HTML
(Hypertext Markup Language)

History:

- Tim Berners-Lee from CERN Developed HTML to use and share research documents among the scientists.
- HTML is influenced by Standard Generalized Markup Language (SGML)
- It has been used as an internet programming language from late 1991
- Now, every web page on internet is developed using HTML and its associated technologies like CSS, Java script and XML etc.

HTML is a web based formatting language, where different tags are used to format different elements of the web page. Here the tag is a keyword place in angular brackets <>. However some tags have opening and closing tags called container tags and tags that have only opening tag with self-closure are called singular tags.

Example

```
<strong>
    ......           <!--container tag -->
</strong>

<br/>                <!—self-closed singular tag-->
```

Structure of a HTML program

```
<!-- Structure of a html program-->
<!DOCTYPE …>
<html>
    <head>
        <title>------</title>
    </head>
    <body>
        ----------
    </body>
</html>
```

HTML Tags

<!DOCTYPE>

It is an instruction to the web browser about what version of HTML the web page is currently being used. The browser evaluates the code according to the HTML version used within the page. It is to be written in the very first line of any HTML page. <!DOCTYPE> for different versions of HTML are

HTML 4.1 Strict	<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd">	This DTD contains all HTML elements and attributes, but does NOT INCLUDE deprecated elements (like font). Framesets are not allowed.

HTML 4.01 Transitional	<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">	This DTD contains all HTML elements and attributes, INCLUDING deprecated elements (like font). Framesets are not allowed.
HTML 4.01 Frameset	<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Frameset//EN" "http://www.w3.org/TR/html4/frameset.dtd">	This DTD is equal to HTML 4.01 Transitional, but allows the use of frameset content.
HTML 5.0	<!DOCTYPE html>	This DTD is equal to HTML 5.0 and it simply means "this page is written in HTML5"

 [Break]

The <br/> tag inserts a single line break. It is an empty tag which means that it has no end tag. So, it is self-closed.

Example:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
    <body>
        Igate Solutions <br/> Near Manasa Theatre <br/> Kavali
    </body>
</html>
```

<p> [Paragraph]

The <p> tag defines a paragraph. Browsers automatically add some space (paragraph space) before and after each <p> element. The margins can be modified with CSS (with the margin properties)

ATTRIBUTE	VALUE	EXAMPLE
align	Center Right Left Justify	….

Example:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
    <body>
        <p>igate solutions</p>
```

```
        <p align="center">Near Manasa Theatre</p>
        <p align="right">Kavali</p>
    </body>
</html>
```

Comments in HTML

```
<!—xxxxxxxxxxxxxxxxxxx -->
```

<h1> to <h6> [Headings]

The <h1> to <h6> tags are used to define HTML headings. <h1> defines the most important heading, <h6> defines the least important heading.

Note: Search engines index the information on the webpage prioritizing the tags from <h1> to <h6>.

ATTRIBUTE	VALUE	EXAMPLE
Align	Center Right Left Justify	… …

Example:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
    <head>
        <h1 align="center">igate solutions</h1>
    </head>
    <body>
        <h1>Address</h1>
        <h2>Behind Manasa Theatre</h2>
        <h3>Kavali</h3>
        <h4>SPSR Nellore</h4>
        <h5>AP</h5>
        <h6>India</h6>
    </body>
</html>
```

Formatting Content Tags

<b>: Bold (Deprecated in HTML5)
<i>: Italic (Deprecated in HTML5)

<u>: Underline (Deprecated in HTML5)
<strike> : Strikeout (Deprecated in HTML5)
<strong> : Equals to Bold (Recommended in HTML5)
<em> : Equals to Italic (Recommended in HTML5)

Example

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
    <body>
        Formatting Content tags in HTML<br/>
        <b>Igate Solutions</b><br/>
        <i>Near Manasa Theatre</i><br/>
        <u>Kavali</u><br/>
        <strike>Hello World</strike><br/>
        <strong>Igate Solutions</strong><br/>
        <em>Near Manasa Theatre</em><br/>
    </body>
</html>
```

Nesting of Tags:

One HTML tag can be placed within another HTML tag. So that multiple formats can be applied to the content. But Make sure that, first opened tag must be closed last.

