Web programming

Web programming refers to the writing, markup and coding involved in Web development, which includes Web content, Web client and server scripting and network security. The most common languages used for Web programming are XML, HTML, JavaScript, Perl 5 and PHP. Web programming is different from just programming, which requires interdisciplinary knowledge on the application area, client and server scripting, and database technology.

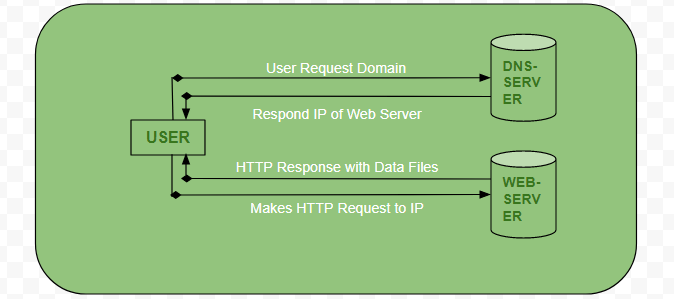
Client-Server Architecture:

* **Client:** When we talk the word **Client**, it mean to talk of a person or an organization using a particular service. Similarly in the digital world a **Client** is a computer (**Host**) i.e. capable of receiving information or using a particular service from the service providers (**Servers**).
* **Servers:** Similarly, when we talk the word **Servers**, It mean a person or medium that serves something. Similarly in this digital world a **Server** is a remote computer which provides information (data) or access to particular services.



**How the browser interacts with the servers ?**  
There are few steps to follow to interacts with the servers a client.

* User enters the **URL**(Uniform Resource Locator) of the website or file. The Browser then requests the **DNS**(DOMAIN NAME SYSTEM) Server.
* **DNS Server** lookup for the address of the **WEB Server**.
* **DNS Server** responds with the **IP address** of the **WEB Server**.
* Browser sends over an **HTTP/HTTPS** request to **WEB Server’s IP** (provided by **DNS server**).
* Server sends over the necessary files of the website.
* Browser then renders the files and the website is displayed. This rendering is done with the help of **DOM** (Document Object Model) interpreter, **CSS** interpreter and **JS Engine** collectively known as the **JIT** or (Just in Time) Compilers.



Difference between HTML and HTML5

What is html

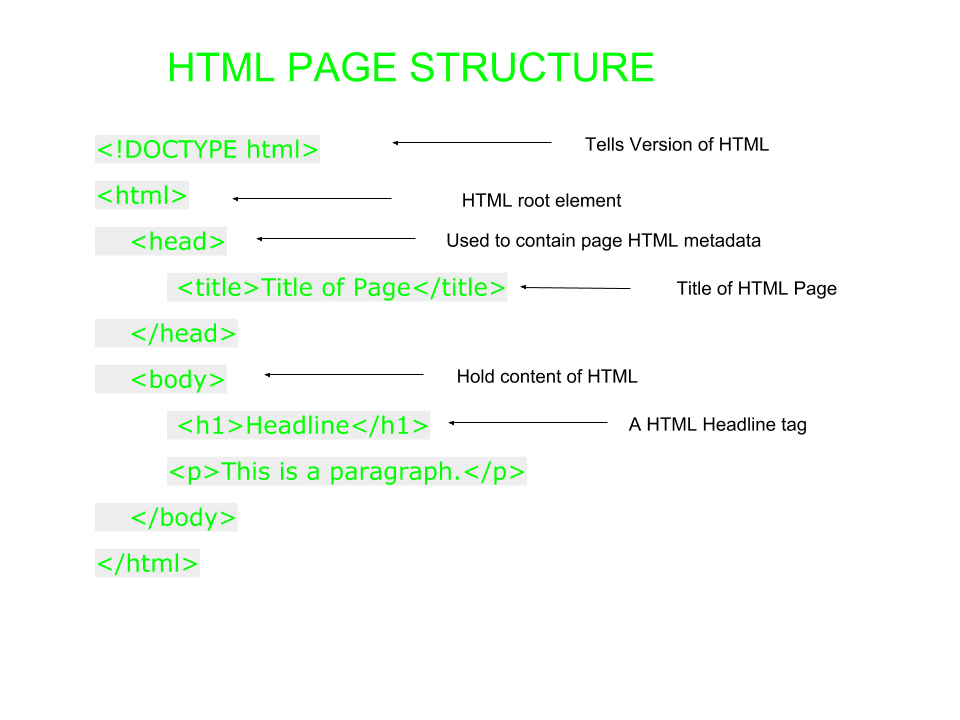
**HTML** stands for Hyper Text Markup Language.

Hypertext defines the link between the web pages. Markup language is used to define the text document within tag which defines the structure of web pages.

Language uses tags to define what manipulation has to be done on the text.

HTML 5 is the fifth and current version of HTML. It has improved the markup available for documents and has introduced application programming interfaces(API) and Document Object Model(DOM).

|  |  |
| --- | --- |
| **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. |
| It uses cookies to store temporary data. | It uses SQL databases and application cache to store offline data. |
| 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. |
| Vector graphics is possible in HTML with the help of various technologies such as VML, Silver-light, Flash, etc. | Vector graphics is additionally an integral a part of HTML5 like SVG and canvas. |
| It does not allow drag and drop effects. | It allows 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. |
| Older version of HTML are less mobile-friendly. | HTML5 language is more mobile-friendly. |
| Doctype declaration is too long and complicated. | Doctype declaration is quite simple and easy. |
| Elements like nav, header were not present. | New element for web structure like nav, header, footer etc. |
| Character encoding is long and complicated. | Character encoding is simple and easy. |
| It is almost impossible to get true GeoLocation of user with the help of browser. | One can track the GeoLocation of a user easily by using JS GeoLocation API. |
| It can not handle inaccurate syntax. | It is capable of handling inaccurate syntax. |
| Attributes like charset, async and ping are absent in HTML. | Attributes of charset, async and ping are a part of HTML 5. |

**<DOCTYPE! html>:** This tag is used to tells the HTML version. This currently tells that the version is HTML 5.

**<DOCTYPE! html>:** This tag is used to tells the HTML version. This currently tells that the version is HTML 5.

**<body>:** Body tag is used to enclosed all the data which a web page has from texts to links. All of the content that you see rendered in the browser is contained within this element.

<!DOCTYPE html>

<html>

    <head>

    <title>demo web page</title>

    <style>

        h1 {

            color:#009900;

            font-size:46px;

        }

        p {

            font-size:17px;

            margin-top:-25px;

            margin-left:15px;

        }

    </style>

    </head>

    <body>

        <h1>hello</h1>

        <p>A computer science portal for geeks</p>

    </body>

</html>

**Features of HTML:**

* It is easy to learn and easy to use.
* It is platform independent.
* Images, video and audio can be added to a web page.
* Hypertext can be added to text.
* It is a markup language.

**Features of html5**

* It has introduced new multimedia features which supports audio and video controls by using <audio> and <video> tags.
* There are new graphics elements including vector graphics and tags.
* Enrich semantic content by including <header> <footer>, <article>, <section> and <figure> are added.
* Drag and Drop- The user can grab an object and drag it further dropping it on a new location.
* Geo-location services- It helps to locate the geographical location of a client.
* Web storage facility which provides web application methods to store data on web browser.
* Uses SQL database to store data offline.
* Allows to draw various shapes like triangle, rectangle, circle, etc.
* Capable of handling incorrect syntax.
* Easy DOCTYPE declaration i.e. <!doctype html>
* Easy character encoding i.e. <meta charset=”UTF-8″>

**Advantages:**

 All browsers supported.

 More device friendly.

 Easy to use and implement.

 HTML 5 in integration with CSS, JavaScript, etc can help build beautiful websites.

**Disadvantages:**

* HTML can create only static webpages so for dynamic web page other languages have to be used.
* Large amount of code has to be written to create a simple web page.
* Security feature is not good.

The basic elements of an HTML page are:

* A text header, denoted using the <h1>, <h2>, <h3>, <h4>, <h5>, <h6> tags.
* A paragraph, denoted using the <p> tag.
* A horizontal ruler, denoted using the <hr> tag.
* A link, denoted using the <a> (anchor) tag.
* A list, denoted using the <ul> (unordered list), <ol> (ordered list) and <li> (list element) tags.
* An image, denoted using the <img> tag
* A divider, denoted using the <div> tag
* A text span, denoted using the <span> tag

Example1

<!DOCTYPE html>

<html>

<head>

<title>Example</title>

</head>

<body>

<p>This is an example of a simple HTML page with one paragraph.</p>

</body>

* </html>

## Exercise

1. Add an HTML <title> tag with the text "Hello, World!"
2. Add a paragraph (<p> tag) to the body with the text "Hello, World!"

