	----------	----------

```
        Row 1 Cell 1
        Row 1 Cell 2
        Row 1 Cell 3

        Row 2 Cell 2
        Row 2 Cell 3
```

Tables Backgrounds

You can set table background using one of the following two ways -

- **bgcolor** attribute You can set background color for whole table or just for one cell.
- background attribute You can set background image for whole table or just for one cell.

HTML Code:

```
Or
```

Table Height and Width

You can set a table width and height using **width** and **height** attributes. You can specify table width or height in terms of pixels or in terms of percentage of available screen area.

HTML Code:

Table Caption

The **caption** tag will serve as a title or explanation for the table and it shows up at the top of the table. This tag is deprecated in newer version of HTML/XHTML.

Example

This is the caption		
row 1, column 1	row 1, column 2	
row 2, column 1	row 2, column 2	

HTML - Lists

HTML offers web authors three ways for specifying lists of information. All lists must contain one or more list elements. Lists may contain –

- **An unordered list. This will list items using plain bullets.**
- An ordered list. This will use different schemes of numbers to list your items.

HTML Unordered Lists

An unordered list is a collection of related items that have no special order or sequence. This list is created by using HTML **tag.** Each item in the list is marked with a bullet.

Example

- Beetroot
- Ginger
- Potato
- Radish

The type Attribute

You can use **type** attribute for tag to specify the type of bullet you like. By default, it is a disc. Following are the possible options –

HTML Ordered Lists

If you are required to put your items in a numbered list instead of bulleted, then HTML ordered list will be used. This list is created by using **tag.** The numbering starts at one and is incremented by one for each successive ordered list element tagged with

Example

- 1. Beetroot
- 2. Ginger
- 3. Potato
- 4. Radish

The type Attribute

You can use **type** attribute for tag to specify the type of numbering you like. By default, it is a number. Following are the possible options –

```
 - Default-Case Numerals.
 - Upper-Case Numerals.
 - Lower-Case Numerals.
 - Upper-Case Letters.
 - Lower-Case Letters.
```

HTML - Text Links

A webpage can contain various links that take you directly to other pages and even specific parts of a given page. These links are known as hyperlinks.

Hyperlinks allow visitors to navigate between Web sites by clicking on words, phrases, and images. Thus you can create hyperlinks using text or images available on a webpage.

Example

The target Attribute

We have used **target** attribute in our previous example. This attribute is used to specify the location where linked document is opened. Following are the possible options –

Sr.No

Option & Description

₁ _blank

Opens the linked document in a new window or tab.

2 _self

Opens the linked document in the same frame.

₃ _parent

Opens the linked document in the parent frame.

_**top**

Opens the linked document in the full body of the window.

targetframe 5

Opens the linked document in a named targetframe.

Example

Result:

Click any of the following links

Opens in New | Opens in Self | Opens in Parent | Opens in Body

HTML - Image Links

We have seen how to create hypertext link using text and we also learnt how to use images in our webpages. Now, we will learn how to use images to create hyperlinks.

Example

HTML Email Tag

HTML <a> tag provides you option to specify an email address to send an email. While using <a> tag as an email tag, you will use **mailto: email address** along with *href* attribute. Following is the syntax of using **mailto** instead of using http.

```
<a href = "mailto: abc@example.com">Send Email</a>
```

Html Background with Colors

The **bgcolor** attribute is used to control the background of an HTML element, specifically page body and table backgrounds.

Following is the syntax to use bgcolor attribute with any HTML tag.

```
<tagname bgcolor = "color_value"...>
```

Html Background with Images

The **background** attribute can also be used to control the background of an HTML element, specifically page body and table backgrounds. You can specify an image to set background of your HTML page or table.

HTML Colors - Color Names

You can specify direct a color name to set text or background color. W3C has listed 16 basic color names that will validate with an HTML validator but there are over 200 different color names supported by major browsers.

W3C Standard 16 Colors

Here is the list of W3C Standard 16 Colors names and it is recommended to use them.



Example

Here are the examples to set background of an HTML tag by color name –

<body>

<fort color= "red"> Red text</fort>

 Red text

 Red text

Browser Safe Colors

Here is the list of 216 colors which are supposed to be safest and computer independent colors. These colors very from hexa code 000000 to FFFFFF and they will be supported by all the computers having 256 color palette.

000000	000033	000066	000099	0000CC	0000FF
003300	003333	003366	003399	0033CC	0033FF
006600	006633	006666	006699	0066CC	0066FF
009900	009933	009966	009999	0099CC	0099FF
00CC00	00CC33	00CC66	00CC99	00CCCC	00CCFF
00FF00	00FF33	00FF66	00FF99	00FFCC	00FFFF
330000	330033	330066	330099	3300CC	3300FF
333300	333333	333366	333399	3333CC	3333FF
336600	336633	336666	336699	3366CC	3366FF
339900	339933	339966	339999	3399CC	3399FF
33CC00	33CC33	33CC66	33CC99	33CCCC	33CCFF
33FF00	33FF33	33FF66	33FF99	33FFCC	33FFFF
660000	660033	660066	660099	6600CC	6600FF
663300	663333	663366	663399	6633CC	6633FF
666600	666633	666666	666699	6666CC	6666FF