Example

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
    <body>
      <strong><em>
      Igate Solutions
      </em></strong>
      <p><strong>Igate Solutions</strong></p>
    </body>
</html>
```

Color Schemes in HTML

In HTML we can set the color of an element using major four different types of color schemes that are

Color names
Red, green, blue, black, white, ….

Color mix with rgb() function
Here the combination of red, green and blue constants ranges from 0 to 255 need to be specified to create a mixed color

Rgb(red,green,blue)

Examples

rgb(255,0,0) – red ; rgb(0,255,0) – green ; rgb(0,0,255) – blue; rgb(0,0,0) – black ;
rgb(255,255,255) - white

Colr mix with rgba() function

RGBA color values are an extension to RGB color values with an alpha channel - which specifies the opacity of the object. An RGBA color value is specified with: rgba(red, green, blue, alpha). The alpha parameter is a number between 0.0 (fully transparent) and 1.0 (fully opaque).

Example:

Rgba(255,0,0,0.3)

Color mix with Hexadecimal constant

Here the combination of red, green and blue constants ranges from 00 to FF need to be specified to create a mixed color. A prefix character # must be preceded with the color mix

#FFFFFF

Red green blue

Examples

#FF0000 – red ; #00FF00 – green ; #0000FF – blue ; #000000 – black ; #FFFFFF - white

To select a color visit : http://www.colorhexa.com/

<center>

It is a container tag used align the text or any object to the center of the container. It is deprecated by HTML5

```
<center>
Igate Solutions
</center>
```

 [Formatting font]

The tag is used to format the font name, size and color. The default font name is chosen by the browser itself if font face is not specified. Generally, browsers choose generic font families like 'Times New Roman' and 'Georgia' if we don't specify any font family.

The default size of the is '3' in abstract. It equals to '12pt' (3X4) in point units. If we specify the font size as 6 then it would result (6x4) pt.

Note: It is not supported in HTML5, instead using CSS is recommended.

ATTRIBUTE	VALUE	EXAMPLE
Color	rgb(x,x,x) #xxxxxx colorname (e.g., red,green,blue)	…
face	Font_family (e.g., Verdana, Courier)	…
Size	An integer in points	… Or

		…

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<body>
<center>
  <font size="6" face="arial" color="green">
    Igate Solutions
  </font>
</center>
<p>
    <font face="verdana" size="3">
    Near Manasa Theatre<br/>
    Kavali
    </font>
</p>
</body>
</html>
```
Note: The font tag is no more supported by modern browsers

 [Ordered list]

The <ol> tag defines an ordered list. An ordered list can be numerical or alphabetical. We use the <li> tag to define list items.

ATTRIBUTE	VALUE	EXAMPLE
reversed (HTML5) (not supported in IE browser)	Reversed	<ol reversed>…
start (supported by all browsers)	Any integer	<ol start="50">…
type	1, A, a, i, I	<ol type="I"> ….
value ( )	1, A, a, i, I	<li value="20">…

Example:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
    <head>
        <h1 align="center">igate solutions</h1>
    </head>
    <body>
    <ol start="10">
        <li>iphone</li>
        <li>ipad</li>
        <li value="20">ipod</li>
        <li>iMac</li>
    </ol>
    <ol type="A">
        <li>iphone</li>
        <li>ipad</li>
        <li>ipod</li>
```

```
        <li>iMac</li>
      </ol>
    </body>
</html>
```

 [Un-ordered List]

The <ul> tag defines an unordered (bulleted) list. Use the <ul> tag together with the <li> tag to create unordered lists.

ATTRIBUTE	VALUE	EXAMPLE
Type (not supported in HTML 5)	Disc Square circle	<ul type="square">…

Example:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
     <body>
        <ul type="disc">
         <li>Coffee</li>
         <li>Tea</li>
         <li>Milk</li>
         </ul>
         <ul type="square">
         <li>iphone</li>
         <li>ipad</li>
         <li>ipod</li>
         <li>iMac</li>
         </ul>
    </body>
</html>
```

<dl> [Definition Lists]

The <dl> tag defines a description/definition list. <dt> and <dl> are used in conjunction with <dl>. Here <dt> is used to define definition title and <dd> used to define definition details.