Example3:

<!DOCTYPE html>

<html>

<head>

</head>

<body>

<h1>My First Page</h1>

<p>This is my first page.</p>

<h2>A secondary header.</h2>

<p>Some more text.</p>

</body>

</html>

### Horizontal rulers

A horizontal ruler <hr> tag acts as a simple separator between page sections.

<!DOCTYPE html>

<html>

<head>

</head>

<body>

<h1>My First Page</h1>

<p>This is my first page.</p>

<hr/>

<p>This is the footer - all rights are reserved to me.</p>

</body>

</html>

## Exercise

1. Add an HTML <h1> tag with the text "I'm the most important!"
2. Add an HTML <h2> tag with the text "I'm less important!"
3. Add an HTML <h6> tag with the text "I'm the least important!"

**Emphasis tag:** It is used to renders as emphasized text.

**Syntax:** <em> Statements... </em>

**Bold tag:** It is used to specify bold content in html document.

**Syntax:** <b> Statements... </b>

**Italic tag:** It is used to write the content in italic format.

**Syntax:**

<i> Statements... </i>

**Small (text) tag:** It is used to set the small font size of the content.

**Syntax:**

<small> Statements... </small>

**Small (text) tag:** It is used to set the small font size of the content.

**Syntax:**

<small> Statements... </small>

**Small (text) tag:** It is used to set the small font size of the content.

**Syntax:**

<small> Statements... </small>

**scrolling Text tag:** It is used to scroll the text or image content.

**Syntax:**

<marquee> Statements... </marquee>

<marquee bgcolor="#cccccc" loop="-1"

scrollamount="2" width="100%">

Example Marquee</marquee>

**Center tag:** It is used to set the content into the center.

**Syntax:**

<center> Statements... </center>

**Font tag:** It is used to specify the font size, font color and font-family in html document.

**Syntax:**

<font> Statements ... <font>

<font face="Times New Roman">Example</font>

**Empty (Non-Container) Tags:**

* **Line break tag:** It is used to break the line.

**Syntax:**

<br>

**Image tag:** It is used to add image element in html document.

**Syntax:**

<img>

**Horizontal rule tag:** It is used to display the horizontal line in html document.

**Syntax:**

<hr/>

**Meta tag:**

The metadata means data about data. The <meta> tag in HTML provides information about HTML Document or in simple words, it provides important information about a document. These tags are basically used to add name/value pairs to describe properties of HTML document, such as expiry date, author name, list of keywords, document author, etc. This tag is an empty element because it only has an opening tag and no closing tag but it carries information within its attributes. A web document can include one or more meta tag depending on information, but in general, it doesn’t affect the physical appearance of the document.

<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">

<meta http-equiv = "refresh" content = "8" />  
</head>

The **<blockquote> tag** in HTML is used to display the long quotations (a section that is quoted from another source). It changes the alignment to make it unique from others. It contains both opening and closing tags.

**Syntax:**

<blockquote>

<p>The quote is input here.</p>

</blockquote>

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport"

content="width=device-width, initial-scale=1.0">

<title>Document</title>

</head>

<body>

<b>cse</b>

<blockquote>

<p>AComputer Science portal for geeks.

It contains well written, well thought

and well explained computer science and

programming articles, quizzes and many more,

created by <q>jagpreet</q></p>

</blockquote>

</body>

</html>

**Qtag:**

The **<q> tag** is used to provide small quotations to the HTML content, in this case, the browser simply puts a quotation around the content inside the tag. This tag is also known as inline quotation which means it will not break to the next line.

<q> name or something else </q>

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport"

content="width=device-width, initial-scale=1.0">

<title>Document</title>

</head>

<body>

<b>hello</b>

<p>

AComputer Science portal for geeks.

It contains well written, well thought

and well explained computer science and

programming articles, quizzes and many more,

created by <q>jagpreet</q>

</p>

</body>

</html>

[**cite Tag:**](https://www.geeksforgeeks.org/html-cite-tag/) The **<cite> tag** in HTML is used to define the title of a work. The tag in HTML4.1 define the citation and in HTML5 define the title of work. It displays the text in italic format.

**Syntax:**

<cite> Something you want </cite>

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta name="viewport"

        content="width=device-width, initial-scale=1.0">

    <title>Document</title>

</head>

<body>

<b>hello</b>

<p>

    <cite>A Computer Science portal for geeks</cite>.

    It contains well written, well thought

    and well explained computer science and

    programming articles, quizzes and many more,

    created by <q>JAgpreet</q>

</p>

</body>

</html>

**Subscript:** The <sub> tag is used to add a subscript text to the HTML document. The <sub> tag defines the subscript text. Subscript text appears half a character below the normal line and is sometimes rendered in a smaller font. Subscript text can be used for chemical formulas, like H2O to be written as H2O.

**Superscript:** The <sup> tag is used to add a superscript text to the HTML document. The <sup> tag defines the superscript text. Superscript text appears half a character above the normal line and is sometimes rendered in a smaller font. Superscript text can be used for footnotes.

<!DOCTYPE html>

<html>

<body>

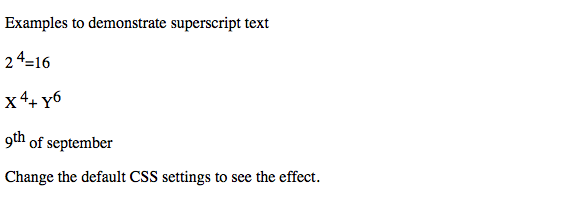
<p>Testing <sub>subscript text</sub></p>

<p>Testing <sup>superscript text</sup></p>

</body>

</html>

Exercise:



# Tags vs Elements vs Attributes in HTML

**HTML Tags:** Tags are the starting and ending parts of an HTML element. They begin with < symbol and end with > symbol. Whatever written inside < and > are called tags.

**HTML elements:** Elements enclose the contents in between the tags. They consist of some kind of structure or expression. It generally consists of a start tag, content and an end tag.

**HTML Attributes:** It is used to define the character of an HTML element. It always placed in the opening tag of an element. It generally provides additional styling (attribute) to the element.

<p align="center">This is paragraph.</p>

| **HTML TAGS** | **HTML ELEMENTS** | **HTML ATTRIBUTES** |
| --- | --- | --- |
| HTML tags are used to hold the HTML element. | HTML element holds the content. | HTML attributes are used to describe the characteristic of an HTML element in detail. |
| HTML tag starts with < and ends with > | Whatever written within a HTML tag are HTML elements. | HTML attributes are found only in the starting tag. |
| HTML tags are almost like keywords where every single tag has unique meaning. | HTML elements specifies the general content. | HTML attributes specify various additional properties to the existing HTML element. |

HTML | Style Tag

**Syntax:**

<tagname style="property:value;">

* The tagname includes <p>, <body>, from <h1> to <h6> etc.
* The property is borrowed from CSS like color, font-size, font-family etc.
* The value is also borrowed from CSS.

1. **HTML Font Family:** The font family changes the font style of a text and can be used in any text writing tag like <p> or heading tag. These font families include all the names that you find in Microsoft Office or any other writing-based software.  
   Example:

<html>

<head>

<title>Font Family</title>

</head>

<body>

<h1 style="font-family:commanders;">Hello GOOGLE.</h1>

<h2 style="font-family:Chaparral Pro Light;">Hello GOOGLE.</h2>

<h3 style="font-family:algerian;">Hello GOOGLE.</h3>

<p style="font-family:Castellar;">Hello GOOGLE.</p>

</body>

</html>

1. **HTML Font Size:**The font size changes the size of a text and this can also be used in any text writing tag like <p> or heading tag. The units can be given in “%” or pixels or other units can also be included.  
   Example:

<html>

<head>

<title>Font Size</title>

</head>

<body>

<h1 style="font-size:80%;">Hello GOOGLE.</h1>

<h2 style="font-size:150%;">Hello GOOGLE.</h2>

<h3 style="font-size:20px;">Hello GOOGLE.</h3>

<p style="font-size:30px;">Hello GOOGLE.</p>

</body>

</html>

**3.HTML Font Color:**The font color tag changes the color of a text and can be used in any text writing tag like <p> or heading tag. We can use both name of the colors or also the color codes that is mainly used in Photoshop. For various color codes or to pick from various color ranges refer [HTML Color Codes](http://htmlcolorcodes.com/).  
Example:

<html>

<head>

<title>Font Color</title>

</head>

<body>

<h1 style="color:red;">Hello Google.</h1>

<h2 style="background-color:#8CCEF9;">Hello Google.</h2>

<h3 style="color:green;">Hello Google.</h3>

<p style="color:#810CA6;">Hello Google.</p>

</body>

</html>

**4.HTML Text Align:**The text alignment tag is used to change the alignment of a text including centre, left or right alignment.