669900	669933	669966	669999	6699CC	6699FF
66CC00	66CC33	66CC66	66CC99	66CCCC	66CCFF
66FF00	66FF33	66FF66	66FF99	66FFCC	66FFFF
990000	990033	990066	990099	9900CC	9900FF
993300	993333	993366	993399	9933CC	9933FF
996600	996633	996666	996699	9966CC	9966FF
999900	999933	999966	999999	9999CC	9999FF
99CC00	99CC33	99CC66	99CC99	99CCCC	99CCFF
99FF00	99FF33	99FF66	99FF99	99FFCC	99FFFF
CC0000	CC0033	CC0066	CC0099	CC00CC	CC00FF
CC3300	CC3333	CC3366	CC3399	CC33CC	CC33FF
CC6600	CC6633	CC6666	CC6699	CC66CC	CC66FF
CC9900	CC9933	CC9966	CC9999	CC99CC	CC99FF
CCCC00	CCCC33	CCCC66	CCCC99	CCCCCC	CCCCFF
CCFF00	CCFF33	CCFF66	CCFF99	CCFFCC	CCFFFF
FF0000	FF0033	FF0066	FF0099	FF00CC	FF00FF
FF3300	FF3333	FF3366	FF3399	FF33CC	FF33FF
FF6600	FF6633	FF6666	FF6699	FF66CC	FF66FF
FF9900	FF9933	FF9966	FF9999	FF99CC	FF99FF
FFCC00	FFCC33	FFCC66	FFCC99	FFCCCC	FFCCFF
FFFF00	FFFF33	FFFF66	FFFF99	FFFFCC	FFFFFF

HTML - Forms

HTML Forms are required, when you want to collect some data from the site visitor. For example, during user registration you would like to collect information such as name, email address, credit card, etc.

HTML Form Controls

There are different types of form controls that you can use to collect data using HTML form –

- Text Input Controls
- Checkboxes Controls
- Radio Box Controls
- Select Box Controls
- File Select boxes
- Hidden Controls
- Clickable Buttons
- Submit and Reset Button

Text Input Controls

There are three types of text input used on forms –

- Single-line text input controls This control is used for items that require only one line of user input, such as search boxes or names. They are created using HTML <input> tag.
- **Password input controls** This is also a single-line text input but it masks the character as soon as a user enters it. They are also created using HTMl <input> tag.
- Multi-line text input controls This is used when the user is required to give details that may be longer than a single sentence. Multi-line input controls are created using HTML <textarea> tag.

Single-line text input controls

Example

This will produce the following result –

First name:

Attributes

Following is the list of attributes for <input> tag for creating text field.

Sr.No

1

Attribute & Description

type

Indicates the type of input control and for text input control it will be set to **text**.

name

2

Used to give a name to the control which is sent to the server to be recognized and get the value.

value

3

This can be used to provide an initial value inside the control.

size

4

Allows to specify the width of the text-input control in terms of characters.

maxlength

5

Allows to specify the maximum number of characters a user can enter into the text box.

Password input controls

Example

This will produce the following result –

User ID :	user	
Password:	******	

Multiple-Line Text Input Controls

Example

This will produce the following result –



Checkbox Control

Checkboxes are used when more than one option is required to be selected. They are also created using HTML <input> tag but type attribute is set to **checkbox.**

Example

Radio Button Control

Radio buttons are used when out of many options, just one option is required to be selected. They are also created using HTML <input> tag but type attribute is set to **radio**.

Example

Select Box Control

A select box, also called drop down box which provides option to list down various options in the form of drop down list, from where a user can select one or more options.

Example

This will produce the following result –



File Upload Box

If you want to allow a user to upload a file to your web site, you will need to use a file upload box, also known as a file select box. This is also created using the <input> element but type attribute is set to **file**.

Example

Button Controls

There are various ways in HTML to create clickable buttons. You can also create a clickable button using <input>tag by setting its type attribute to **button**. The type attribute can take the following values –

Sr.No

Type & Description

submit 1

This creates a button that automatically submits a form.

reset 2

This creates a button that automatically resets form controls to their initial values.

₃ button

This creates a button that is used to trigger a client-side script when the user clicks that button.

4 image

This creates a clickable button but we can use an image as background of the button.

Example

The <marquee> Tag

An HTML marquee is a scrolling piece of text displayed either horizontally across or vertically down your webpage depending on the settings. This is created by using HTML <marquees> tag.

The <marquee> Tag Attributes

Following is the list of important attributes which can be used with <marquee> tag.

Sr.No **Attribute & Description** width 1 This specifies the width of the marquee. This can be a value like 10 or 20% etc. height 2 This specifies the height of the marquee. This can be a value like 10 or 20% etc. direction 3 This specifies the direction in which marquee should scroll. This can be a value like up, down, left or right. behavior 4 This specifies the type of scrolling of the marquee. This can have a value like *scroll*, *slide* and *alternate*. scrolldelay 5 This specifies how long to delay between each jump. This will have a value like 10 etc. scrollamount 6 This specifies the speed of marquee text. This can have a value like 10 etc. loop 7 This specifies how many times to loop. The default value is INFINITE, which means that the marquee loops endlessly. bgcolor 8 This specifies background color in terms of color name or color hex value. **hspace** 9 This specifies horizontal space around the marquee. This can be a value like 10 or 20% etc. vspace 10

This specifies vertical space around the marquee. This can be a value like 10 or 20% etc.

Examples