Example:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
     <body>
        <dl>
        <dt>Coffee</dt>
        <dd>Black hot drink</dd>
        <dt>Milk</dt>
        <dd>White cold drink</dd>
         </dl>
    </body>
```

```
</html>
```

<table>

It is a tag mechanism used to define a data table with rows and columns. Sometimes it is also used to design layout of a web page. Other tags like <tr>, <td>, <th> are used in conjunction with <table> tag.

Here <tr> tag is used to define a row, <td> is used to define a data element, <th> is used to define heading level data element in bold format.

A more complex HTML table may also include <caption>, <col>, <colgroup>, <thead>, <tfoot>, and <tbody> elements.

Note: All table attributes are discouraged in HTML5 as it encourages the usage of CSS instead.

ATTRIBUTE	VALUES	EXAMPLE
align	Left, Center, Right	<table align="right"> <tr align="right"> <td align="right">
bgcolor	Color name (e.g., red, green, magenta…) Hexa code (e.g., #009aae) RGB values (251,010,36)	<table bgcolor="#00FF00"> <tr bgcolor="#00FF00"> <td bgcolor="#00FF00">
Border	Numbers (e.g., 0,1,2,3…)	<table border="1">
Cellpadding	Pixels (e.g., 2px)	<table cellpadding="10">
Cellspacing	Pixels	<table cellspacing="10">
Rules	None, Groups, Rows, cols, All	<table rules="rows">
Width	Pixels(e.g., 200px, 720px) % (e.g., 40%, 80%)	<table width="400px">
Height	Pixels(e.g., 400px, 540px) % (e.g., 40%, 80%)	<table height="400px">

Example: Drawing basic table

Version	Year	Who
HTML 1.0	1991	Berners Lee
HTML 2.0	1995	W3C
HTML 3.0	1998	W3C
HTML 4.0	1999	W3C
XHTML 1.0	2000	W3C
HTML 5.0	2004	WHATWG
XHTML 2.0	2009	W3C

Time Line of HTML

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
    <body>
        <table align="center" cellpadding="7" width="600px" cellspacing="0"
border="1">
        <caption align="bottom">Time Line of HTML</caption>
        <tr bgcolor="#cccccc">
         <th>Version</th>
         <th>Year</th>
         <th>Who</th>
        </tr>
        <tr>
         <td>HTML 1.0</td>
         <td>1991</td>
         <td>Berners Lee</td>
        </tr>
        <tr>
         <td>HTML 2.0</td>
         <td>1995</td>
         <td>W3C</td>
        </tr>
             ---------------
        </table>
    </body>
</html>
```

Example 2: Drawing table with row and column spans.

Year	Operating Systems		Most Sales
	Android	iOS	
2008	Android 1.0	iPhone OS 1.0-2.0	Android
2009	Android 1.1-2.0	iPhone OS 3.0	iOS
2010	Android 2.1-2.2	iPhone OS 3.1-4.0	iOS
2011	Android 2.3-2.3.4	iOS 4.2-5.0	Android
2012	Android 2.3.5-4.2	iOS 6.0	Android
2013	Android 4.2-4.4.2	iOS 7.0	-Equal-
2014	Android 4.4.3-5.0.2	iOS 8.0	iOS
2015	Android 5.1-5.1.1	iOS 8.1.3-9.0 beta	Android