**Example:**

<html>

<head>

<title>Text Align</title>

</head>

<body>

<h1 style="text-align:left;">Hello Google.</h1>

<h2 style="text-align:center;">Hello Google.</h2>

<p style="text-align:right;">Hello Google.</h2>

</body>

</html>

1. **HTML Background Color:**Using this attribute we can change the color of the background page or web page. This attribute is used along with the body tag to change the whole color of the body. It can also be used along with the text tags to change the text block’s color.  
   Example:

<html>

<head>

<title>Background Color</title>

</head>

<body style="background-color:#616A6B;">

<h1 style="font-family:commanders;

background-color:yellow;">Hello GOOGLE.</h1>

<h2 style="font-family:algerian;

background-color:cyan;">Hello GOOGLE.</h2>

<p style="font-family:Castellar;

background-color:green;">Hello GOOGLE.</p>

</body>

</html>

**List:**

A list is a record of short pieces of information, such as people’s names, usually written or printed with a single thing on each line and ordered in a way that makes a particular thing easy to find.

HTML offers three ways for specifying lists of information. All lists must contain one or more list  
elements.

The types of lists that can be used in HTML are :

* **ul :**An unordered list. This will list items using plain bullets.
* **ol :**An ordered list. This will use different schemes of numbers to list your items.
* **dl :**A definition list. This arranges your items in the same way as they are arranged in a dictionary.
* **The Unordered HTML List**
* An unordered list starts with the “ul” tag. Each list item starts with the “li” tag.The list items are marked with bullets i.e small black circles by default.

Example

<!DOCTYPE html>

<html>

<body>

<h2>Grocery list</h2>

<ul>

<li>Bread</li>

<li>Eggs</li>

<li>Milk</li>

<li>Coffee</li>

</ul>

</body>

</html>

**The HTML Unordered List has various List Item Markers:-**

1. **Disc :**Sets the list item marker to a bullet i.e default.

Example: <!DOCTYPE html>

<html>

<body>

<h2>Unordered List with Disc Bullets</h2>

<h2>Grocery List</h2>

<ul style="list-style-type:disc">

<li>Bread</li>

<li>Eggs</li>

<li>Milk</li>

<li>Coffee</li>

</ul>

</body>

</html>

**Circle :**Sets the list item marker to a circle.

Example:

<!DOCTYPE html>

<html>

<body>

<h2>Unordered List with Circle Bullets</h2>

<h2>Grocery list</h2>

<ul style="list-style-type:circle">

<li>Bread</li>

<li>Eggs</li>

<li>Milk</li>

<li>Coffee</li>

</ul>

</body>

</html>

**Square :**Sets the list item marker to a square

Example:

<!DOCTYPE html>

<html>

<body>

<h2>Unordered List with Square Bullets</h2>

<h2>Grocery list</h2>

<ul style="list-style-type:square">

<li>Bread</li>

<li>Eggs</li>

<li>Milk</li>

<li>Coffee</li>

</ul>

</body>

</html>

**The HTML Ordered List**

An ordered list starts with the “ol” tag. Each list item starts with the “li” tag. The list items are marked with numbers by default.

|  |  |  |
| --- | --- | --- |
| **Type** | **Numbering style** | |
| 1 | arabic numbers | 1, 2, 3, ... |
| a | lower alpha | a, b, c, ... |
| A | upper alpha | A, B, C, ... |
| i | lower roman | i, ii, iii, ... |
| I | upper roman | I, II, III, ... |

Example:

<!DOCTYPE html>

<html>

<body>

<h2>Grocery List</h2>

<ol>

<li>Bread</li>

<li>Eggs</li>

<li>Milk</li>

<li>Coffee</li>

</ol>

</body>

</html>

**The HTML Ordered List has various List Item Markers**:

The type attribute of the <ol> tag, defines the type of the list item marker.

1. **Type=”1″ :**The list items will be numbered with numbers i.e default.

<!DOCTYPE html>

<html>

<body>

<h2>Ordered List with Numbers</h2>

<ol type="1">

<li>Bread</li>

<li>Eggs</li>

<li>Milk</li>

<li>Coffee</li>

</ol>

</body>

</html>

1. **Type=”A” :**The list items will be numbered with uppercase letters

Example:

<!DOCTYPE html>

<html>

<body>

<h2>Ordered List with Letters</h2>

<ol type="A">

<li>Bread</li>

<li>Eggs</li>

<li>Milk</li>

<li>Coffee</li>

</ol>

</body>

</html>

1. **Type=”a” :**The list items will be numbered with lowercase letters

Example:

<!DOCTYPE html>

<html>

<body>

<h2>Ordered List with Lowercase Letters</h2>

<ol type="a">

<li>Bread</li>

<li>Eggs</li>

<li>Milk</li>

<li>Coffee</li>

</ol>

</body>

</html>

1. **Type=”I” :**The list items will be numbered with uppercase roman numbers.

Example:

<!DOCTYPE html>

<html>

<body>

<h2>Ordered List with Roman Numbers</h2>

<ol type="I">

<li>Bread</li>

<li>Eggs</li>

<li>Milk</li>

<li>Coffee</li>

</ol>

</body>

</html>

1. **Type=”i” :**The list items will be numbered with lowercase roman numbers.

Example:

<!DOCTYPE html>

<html>

<body>

<h2>Ordered List with Lowercase Roman Numbers</h2>

<ol type="i">

<li>Bread</li>

<li>Eggs</li>

<li>Milk</li>

<li>Coffee</li>

</ol>

</body>

</html>

Example:

<html>

<body>

<h3> Ordered List </h3>

<ol>

<li>Item one</li>

<li>Item two</li>

</ol>

<h3> Modified Ordered List </h3>

<ol type="A" start="6">

<li>List item 1</li>

<li>List item 2</li>

<li value="12">List item 3</li>

<li>List item 4</li>

</ol>

</body>

</html>

**HTML <ol> reversed Attribute**

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

**The HTML Description List**

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**:

<!DOCTYPE html>

<html>

<body>

<h2>A Description List</h2>

<dl>

<dt>Coffee</dt>

<dd>- 500 gms</dd>

<dt>Milk</dt>

<dd>- 1 ltr Tetra Pack</dd>

</dl>

</body>

</html>

### Nested List in HTML:

A nested list is a list which has a list inside a list.

<!DOCTYPE html>

<html>

<body>

<h2>A Nested List</h2>

<ul>

<li>Coffee</li>

<li>Tea

<ul>

<li>Black tea</li>

<li>Green tea</li>

</ul>

</li>

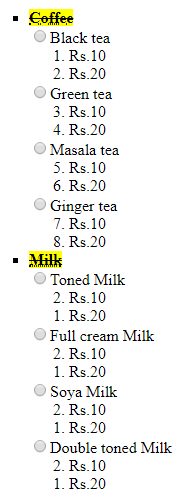
<li>Milk</li>

</ul>

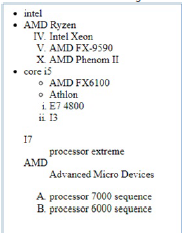
</body>

</html>

Exercise questions:



QUESTION2:



**What is a link?**

It is a connection from one web resource to another.A link has two ends,An anchor and direction. The link starts at the “source” anchor and points to the “destination” anchor, which may be any Web resource such as an image, a video clip, a sound bite, a program, an HTML document or an element within an HTML document.

**HTML Link Syntax**

Links are specified in HTML using the “a” tag.

**href :** The href attribute is used to specify

the destination address of the link used.

**Text link :** The text link

is the visible part of the link.

EXAMPLE:

<!DOCTYPE html>

<html>

<h3>Example Of Adding a link</h3>

<body>

<p>Click on the following link</p>

<a href = "https://www.GOOGLE.C0M">GOOGLE</a>

</body>

</html>

**Internal Links**

An internal link is a type of hyperlink whose target or destination is a resource, such as an image or document, on the same website or domain.  
**Input:**

<!DOCTYPE html>

<html>

<h3>Internal Link And External Link Example</h3>

<body>

<p><a href=" <https://www.w3schools.com/html/html_links.asp> /">W3SCHOOLS

</a> It is a link to the contribute page on GOOGLE' website.</p>

<p><a href="https://www.GOOGLE.COM">GOOGLE

</a> It is a link to the GOOGLE website on the World Wide Web.</p>

</body>

</html>

**The Target Attribute in Links**

The target attribute is used to specify the location where the linked document is opened.The various options that can be used in the target attribute are listed below in the table:

<!DOCTYPE html>

<html>

<body>

<h3>Various options available in the Target Attribute</h3>

<p>If you set the target attribute to "\_blank",

the link will open in a new browser window or tab.</p>

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

<p>If you set the target attribute to "\_self", the link will open in the same window or tab.</p>

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

<p>If you set the target attribute to "\_top", the link will open in the full body of the window.</p>

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

<p>If you set the target attribute to "\_parent", the link will open in the parent frame.</p>

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

</body>

</html>

**Using Image as a Link in HTML**

An image can be used to create a link to a specified url.

**Input:**

<!DOCTYPE html>

<html>

<body>

<h2>Image as a Link</h2>

<p>The image below is a link. Try to click on it.</p>

<a href="default.asp"><img src="smiley.gif" alt="HTML tutorial" style="width:42px;height:42px;"></a>

</body>

</html>

**Creating a Bookmark Link for a Webpage**

<!DOCTYPE html>

<html>

<body>

<p><a href="#T11">Jump to Topic 11</a></p>

<p><a href="#T17">Jump to Topic 17</a></p>

<p><a href="#T20">Jump to Topic 20</a></p>

<h2>Topic 1</h2>

<p>paragraph 1

.....</p>

<h2>Topic 2</h2>

<p>paragraph 1

.....</p>

<h2>Topic 3</h2>

<p>paragraph 1

.....</p>

<h2>Topic 4</h2>

<p>paragraph 1

.....</p>

<h2>Topic 5</h2>

<p>paragraph 1

.....</p>

<h2>Topic 6</h2>

<p>paragraph 1

.....</p>

<h2>Topic 7</h2>

<p>paragraph 1

.....</p>

<h2>Topic 8</h2>

<p>paragraph 1

.....</p>

<h2>Topic 9</h2>

<p>paragraph 1

.....</p>

<h2>Topic 10</h2>

<p>paragraph 1

.....</p>

<h2 id="T11">Topic 11</h2>

<p>paragraph 1

.....</p>

<h2>Topic 12</h2>

<p>paragraph 1

.....</p>

<h2>Topic 13</h2>

<p>paragraph 1

.....</p>

<h2>Topic 14</h2>

<p>paragraph 1

.....</p>

<h2>Topic 15</h2>

<p>paragraph 1

.....</p>

<h2>Topic 16</h2>

<p>paragraph 1

.....</p>

<h2 id="T17">Topic 17</h2>

<p>paragraph 1

.....</p>

<h2>Topic 18</h2>

<p>paragraph 1

.....</p>

<h2>Topic 19</h2>

<p>paragraph 1

.....</p>

<h2 id="T20">Topic 20</h2>

<p>paragraph 1

.....</p>

</body>

</html>

The A tag comes with three attributes that can help you to override the browser default:

**LINK  
Set the colour of a link before it has been clicked on**

**ALINK  
Set the colour of a link when the link is clicked on**

**VLINK  
Set the colour of a link after it has been clicked on**

**These attributes control the colors of the different link states:**

* **LINK - initial appearance – default = Blue**
* **VLINK - visited link – default = Purple**
* **ALINK - active link being clicked – default = Red**

Example:

<!DOCTYPE html>

<html>

<head>

<title>

HTML body vlink Attribute

</title>

</head>

<!-- body tag starts here -->

<body aLink="red" link="blue" vLink="purple">

Click on the following hyperlinks to see the default, normal and visited states:

<br /><br />

<a href="#first">Hyperlink text</a>

<br /><br />

<a href="www.google.com">Hyperlink text</a>

<br /><br />

<a href="#third">Hyperlink text</a>

</body>

</html>

**Exercise:**

Make two html pages

Html1: add hyperlink **L2**

Html2: Display Hello world in bold

When user click on L2 hw will redirect to html2.

HTML | Images

**Adding images on a webpage :**  
The “img” tag is used to add images on a webpage. The “img” tag is an empty tag, which means it can contain only a list of attributes and it has no closing tag.

**Syntax :**

<img src="url" alt="some\_text">

**Attribute:**

* **src:**  
  src stands for source. Every image has a src attribute which tells the browser where to find the image you want to display. The URL of the image provided points to the location where the image is stored.
* **alt:**If the image cannot be displayed then the alt attribute acts as an alternative description for the image. The value of the alt attribute is an user-defined text.

Example:

<!DOCTYPE html>

<html>

<body>

<h1>The img element</h1>

<img src="img\_girl.jpg" alt="Girl in a jacket" >

</body>

</html>

**Setting width and height of Image :**The width and height attributes are used to specify the height and width of an image. The attribute values are specified in pixels by default.

Example:

<!DOCTYPE html>

<html>

<body>

<h1>The img element</h1>

<img src="img\_girl.jpg" alt="Girl in a jacket" width="600" height="800">

</body>

</html>

**Adding animated Image:**Animated images in .gif format can also be added using the “img” tag.

<!DOCTYPE html>

<html>

<h3>Adding a gif file on a webpage</h3>

<body>

<img src = "smiley.gif" alt = "smiley"

style = "width:200px; height:200px;">

</body>

</html>

**Setting a border to Image :**By default, every picture has a border around it. By using the border attribute, the thickness of the border can be changed. A thickness of “0” means that there will be no border around the picture.

Example:

<!DOCTYPE html>

<html>

<head>

<title>Inserting an image using "img" tag</title>

</head>

<body>

<p>inserted image using <img> tag:</p>

<img src="img\_girl.jpg"

alt="GOOGLE logo" width="200" height="200" border="5">

</body>

</html>

**Aligning a Picture:**By default, an image is aligned at the left side of the page, but it can be aligned to center or right using the align attribute.

</head>

<body>

<p>inserted image using <img> tag:</p>

<img src="img\_girl.jpg"

alt="GOOGLE logo" width="200" height="200" border="5" align="right">

</body>

**Adding Image as a Link:**An image can work as a link with a URL embedded in it. It can be done by using the “img” tag inside an “a” tag.

<!DOCTYPE html>

<html>

<body>

<h2>Image as a Link</h2>

<p>The image below is a link. Try to click on it.</p>

<a href="default.asp"><img src="smiley.gif" alt="HTML tutorial" style="width:42px;height:42px;"></a>

</body>

</html>

**What is image mapping :**  
In image mapping an image is specified with certain set of coordinates inside the image which act as hyperlink areas to different destinations. It is different from an image link since in image linking, an image can be used to serve a single link or destination whereas in a mapped image, different coordinates of the image can serve different links or destinations.

#### Elements required in Mapping an Image :

There are three basic html elements which are required for creating a mapped image.

1. **Map :**It is used to create a map of the image with clickable areas.
2. **Image :**It is used for the image source on which mapping is done.
3. **Area :**It is used within the map for defining clickable areas.