Timeline of Smartphone Operating Systems

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
    <body>
        <table align="center" cellpadding="7"  width="600px" cellspacing="0"
border="1">
        <caption align="bottom"><br/>Timeline of Smartphone Operating
Systems</caption>
        <tr bgcolor="#cccccc">
         <th rowspan="2">Year</th>
         <th colspan="2">Operating Systems</th>
         <th rowspan="2">Most Sales</th>
        </tr>
        <tr align="center">
         <td>Android</td>
         <td>iOS</td>
        </tr>
        <tr>
         <td>2008</td>
         <td>Android 1.0</td>
         <td>iPhone OS 1.0-2.0</td>
         <td>Android</td>
        </tr>
            --------------
        </table>
    </body>
</html>
```

Example 3: Drawing table with ordered and unordered lists

iPhone	OSX	MacBook

5. iPhone
6. iPhone 2
7. iPhone 3
8. iPhone 3S
9. iPhone 4
10. iPhone 4S
11. iPhone 5
12. iPhone 5S
13. iPhone 6
14. iPhone 6 Plus
	• Kodiak
	• Cheetah
	• Puma
	• Jaguar/li>
	• Panther
	• Tiger
	• Leopard
	• Snow Leopard
	• Lion
	• Mountian Lion
	• Mavericks
	• Yosemite
	• El Captain
		MacBook
		    12-inch version
		MacBook Air
		    11-inch version
		MacBook Air
		    13-inch version
		MacBook Pro
		    13-inch, 2.3GHz version
		MacBook Pro
		    13-inch, 2.5GHz version
		MacBook Pro
		    15-inch, 2.5GHz version

hello	world	welcome

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
      <body>
            <table border="1" cellspacing="0px" cellpadding="3px" width="600px"
height="auto"
                                                        align="center">
      <thead bgcolor="#dddddd">
       <th>iPhone</th>
       <th>OSX</th>
       <th>MacBook</th>
      </thead>
      <tbody>
            <tr>
            <td>
            <ol start="5" type="1">
                    <li>iPhone</li>
                    <li>iPhone 2</li>
                    <li>iPhone 6</li>
                    <li>iPhone 6 Plus</li>
            </ol>
            </td>
            <td>
            <ul type="disc">
                    <li>Kodiak</li>
                    <li>Cheetah</li>
                    <li>Mountian Lion</li>
                    <li>Mavericks</li>
                    <li>Yosemite</li>
                    <li>El Captain</li>
            </ul>
            </td>
            <td>
            <dl>
                    <dt>MacBook</dt>
                        <dd>12-inch version</dd>
                    <dt>MacBook Air</dt>
                        <dd>11-inch version</dd>
                    <dt>MacBook Pro</dt>
                        <dd>13-inch, 2.5GHz version</dd>
```

```
                    <dt>MacBook Pro</dt>
                         <dd>15-inch, 2.5GHz version</dd>
          </dl>
          </td>
          </tr>
     </tbody>
          <tfoot align="center" bgcolor="yellow">
               <td>hello</td>
               <td>world</td>
               <td>welcome</td>
          </tfoot>
          </table>
     </body>
</html>
```

Example: Table rules

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
    <body>
       <table align="center" cellpadding="7" width="600px" cellspacing="0"
border="1" rules="none">
       <caption align="bottom">Time Line of HTML</caption>
       <tr bgcolor="#cccccc">
        <th>Version</th>
        <th>Year</th>
        <th>Who</th>
       </tr>
       <tr>
        <td>HTML 1.0</td>
        <td>1991</td>
        <td>Berners Lee</td>
       </tr>
       <tr>
        <td>HTML 2.0</td>
        <td>1995</td>
        <td>W3C</td>
       </tr>
      </table>
    </body>
</html>
```
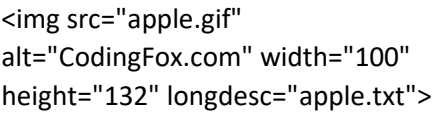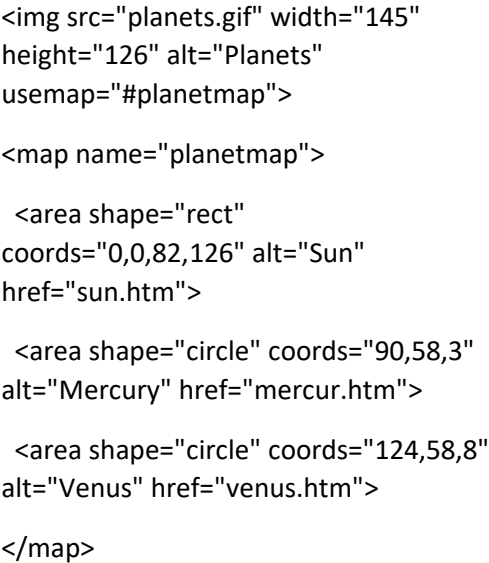
Version	Year	Who
HTML 1.0	1991	Berners Lee
HTML 2.0	1995	W3C

Time Line of HTML

✎Notes

<img>

       The <img> tag is used to embed an image in a HTML page. It has two required attributes that are **src** and **alt**. **src** specifies the source of image and **alt** is the text that would be displayed on hover on the image.

       We can load images belongs to different formats like **.bmp, .jpg, .png, .gif** according to the required size and quality. Here the higher the color depth (that is, the more bits used to uniquely describe the color of each pixel), more the quality is.

Name	Color Depth	Compression	Animation	Transparency
Graphics Interchange Format (GIF)	8-bit (256 colors)	Lossless	Yes	Yes
Joint Photographic Experts Group (JPEG, JPG)	24-bit (1.6 million colors)	Lossy	No	No
Portable Network Graphics (PNG)	24-bit or 48-bit	Lossless	Yes	Yes

Note: Images are not technically inserted into an HTML page, images are linked to HTML pages. The <img> tag creates a holding space for the referenced image.

ATTRIBUTE	VALUE	EXAMPLE
align (Not supported in HTML5)	Top, Bottom, Middle, Right, Left (aligns the image in respect to the text)	<img src="smiley.gif" alt="Smiley face" align="top/bottom/middle/right/left">
alt	Text	<img src="smiley.gif" alt="Smiley face">
border (Not supported in HTML5)	Pixels (e.g., 2px)	<img src="smiley.gif" alt="Smiley face" border="5">
crossorigin (Introduced in HTML5)	anonymous use-credentials	<img id="image" crossorigin="anonymous"src="http://...." alt="" width="400" height="400">
height	Pixels (e.g., 400px)	<img src="smiley.gif" alt="Smiley face" height="42/42px" width="42">
width	Pixels (e.g., 300px)	<img src="smiley.gif" alt="Smiley face" height="42" width="42/42px">
hspace , vspace(Not supported in HTML5)	Pixels (e.g., 20px) (Gives space vertically or horizontally between the text and image)	<img src="smiley.gif" alt="Smiley face" width="42" height="42" align="middle" hspace="50/50px">This is some text. This is some text. This is some text.
Ismap	Ismap (gives coordinates as output)	

		<img src="hello.gif" alt="CodingFox.com" ismap>
Longdesc (Not supported in HTML5)	URL	<img src="apple.gif" alt="CodingFox.com" width="100" height="132" longdesc="apple.txt">
Src	URL	<img src="smiley.gif" alt="Smiley face">
Usemap	#mapname (e.g., #planetmap)	<img src="planets.gif" width="145" height="126" alt="Planets" usemap="#planetmap"> <map name="planetmap"> <area shape="rect" coords="0,0,82,126" alt="Sun" href="sun.htm"> <area shape="circle" coords="90,58,3" alt="Mercury" href="mercur.htm"> <area shape="circle" coords="124,58,8" alt="Venus" href="venus.htm"> </map>

Example:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
<body>
   <img src="apple.gif" alt="apple" align="top"/>
</body>
</html>
```