#### Steps to create a mapped image :

* **Determining Image size :**  
  Determining the size of the image is very important because if the size of the image is changed then the area coordinates will also require updation.  
  https://media.geeksforgeeks.org/wp-content/uploads/Screen-Shot-2017-12-12-at-11.08.25-PM.png
* **Creating a map for overlaying the image :**  
  https://media.geeksforgeeks.org/wp-content/uploads/Screen-Shot-2017-12-12-at-11.10.38-PM.png
* **Determine the coordinates of the areas that you want to map :**  
  It can be done in three shapes which are rectangle, circle and polygon. Coordinates can be found easily by using MS-Paint.  
  https://media.geeksforgeeks.org/wp-content/uploads/Screen-Shot-2017-12-13-at-1.01.08-AM.png

<!DOCTYPE html>

<html>

<h3>Mapping an Image

<body>

<p>Click on the different continents of the map to know about them.</p>

<img src="world-map-151576\_960\_720.png" width="960" height="492"

alt="World Map" usemap="#worldmap">

<map name="worldmap">

<area shape="rect" coords="184, 36, 272, 158" alt="north america"

href="https://en.wikipedia.org/wiki/North\_America">

<area shape="rect" coords="282, 215, 354, 367" alt="south america"

href="https://en.wikipedia.org/wiki/South\_America">

<area shape="rect" coords="506, 151, 570, 333" alt="africa"

href="https://en.wikipedia.org/wiki/Africa">

<area shape="rect" coords="618, 42, 791, 162" alt="asia"

href="https://en.wikipedia.org/wiki/Asia">

<area shape="rect" coords="509, 44, 593, 110" alt="europe"

href="https://en.wikipedia.org/wiki/Europe">

<area shape="rect" coords="786, 288, 862, 341" alt="australia"

href="https://en.wikipedia.org/wiki/Australia\_(continent)">

<area shape="rect" coords="249, 463, 760, 488" alt="antartica"

href="https://en.wikipedia.org/wiki/Antarctica">

</map>

</body>

</html>

Example2:

<!DOCTYPE html>

<html>

<body>

<h2>Image Maps</h2>

<p>Click on the computer, the phone, or the cup of coffee to go to a new page and read more about the topic:</p>

<img src="workplace.jpg" alt="Workplace" usemap="#workmap" width="400" height="379">

<map name="workmap">

<area shape="rect" coords="34,44,270,350" alt="Computer" href="computer.htm">

<area shape="rect" coords="290,172,333,250" alt="Phone" href="phone.htm">

<area shape="circle" coords="337,300,44" alt="Cup of coffee" href="coffee.htm">

</map>

</body>

</html>

Tables

A table is an arrangement of data in rows and columns, or possibly in a more complex structure. Tables are widely used in communication, research, and data analysis.

* Tables are useful for various tasks such as presenting text information and numerical data.
* Tables can be used to compare two or more items in tabular form layout.
* Tables are used to create databases.
* **Defining Tables in HTML**  
  An HTML table is defined with the “table” tag. Each table row is defined with the “tr” tag. A table header is defined with the “th” tag. By default, table headings are bold and centered. A table data/cell is defined with the “td” tag.
* **Example:**

|  |
| --- |
| <!DOCTYPE html>  <html>  <head>  <title>  HTML table border Attribute  </title>  </head>  <body>  <h1>Google</h1>  <h2>HTML table border Attribute</h2>  <table border="1">  <caption>Author Details</caption>  <tr>  <th>NAME</th>  <th>AGE</th>  <th>BRANCH</th>  </tr>  <tr>  <td>BITTU</td>  <td>22</td>  <td>CSE</td>  </tr>  <tr>  <td>RAM</td>  <td>21</td>  <td>ECE</td>  </tr>  </table>  </body>  </html> |

**Adding Cells that Span Many Columns in HTMl Tables :** To make a cell span more than one column, we must use the colspan attribute.

<!DOCTYPE html>

<html>

<head>

<style>

table, th, td {

border: 1px solid black;

border-collapse: collapse;

}

th, td {

padding: 5px;

text-align: left;

}

</style>

</head>

<body>

<h2>Cell that spans two columns:</h2>

<table style="width:100%">

<tr>

<th>Name</th>

<th colspan="2">Telephone</th>

</tr>

<tr>

<td>Vikas Rawat</td>

<td>9125577854</td>

<td>8565557785</td>

</tr>

</table>

</body>

</html>

**Adding Cells that Span Many Rows in HTML Tables:**To make a cell span more than one row,we must use the rowspan attribute:  
**Example:**

<!DOCTYPE html>

<html>

<head>

<style>

table, th, td {

border: 1px solid black;

border-collapse: collapse;

}

th, td {

padding: 5px;

text-align: left;

}

</style>

</head>

<body>

<h2>Cell that spans two rows:</h2>

<table style="width:100%">

<tr>

<th>Name:</th>

<td>Vikas Rawat</td>

</tr>

<tr>

<th rowspan="2">Telephone:</th>

<td>9125577854</td>

</tr>

<tr>

<td>8565557785</td>

</tr>

</table>

</body>

</html>

**Adding a Caption in a HTML Table:**To add a caption to a table, we must use the “caption” tag. <html>

<head>

</head>

<body>

<table style=";background-color:red;" border="1" align="left">

<caption>DETAILS</caption>

<tr>

<th>Firstname</th>

<th>Lastname</th>

<th>Age</th>

</tr>

<tr>

<td>Priya</td>

<td>Sharma</td>

<td>24</td>

</tr>

<tr>

<td>Arun</td>

<td>Singh</td>

<td>32</td>

</tr>

<tr>

<td>Sam</td>

<td>Watson</td>

<td>41</td>

</tr>

</table>

</body>

</html>

**Adding a Background Colour To a Table in HTML:**A color can be added as a background in HTML table using the “background-color” option.

<!DOCTYPE html>

<html>

<head>

<

</head>

<body>

<table style="width:100%;background-color:red">

<tr>

<th>Firstname</th>

<th>Lastname</th>

<th>Age</th>

</tr>

<tr>

<td>Priya</td>

<td>Sharma</td>

<td>24</td>

</tr>

<tr>

<td>Arun</td>

<td>Singh</td>

<td>32</td>

</tr>

<tr>

<td>Sam</td>

<td>Watson</td>

<td>41</td>

</tr>

</table>

<br />

<br />

<table id="t01">

<tr>

<th>Firstname</th>

<th>Lastname</th>

<th>Age</th>

</tr>

<tr>

<td>Priya</td>

<td>Sharma</td>

<td>24</td>

</tr>

<tr>

<td>Arun</td>

<td>Singh</td>

<td>32</td>

</tr>

<tr>

<td>Sam</td>

<td>Watson</td>

<td>41</td>

</tr>

</table>

</body>

</html>

**Creating Nested Tables in HTML:**Nesting tables simply means making a Table inside another Table. Nesting tables can lead to complex tables layouts, which are visually interesting and have the potential of introducing errors.

<!DOCTYPE html>

<html>

<body>

<table border=5 bordercolor=black>

<tr>

<td>

Fisrt Column of Outer Table

</td>

<td>

<table border=5 bordercolor=grey>

<tr>

<td>

First row of Inner Table

</td>

</tr>

<tr>

<td>

Second row of Inner Table

</td>

</tr>

</table>

</td>

</tr>

</table>

</body>

</html>

**Generic table attributes**

1. <table width="100%" cellspacing="2" cellpadding="0" border="0" align="center" bgcolor="#ff6600">
2. <tr bgcolor="#ffffff">
3. <td width="33%" height="67">&nbsp;</td>
4. <td width="34%">HTML table borders without CSS</td>
5. <td width="33%">&nbsp;</td>
6. </tr>
7. <tr bgcolor="#ffffff">
8. <td height="67">cellspacing="2"</td>
9. <td>&nbsp;</td>
10. <td>bgcolor="#ff6600"</td>
11. </tr>
12. </table>

**Table header and footer**

**<!DOCTYPE html>**

**<html>**

**<head>**

**</head>**

**<body>**

**<h1>The thead, tbody, and tfoot elements</h1>**

**<table border=”1”>**

**<thead>**

**<tr>**

**<th>Month</th>**

**<th>Savings</th>**

**</tr>**

**</thead>**

**<tbody>**

**<tr>**

**<td>January</td>**

**<td>$100</td>**

**</tr>**

**<tr>**

**<td>February</td>**

**<td>$80</td>**

**</tr>**

**</tbody>**

**<tfoot>**

**<tr>**

**<td>Sum</td>**

**<td>$180</td>**

**</tr>**

**</tfoot>**

**</table>**

**</body>**

**</html>**

**Example:**

**<table background="/images/html.gif" width="100%" height="100">**

**<tr><td>**

**This background is filled up with HTML image.**

**</td></tr>**

**</table>**

**<table background="/images/home.gif" width="100%" height="100">**

**<tr><td>**

**This background is filled up with home image.**

**</td></tr>**

**</table>**

HTML | form Tag

The <form> tag in HTML is used to create form for user input. There are many elements which are used within form tag. For example: <input>, <textarea>, <button>, <select>, <option>, <optgroup>, <fieldset>, <label>.

**Syntax:**

<form> Form Content... </form>

**Attributes:** There are many attributes which are associated with <form> tag. Some of them are listed below:

* **input:** It is used to specify the input field for user.
* **textarea:** It is used to specify for multi-line text input field for user.
* **button:** It is used to perform an operation in a form by the user.
* **label:** It is used to give label to any tag like button, input etc.
* [<button> form Attribute](https://www.geeksforgeeks.org/html-button-form-attribute/)
* [<fieldset> form Attribute](https://www.geeksforgeeks.org/html-fieldset-form-attribute/)
* [<select> form Attribute](https://www.geeksforgeeks.org/html-form-attribute/)
* [<textarea> form Attribute](https://www.geeksforgeeks.org/html-form-attribute/)

**Example 1:**

<!DOCTYPE html>

<html>

<head>

<title>form tag</title>

<style>

body {

text-align:center;

}

h1 {

color:green;

}

</style>

</head>

<body>

<h1>Google</h1>

<h2><form> Tag</h2>

<form action="#">

First name:

<input type="text" placeholder = "First Name"

value="">

<br><br>

Last name:

<input type="text" placeholder = "Last Name"

value="">

<br><br>

<input type="submit" value="Submit">

</form>

</body>

</html>

Example 2:

<!DOCTYPE html>

<html>

<head>

<title>form tag</title>

<style>

input {

width:95%;

height:30px;

}

button {

background-color:green;

color:white;

border:none;

border-radius:5px;

font-size:14px;

padding:5px;

}

h1 {

color:green;

}

h1, h2 {

text-align:center;

}

body {

width:60%;

}

</style>

</head>

<body>

<h1>Google</h1>

<h2><form> Tag</h2>

<form action="#">

<label for="fname">First name:</label><br>

<input type="text" id="fname" name="fname" value="John"><br>

<label for="lname">Last name:</label><br>

<input type="text" id="lname" name="lname" value="Doe">

<h2>Sign Up Form</h2>

<b>Email</b><br>

<input type="text" placeholder="Enter Email"

name="email" required>

<br><b>Username</b><br>

<input type="text" placeholder="Username"

name="uid" required>

<br><b>Password</b><br>

<input type="password" placeholder="Enter Password"

name="psw" required>

<br><br>

<button type="submit" class="registerbtn">

Register</button>

</form>

</body>

</html>

RADIO BUTTON

**<!DOCTYPE html>**

**<html>**

**<body>**

**<h2>Radio Buttons</h2>**

**<form>**

**<input type="radio" id="male" name="gender" value="male">**

**<label for="male">Male</label><br>**

**<input type="radio" id="female" name="gender" value="female">**

**<label for="female">Female</label><br>**

**<input type="radio" id="other" name="gender" value="other">**

**<label for="other">Other</label>**

**</form>**

**</body>**

**</html>**

SUBMIT BUTTON

**<!DOCTYPE html>**

**<html>**

**<body>**

**<h2>HTML Forms</h2>**

**<form action="/action\_page.php">**

**<label for="fname">First name:</label><br>**

**<input type="text" id="fname" name="fname" value="John"><br>**

**<label for="lname">Last name:</label><br>**

**<input type="text" id="lname" name="lname" value="Doe"><br><br>**

**<input type="submit" value="Submit">**

**</form>**

**<p>If you click the "Submit" button, the form-data will be sent to a page called "/action\_page.php".</p>**

**</body>**

**</html>**

## The Action Attribute

The action attribute defines the action to be performed when the form is submitted.

Usually, the form data is sent to a page on the server when the user clicks on the submit button.

## The Method Attribute

The method attribute specifies the HTTP method (**GET**or **POST**) to be used when submitting the form data.

## When to Use GET OR POST?

HTTP **POST** requests supply additional data from the client (browser) to the server in the message body. In contrast, **GET** requests include all required data in the URL. Forms in HTML can use either method by specifying **method="POST"** or **method="GET"** (default) in the **<form>** element. The method specified determines how form data is submitted to the server. When the method is GET, all form data is encoded into the URL, appended to the **action** URL as query string parameters. With POST, form data appears within the message body of the HTTP request.

<!DOCTYPE html>

<html>

<body>

<h2>The method Attribute</h2>

<p>This form will be submitted using the GET method:</p>

<form action="/action\_page.php" target="\_blank" method="get">

<label for="fname">First name:</label><br>

<input type="text" name="fname" value="John"><br>

<label for="lname">Last name:</label><br>

<input type="text" name="lname" value="Doe"><br><br>

<input type="submit" value="Submit">

</form>

<p>After you submit, notice that the form values is visible in the address bar of the new browser tab.</p>

</body>

</html>

## The Name Attribute

**<!DOCTYPE html>**

**<html>**

**<body>**

**<h2>The name Attribute</h2>**

**<form action="/action\_page.php">**

**<label for="fname">First name:</label><br>**

**<input type="text" id="fname" value="John"><br><br>**

**<input type="submit" value="Submit">**

**</form>**

**<p>If you click the "Submit" button, the form-data will be sent to a page called "/action\_page.php".</p>**

**<p>Notice that the value of the "First name" field will not be submitted, because the input element does not have a name attribute.</p>**

**</body>**

**</html>**

HTML Form Elements

## The <input> Element

[input](https://www.htmlquick.com/reference/tags/input.html): one of many controls according to the value of the attribute type. These are:

* [hidden](https://www.htmlquick.com/reference/tags/input-hidden.html): a hidden control used to send information to the server, typically managed by scripts.
* [text](https://www.htmlquick.com/reference/tags/input-text.html): a control used to input a single-line piece of text.
* [search](https://www.htmlquick.com/reference/tags/input-search.html): same as [text](https://www.htmlquick.com/reference/tags/input-text.html) but for search purposes.
* [tel](https://www.htmlquick.com/reference/tags/input-tel.html): a control used to provide a telephone number.
* [email](https://www.htmlquick.com/reference/tags/input-email.html): a control designed to edit one or more e-mail addresses.
* [password](https://www.htmlquick.com/reference/tags/input-password.html): a text box for editing passwords, where the characters are represented by dots.
* [date](https://www.htmlquick.com/reference/tags/input-date.html): a control to input a specific date.
* [month](https://www.htmlquick.com/reference/tags/input-month.html): a control to input a specific month.
* [week](https://www.htmlquick.com/reference/tags/input-week.html): a control to input a specific week.
* [time](https://www.htmlquick.com/reference/tags/input-time.html): a control to input a specific time.
* [number](https://www.htmlquick.com/reference/tags/input-number.html): a control to input a number.
* [range](https://www.htmlquick.com/reference/tags/input-range.html): a control to input one or two numbers inside a range.
* [color](https://www.htmlquick.com/reference/tags/input-color.html): a control to input a color.
* [checkbox](https://www.htmlquick.com/reference/tags/input-checkbox.html): a control to input a boolean value (true/false).
* [radio](https://www.htmlquick.com/reference/tags/input-radio.html): a control used to choose one single option among many.
* [file](https://www.htmlquick.com/reference/tags/input-file.html): a control used to upload files to the server.
* [submit](https://www.htmlquick.com/reference/tags/input-submit.html): a button used to submit the form.
* [image](https://www.htmlquick.com/reference/tags/input-image.html): same as [submit](https://www.htmlquick.com/reference/tags/input-submit.html) but with the ability to be shown as an image instead of using the default button appearance.
* [reset](https://www.htmlquick.com/reference/tags/input-reset.html): a button used to reset the form's controls to their default values.
* [button](https://www.htmlquick.com/reference/tags/input-button.html): a button with no default action associated.