<a>

The <a> tag defines a hyperlink, which is used to link from one page to another. The most important attribute of the <a> element is the **href** attribute, which indicates the link's destination.

By default, links will appear as follows in all browsers:

- An unvisited link is underlined and blue
- A visited link is underlined and purple
- An active link is underlined and red (Appears on mouse down)

Tip: Attributes like download, hreflang, media, rel, target, and type cannot be present if the href attribute is not present.

Tip: A linked page is normally displayed in the current browser window, unless you specify another target.

Tip: Use CSS to style links.

ATTRIBUTE	VALUE	EXAMPLE
Charset (Not supported in HTML5)	Char_encoding (e.g., UTF-8)	`<a charset="UTF-8" href="http://www.codingfox.com">www.codingfox.com</a>`

Coords (Not supported in HTML5)		`<map name="Map1">`
		
		`  <a href="sun.htm" shape="rect" coords="0,0,82,126">The Sun</a>`
		
		`  <a href="mercur.htm"shape="circle" coords="90,58,3">Mercury</a>`
		
		`  <a href="venus.htm" shape="circle" coords="124,58,8">Venus</a>`
		
		` </map>`

Download	Filename (optional)	`<a href="/images/myCodingFoximage.jpg" download="filename">`
Href	URL	`<a href="http://www.codingfox.com">Visit CodingFox</a>`
Hreflang	Language_code (e.g.,en, ru, ph, jp, …)	`<a href="http://www.codingfox.com" hreflang="en">CodingFox</a>`

Media (Not supported in HTML5. Use the global id attribute instead.)	Media_query	`<p>`
		
		`<a href="report.asp?output=print" media="print and (resolution:300dpi)">print</a>`
		
		`</p>`

Name (Not supported in HTML5. Use the global id attribute instead.)	Section_name	`<a href="#C4">See also Chapter 4</a>`
		