**Type: password**

<!DOCTYPE html>

<html lang="en">

<head>

<title>HTML Password Input Field</title>

</head>

<body>

<form>

<label for="user-pwd">Password:</label>

<input type="password" name="user-password" id="user-pwd">

</form>

</body>

</html>

**Type: radio**

<!DOCTYPE html>

<html lang="en">

<head>

<title>HTML Radio Buttons</title>

</head>

<body>

<form>

<input type="radio" name="gender" value="male" id="male">

<label for="male">Male</label>

<input type="radio" name="gender" value="female" id="female">

<label for="female">Female</label>

</form>

</body>

</html>

**Type: checkbox**

<!DOCTYPE html>

<html lang="en">

<head>

<title>HTML Checkboxes</title>

</head>

<body>

<form>

<input type="checkbox" name="sports" value="soccer" id="soccer">

<label for="soccer">Soccer</label>

<input type="checkbox" name="sports" value="cricket" id="cricket">

<label for="cricket">Cricket</label>

<input type="checkbox" name="sports" value="baseball" id="baseball">

<label for="baseball">Baseball</label>

</form>

</body>

</html>

Type: file

<form> <label for="file-select">Upload:</label> <input type="file" name="upload" id="file-select"> </form>

**Type: RESET**

EXAMPLE:

<!DOCTYPE html>

<html lang="en">

<head>

<title>HTML Submit and Reset Buttons</title>

</head>

<body>

<form action="/examples/html/action.php" method="post">

<label for="first-name">First Name:</label>

<input type="text" name="first-name" id="first-name">

<input type="submit" value="Submit">

<input type="reset" value="Reset">

</form>

</body>

</html>

**Text area**

<!DOCTYPE html>

<html lang="en">

<head>

<title>HTML Textarea</title>

</head>

<body>

<form>

<label for="address">Address:</label>

<textarea rows="3" cols="30" name="address" id="address"></textarea>

</form>

</body>

</html>

**SELECT**

Example2:

<!DOCTYPE html>

<html>

<body>

<h2>Visible Option Values</h2>

<p>Use the size attribute to specify the number of visible values.</p>

<form action="/action\_page.php">

<label for="cars">Choose a car:</label>

<select id="cars" name="cars" size="3">

<option value="volvo">Volvo</option>

<option value="saab">Saab</option>

<option value="fiat">Fiat</option>

<option value="audi">Audi</option>

</select><br><br>

<input type="submit">

</form>

</body>

</html>

### Allow Multiple Selections:

Use the multiple attribute to allow the user to select more than one value:

<form action="/action\_page.php">

<label for="cars">Choose a car:</label>

<select id="cars" name="cars" size="4" multiple>

<option value="volvo">Volvo</option>

<option value="saab">Saab</option>

<option value="fiat">Fiat</option>

<option value="audi">Audi</option>

</select><br><br>

<input type="submit">

</form>

## Grouping Form Controls

You also group logically related controls and labels within a web form using the <legend> element.

<form>

<fieldset>

<legend>Name</legend>

<label>Firstname: <input type="text" name="firstname"></label>

<label>Lastname: <input type="text" name="lastname"></label>

</fieldset>

</form>

**INPUT type= number**

The input element, having the "number" value in its type attribute, represents a field for a number input.

The min and max attributes may be used in this element to set a range of valid times the user will be able to submit.

**<label for="tentacles">Number of tentacles (10-100):</label>**

**<input type="number" id="tentacles" name="tentacles"**

**min="10" max="100">**

**Example2:**

## Value

Any floating-point number, or empty. You can set a default value for the input by including a number inside the [value](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#attr-value) attribute, like so:

**<input type="number" value=”52”>**

## Additional attributes

In addition to the attributes commonly supported by all [<input>](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input) types, inputs of type number support these attributes:

| **Attribute** | **Description** |
| --- | --- |
| [list](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/number#list) | The id of the [<datalist>](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/datalist) element that contains the optional pre-defined autocomplete options |
| [max](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/number#max) | The maximum value to accept for this input |
| [min](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/number#min) | The minimum value to accept for this input |
| [placeholder](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/number#placeholder) | An example value to display inside the field when it's empty |
| [readonly](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/number#readonly) | A Boolean attribute indicating whether the value is read-only |
| [step](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/number#step) | A stepping interval to use when using up and down arrows to adjust the value, as well as for validation |

**Controling step size**

By default, the up and down buttons provided for you to step the number up and down will step the value up and down by 1. You can change this by providing a [step](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#attr-step) attribute, which takes as its value a number specifying the step amount. Our above example contains a placeholder saying that the value should be a multiple of 10, so it makes sense to add a step value of 10:

<input type="number" placeholder="multiple of 10" step="10">

**Datalist**

You can provide a list of default options from which the user can select by specifying the [list](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#attr-list) attribute, which contains as its value the [id](https://developer.mozilla.org/en-US/docs/Web/HTML/Global_attributes#attr-id) of a [<datalist>](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/datalist), which in turn contains one [<option>](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/option) element per suggested value. Each option's value is the corresponding suggested value for the number entry box

<input id="ticketNum" type="number" name="ticketNum" list="defaultNumbers">

<span class="validity"></span>

<datalist id="defaultNumbers">

<option value="10045678">

<option value="103421">

<option value="11111111">

<option value="12345678">

<option value="12999922">

</datalist>

**VALIDATION:**

* 1. **Required**

**INPUT TYPE= IMAGE:**

<!DOCTYPE html>

<html>

<body>

<h1>Display an Image as the Submit button</h1>

<form action="/action\_page.php">

<label for="fname">First name: </label>

<input type="text" id="fname" name="fname"><br><br>

<label for="lname">Last name: </label>

<input type="text" id="lname" name="lname"><br><br>

<input type="image" src="img\_submit.gif" alt="Submit" width="48" height="48">

</form>

<p><b>Note:</b> The input type="image" sends the X and Y coordinates of the click that activated the image button.</p>

</body>

</html>

Attributes:

Height

Width

Target

Alt

Src

Example:

<form>

<p>Login to your account</p>

<div>

<label for="userId">User ID</label>

<input type="text" id="userId" name="userId">

</div>

<div>

<label for="pwd">Password</label>

<input type="password" id="pwd" name="pwd">

</div>

<div>

<input id="image" type="image" src="https://raw.githubusercontent.com/mdn/learning-area/master/html/forms/image-type-example/login.png" alt="Login" width="100">

</div>

</form>

**Input type= “RANGE”**

<p>Audio settings:</p>

<div>

<input type="range" id="volume" name="volume"

min="0" max="11">

<label for="volume">Volume</label>

</div>

<div>

<input type="range" id="cowbell" name="cowbell"

min="0" max="100" value="90" step="10">

<label for="cowbell">Cowbell</label>

</div>

## Additional attributes

In addition to the attributes shared by all [<input>](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input) elements, range inputs offer the following attributes:

| **Attribute** | **Description** |
| --- | --- |
| [list](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/range#list) | The id of the <datalist> element that contains optional pre-defined options |
| [max](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/range#max) | The maximum permitted value |
| [min](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/range#min) | The minimum permitted value |

<input type="range" min="-10" max="10">

<input type="range" list="tickmarks">

<datalist id="tickmarks">

<option value="0"></option>

<option value="10"></option>

<option value="20"></option>

<option value="30"></option>

<option value="40"></option>

<option value="50"></option>

<option value="60"></option>

<option value="70"></option>

<option value="80"></option>

<option value="90"></option>

<option value="100"></option>

</datalist>

You can add labels to your range control by adding the [label](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/option#attr-label) attribute to the [<option>](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/option) elements corresponding to the tick marks you wish to have labels for.

<input type="range" list="tickmarks">

<datalist id="tickmarks">

<option value="0" label="0%"></option>

<option value="10"></option>

<option value="20"></option>

<option value="30"></option>

<option value="40"></option>

<option value="50" label="50%"></option>

<option value="60"></option>

<option value="70"></option>

<option value="80"></option>

<option value="90"></option>

<option value="100" label="100%"></option>

</datalist>

**<input type="search">**

[<input>](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input) elements of type **search** are text fields designed for the user to enter search queries into. These are functionally identical to text inputs, but may be styled differently by the user agent.

<label for="site-search">Search the site:</label>

<input type="search" id="site-search" name="q" >

<button>Search</button>

You can specify a minimum length, in characters, for the entered value using the [minlength](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input" \l "attr-minlength) attribute; similarly, use [maxlength](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input" \l "attr-maxlength) to set the maximum length of the entered value.

<form>

<div>

<label for="mySearch">Search for user</label>

<input type="search" id="mySearch" name="q"

placeholder="User IDs are 4–8 characters in length" required

size="30" minlength="4" maxlength="8">

<button>Search</button>

<span class="validity"></span>

</div>

</form>

**<input type="tel">**

[<input>](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input) elements of type **tel** are used to let the user enter and edit a telephone number. Unlike [<input type="email">](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/email) and [<input type="url">](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/url) , the input value is not automatically validated to a particular format before the form can be submitted, because formats for telephone numbers vary so much around the world.