		`<h2><a name="C4">Chapter 4</a></h2>`
		
		`<p>This chapter explains ba bla bla</p>`

Rel	Alternate, author, bookmark, help, license, next, nofollow, dofollow(default), noreferrer, prefetch, prev, search, tag	`<a rel="nofollow" href="http://www.functravel.com/">Cheap Flights</a>`
Rev (Not supported in HTML5.)	Text	`<a rev="nofollow" href="http://www.functravel.com/">Cheap Flights</a>`

Shape (Not supported in HTML5)	Default, rect, circle, poly	`<map name="Map1">`
		
		  `<a href="sun.htm" shape="rect" coords="0,0,82,126">The Sun</a>`
		
		  `<a href="mercur.htm"shape="circle" coords="90,58,3">Mercury</a>`
		
		  `<a href="venus.htm" shape="circle" coords="124,58,8">Venus</a>`
		
		  `</map>`

Target	_blank, _parent, _self, _top, Framename	`<a href="http://www.codingfox.com" target="_blank">Visit CodingFox</a>`
Type	Media_type	`<a href="http://www.codingfox.com" type="text/html">CodingFox</a>`
Title	Tool tip text	`<a href="http://www.codingfox.com" type="text/html" title="C-tutorial">CodingFox</a>`

Example:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
<body>
    <a href="http://www.codingfox.com">CodingFox</a>
</body>
</html>
```

Absolute Address:
Writing the total physical path of a page is called absolute path

Example:
```
<a href="http://www.codingfox.com/Chapter-1/0.5.Arrays.html">CodingFox</a>
```

Relative address:
Writing the address of the page in related with the current location

Example:
```
<a href="10.6.Arraysinput.html">CodingFox</a>
```

Referring another page in the same folder

```
<a href="../hello.html">CodingFox</a>
```

Referring a page in the parent folder

```
<a href="../functions/11.1.functions-introduction.html">CodingFox</a>
```

Referring the page in another folder of the same level

Opening a page in new window

Use _blank value as the target attribute to open the page in a new window. In case of HTML5 we do the same using JavaScript

```
<a target="_blank" href="http://www.codingfox.com/about.html">CodingFox</a>
```

Creating an e-mail link

Add **mailto:** to your mail address and set as href. It will open the local mailer program with the given address. We can also set the subject automatically by concatenating subject= with concatenating operator ?

```
<a href="mailto:nicesubbusir@gmail.com?subject=comment" title="commant">mail
me</a>
```

Linking to anchors

We can link to different sections of the same page. First we need to create anchors using the name attribute and then these names can be referred with the href attribute

```
<h2><a name="first">Chapter 4</a></h2>      // defining the anchor

<a href="#first">Arrays</a>  // referring  the anchor
```

Linking other files

Like a web page, even other files like .doc, .docx, .zip, .pdf, .exe can be linked using href attribute.

```
<a href="file:///d:/Women shoppe.docx">mail me</a>
```

Referring the local document using file access protocol

```
<a href="http://www.qc.com/docs/whitepapers.pdf">mail me</a>
```

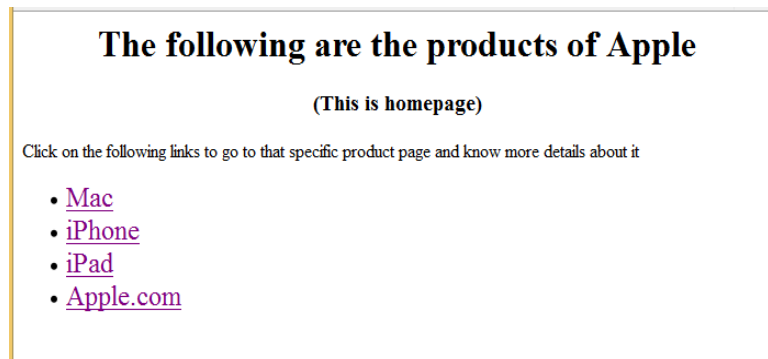 Referring the document from the web

```
 <a href="http://www.qc.com/docs/whitepapers.pdf" download>mail me</a>
```
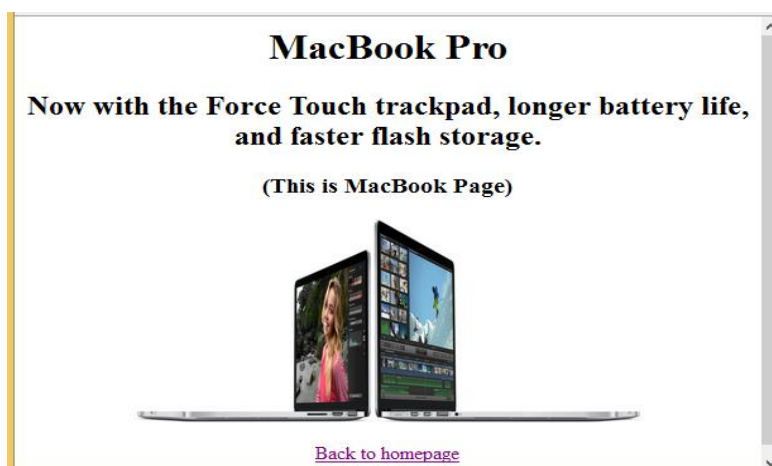
Allowing to download the file

```
<a href="http://www.qc.com/resources/installer.exe">start install</a>
```
Allows to install an application from web server to the local machine

Example

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<html>
   <head>
        <title>Example for anchor tag(homepage)</title>
   </head>
   <body>
       <h1 align="center">The following are the products of Apple</h1>
       <h3 align="center">(This is homepage)</h3>
       <p>Click on the following links to go to that specific
                    product page and know more details about it
       <ul>
             <li><font size="5"><a href="mac.html">Mac</a></font></li>
             <li><font size="5"><a href="iphone.html">iPhone</a></font></li>
             <li><font size="5"><a href="ipad.html">iPad</a></font></li>
              <li><font size="5">
                 <a href="http://www.apple.com">Apple.com</a></font></li>
       </ul>
              </p>
        </body>
</html>
```



```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<html>
       <head>
             <title>Details about Mac</title>
       </head>
       <body>
          <h1 align="center">MacBook Pro</h1>
```

```
                    <h2 align="center">Now with the Force Touch trackpad, longer battery
life, and faster flash storage.</h2>
                    <h3 align="center">(This is MacBook Page)</h3>
                    <img align="center" src="overview_hero.jpg" width="100%"></img>
                    <p align="center"><a href="anchor_homepage.html">Back to
homepage</a></p>
        </body>
</html>
```

An image as a hyperlink

By keeping an <img> tag within <a> tag, we can make an image as a hyperlink

Example:

```
<a href="http://www.apple.com">
<img stc="../images/apple1.png"/>
</a>
```

Image map

Image map is an overlay on an image that defines number of hotspots according to cords we supply. These hotspots can be different dimensions like rectangle, circle and polygon. Each hot spot refers different web pages or different sections of the same page.

The position of a rectangular hotspot is defined by two points: its upper-left and lower right Corners.

```
<area shape="rect" coords="284,170,352,314" href="enter.htm">
```

To define a circular hotspot, we use three coordinates: two for the circle's center point (horizontal and vertical values), and one for the radius of the circle.

```
<area shape="circle" coords="270,364,144" href="index.htm">
```

To define a poly hotspot, we use as many coordinates as are needed to define all the vertexes of the shape. Poly hotspots consist of straight lines that connect each of the points we define.

```
<area shape="poly" coords="287,71,413,286,314,446,188,267" href="index.htm">
```

Image map can be defines in two steps that are
1. Defining map with hotspots with <area>
2. Attaching the map with image using "usemap" attribute

Example

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0 Transitional//EN">
<html>
    <body>
        <img src="images/bar.jpg" usemap="#navbar">
         <map name="navbar">
         <area shape="rect" coords="0,0,60,30" href="home.htm">
         <area shape="rect" coords="70,0,155,30" href="tips.htm">
         <area shape="rect" coords="165,0,250,30" href="problem.htm">
```