**<label for="phone">Enter your phone number:</label>**

**<input type="tel" id="phone" name="phone"**

**pattern="[0-9]{3}-[0-9]{3}-[0-9]{4}" required>**

**<small>Format: 123-456-7890</small>**

## Additional attributes

In addition to the attributes that operate on all [<input>](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input) elements regardless of their type, telephone number inputs support the following attributes:

| **Attribute** | **Description** |
| --- | --- |
| [list](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/tel#list) | The id of the <datal-ist> element that contains the optional pre-defined autocomplete options |
| [maxlength](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/tel#maxlength) | The maximum length, in UTF-16 characters, to accept as a valid input |
| [minlength](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/tel#minlength) | The minimum length that is considered valid for the field's contents |
| [pattern](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/tel#pattern) | A regular expression the entered value must match to pass constraint validation |
| [placeholder](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/tel#placeholder) | An example value to display inside the field when it has no value |
| [readonly](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/tel#readonly) | A Boolean attribute which, if present, indicates that the field's contents should not be user-editable |
| [size](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input/tel#size) | The number of characters wide the input field should be onscreen |

## Attributes

| **Attribute** | **Type or Types** | **Description** |
| --- | --- | --- |
| [alt](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefalt) | image | alt attribute for the image type. Required for accessibility |
| [autocomplete](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefautocomplete) | all | Hint for form autofill feature |
| [autofocus](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefautofocus) | all | Automatically focus the form control when the page is loaded |
| [checked](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefchecked) | radio, checkbox | Whether the command or control is checked |
| [disabled](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefdisabled) | all | Whether the form control is disabled |
| [form](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefform) | all | Associates the control with a form element |
| [height](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefheight) | image | Same as height attribute for [<img>](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/img); vertical dimension |
| [list](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdeflist) | almost all | Value of the id attribute of the [<datalist>](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/datalist) of autocomplete options |
| [max](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefmax) | numeric types | Maximum value |
| [maxlength](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefmaxlength) | password, search, tel, text, url | Maximum length (number of characters) of value |
| [min](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefmin) | numeric types | Minimum value |
| [minlength](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefminlength) | password, search, tel, text, url | Minimum length (number of characters) of value |
| [multiple](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefmultiple) | email, file | Boolean. Whether to allow multiple values |
| [name](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefname) | all | Name of the input form control. Submitted with the form as part of a name/value pair. |
| [pattern](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefpattern) | password, text, tel | Pattern the value must match to be valid |
| [placeholder](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefplaceholder) | password, search, tel, text, url | content to be appear in the form control when the form control is empty |
| [readonly](https://developer.mozilla.org/en-US/docs/Web/HTML/Attributes/readonly) | almost all | Boolean. The value is not editable |
| [required](https://developer.mozilla.org/en-US/docs/Web/HTML/Attributes/required) | almost all | Boolean. A value is required or must be check for the form to be submittable |
| [size](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefsize) | email, password, tel, text | Size of the control |
| [src](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefsrc) | image | Same as src attribute for [<img>](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/img); address of image resource |
| [step](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefstep) | numeric types | Incremental values that are valid. |
| [type](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdeftype) | all | Type of input form control |
| [value](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefvalue) | all | Current value of the form control. Submitted with the form as part of a name/value pair. |
| [width](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/input#htmlattrdefwidth) | image | Same as width attribute for [<img>](https://developer.mozilla.org/en-US/docs/Web/HTML/Element/img) |

**Autocomplete**

The autocomplete attribute is valid on –

**hidden, text, search, url, tel, email, date, month, week, time, datetime-local, number, range, color, and password.** This attribute has no effect on input types that do not return numeric or text data, being valid for all input types except checkbox, radio, file, or any of the button types.

Example:

<!DOCTYPE html>

<html>

<body>

<h1>The autocomplete attribute</h1>

<p>Fill in and submit the form, then reload the page to see how autocomplete works.</p>

<p>Notice that autocomplete is "on" for the form, but "off" for the e-mail field!</p>

<form action="/action\_page.php" autocomplete="off">

<label for="fname">First name:</label>

<input type="text" id="fname" name="fname"><br><br>

<label for="lname">Last name:</label>

<input type="text" id="lname" name="lname"><br><br>

<label for="email">Email:</label>

<input type="email" id="email" name="email" autocomplete="off"><br><br>

<input type="submit">

</form>

</body>

</html>

**Checked**

**Valid for both radio and checkbox types**, checked is a Boolean attribute. If present on a radio type, it indicates that that radio button is the currently selected one in the group of same-named radio buttons. If present on a checkbox type, it indicates that the checkbox is checked by default

**List**

It is valid on **text, search, url, tel, email, date, month, week, time, datetime-local, number, range, and color.**

[**max**](https://developer.mozilla.org/en-US/docs/Web/HTML/Attributes/max)

Valid for date, **month, week, time, datetime-local, number, and range**, it defines the greatest value in the range of permitted values.

**maxlength**

**Valid for text, search, url, tel, email, and password**, it defines the maximum number of characters (as UTF-16 code units) the user can enter into the field.

**<input type="time">**

<label for="appt">Choose a time for your meeting:</label>

<input type="time" id="appt" name="appt"

min="09:00" max="18:00" required>

<small>Office hours are 9am to 6pm</small>

**<input type="date">**

<label for="start">Start date:</label>

<input type="date" id="start" name="trip-start"

value="2018-07-22"

min="2018-01-01" max="2018-12-31">

**<input type="month">**

<label for="start">Start month:</label>

<input type="month" id="start" name="start"

min="2018-03" value="2018-05">

**<input type="week">**

<label for="week">Choose a week in May or June:</label>

<input type="week" name="week" id="camp-week"

min="2018-W18" max="2018-W26" required>

**FRAMES**

HTML Frames are used to divide the web browser window into multiple sections where each section can be loaded separately. A frameset tag is the collection of frames in the browser window.

**Creating Frames:** Instead of using body tag, use frameset tag in HTML to use frames in web browser. But this Tag is deprecated in HTML 5. The frameset tag is used to define how to divide the browser. Each frame is indicated by frame tag and it basically defines which HTML document shall open into the frame. To define the horizontal frames use row attribute of frame tag in HTML document and to define the vertical frames use col attribute of frame tag in HTML document.

**Example:**

<!DOCTYPE html>

<html>

<head>

<title>Example of HTML Frames using row attribute</title>

</head>

<frameset rows = "40%, 40%, 20%">

<frame name = "top" src="ans.html">

<frame name = "main" src =

"hr.html" />

<frame name = "bottom" src =

"ans.html" />

</frameset>

</html>

Example2:

<!DOCTYPE html>

<html>

<head>

<title>Example of HTML Frames Using col Attribute</title>

</head>

<frameset cols = "30%, 40%, 30%">

<frame name = "top" src =

"ans.html" />

<frame name = "main" src =

"hr.html" />

<frame name = "bottom" src =

"ans.html" />

</frameset>

</html>

**Attributes of Frameset tag:**

* **cols:** The cols attribute is used to create vertical frames in web browser. This attribute is basically used to define the no of columns and its size inside the frameset tag.  
  The size or width of the column is set in the frameset in the following ways:
  + Use absolute value in pixel  
    **Example:**

<frameset cols = "300, 400, 300">

* + Use percentage value  
    **Example:**

<frameset cols = "30%, 40%, 30%">

* + Use wild card values:  
    **Example:**

<frameset cols = "30%, \*, 30%">

* + In the above example \* will take the remaining percentage for creating vertical frame.
* **rows:** The rows attribute is used to create horizontal frames in web browser. This attribute is used to define no of rows and its size inside the frameset tag.  
  The size of rows or height of each row use the following ways:
  + Use absolute value in pixel  
    **Example:**
  + <frameset rows = "300, 400, 300">
  + Use percentage value  
    **Example:**

<frameset rows = "30%, 40%, 30%">

* + Use wild card values  
    **Example:**

<frameset rows = "30%, \*, 30%">

In the above example \* will take the remaining percentage for creating horizontal frame.

* **border:** This attribute of frameset tag defines the width of border of each frames in pixels. Zero value is used for no border.  
  **Example:**

<frameset border="4" frameset>

* **frameborder:** This attribute of frameset tag is used to specify whether the three-dimensional border should be displayed between the frames or not for this use two values 0 and 1, where 0 defines for no border and value 1 signifies for yes there will be border.
* **framespacing:** This attribute of frameset tag is used to specify the amount of spacing between the frames in a frameset. This can take any integer value as an parameter which basically denotes the value in pixel.  
  **Example:**
* <framespacing="20">

It means there will be 20 pixel spacing between the frames

**Iframe:**

<iframe id="inlineFrameExample"

title="Inline Frame Example"

width="300"

height="200"

src="https://www.openstreetmap.org/export/embed.html?bbox=-0.004017949104309083%2C51.47612752641776%2C0.00030577182769775396%2C51.478569861898606&layer=mapnik">

</iframe>