```
            <area shape="rect" coords="260,0,325,30" href="products.htm">
            <area shape="rect" coords="335,0,400,30" href="about.htm">
            <area shape="rect" coords="410,0,490,30" href="contact.htm">
            </map>
    </body>
</html>
```


<body>

The <body> tag defines the document's body. It contains all the contents of an HTML document, such as text, hyperlinks, images, tables, lists, etc.

Note: All layout attributes are removed in HTML5.

ATTRIBUTE	VALUE	EXAMPLE
Alink (Not supported in HTML5)	*color_name|hex_number|rgb_number*	<body alink="green">
Background (Not supported in HTML5)	*URL of the image*	<body background="/images/bgimage.jpg">
Bgcolor (Not supported in HTML5)	*color_name|hex_number|rgb_number*	<body bgcolor="#E6E6FA">
Link (Not supported in HTML5)	*color_name|hex_number|rgb_number*	<body link="blue">
text (Not supported in HTML5)	*color_name|hex_number|rgb_number*	<body text="green">
Vlink (Not supported in HTML5)	*color_name|hex_number|rgb_number*	<body vlink="red">

Example:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
    <body alink="green" background="/images/bgimage.jpg" bgcolor="#E6E6FA"
link="white" text="white" vlink="red">
        <p> Igate Solutions <br/> Near Manasa Theatre <br/> Kavali</p>
    </body>
</html>
```

Igate Solutions
Manasa Theatre
Kavali

✎Notes

✏Notes

✏Notes

Meta tags:

Metadata is the data about data. The <meta> tag provides metadata about the HTML document. It will not be displayed on the page, but will be used by the browsers and search engines. Meta elements are typically used to specify page description, keywords, author of the document, last modified etc.

Points to remember:

- <meta> tags always goes inside the <head> element.
- Metadata is always passed as name/value pairs.
- The content attribute MUST be defined if the name or the http-equiv attribute is defined. If none of these are defined, the content attribute CANNOT be defined.

```
<meta charset="UTF-8">
```

It is to specify that the character set to be used by the browser while displaying the web page

```
<meta name="description" content="Keyboards used with some platforms were missing
some of these characters. So it was not possible to write C code on these
machines. ">
```

It would be displayed with the search result

Trigraph characters in C language - CodingFox
codingfox.com/4-5-**trigraph**-characters-in-**c**-language/ ▾
Sep 12, 2013 - Keyboards used with some platforms were missing some of these characters. So it was not possible to write C code on these machines.

```
<meta name="keywords" content="C-language tutorials, C, D in deapth ">
```

Search engines search for the required pages by looking for the search criteria on the web based on the keywords specified with meta tag

```
<meta name="author" content="Subbu">
```

It is the name of the author of the page

<div>

Initially Tables and framesets were used to lay out a web page, but now <div> is used to layout the page. <div> is a blocked HTML Document Division Element used to define a style to a section or a division of a web page using Cascading Style Sheets (CSS)

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
    <body>
        <div>
            Igate Solutions
        </div>
        <div>
            Near Manasa Theatre
```

```
        </div>
        <div>
            Kavali
        </div>
    </body>
</html>
```

✎Notes

Miscellaneous tags

The <sup> tag defines 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, like WWW.

The <sub> tag defines 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 H_2O.

Example:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
<body>
    <p>(a+b)<sup>2</sup>=a<sup>2</sup>+b<sup>2</sup>+2ab</p>
    <p>CH<sub>4</sub>+2O<sub>2</sub> --> CO<sub>2</sub>+2H<sub>2</sub>O</p>
</body>
</html>
```

Output:

$$(a+b)^2 = a^2 + b^2 + 2ab$$

$$CH_4 + 2O_2 \;\text{-->}\; CO_2 + 2H_2O$$

Generally the text we type in any word processor follows proportional font that is different characters take different sizes according to their shapes. In HTML there are some tags used to format the text monospaced.

Note The <tt> tag was widely used for monospace text in a document in earlier HTML versions, but it is not supported in HTML5.
<kbd> (Keyboard) : The tag used for monospaced text to indicate something a user should type on a keyboard
<code> (Code) The tag used for monospaced text applied to programming code
<samp> (Sample) The tag used for sample text, which is largely the same thing as <code>
<pre> (Preformatted) The tag preserves the spaces and next line characters

Example:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
    <body>
        MMMMMMMMMMMMMMMM<br/>
        IIIIIIIIIIIIIIII<br/>
        <tt>
```

```
            MMMMMMMMMMMMMMMMM<br/>
            IIIIIIIIIIIIIII<br/>
            </tt>
            <code>
                #include<stdio.h><br/>
                int main()<br/>
                {<br/>
                    int x,y;<br/>
                    printf("Enter Two integers:\n");<br/>
                    scanf("%d%d",&x,&y);<br/>
                    printf("Sum %d\n",x+y);<br/>
                    return 0;<br/>
                }<br/>
            </code>
             <kbd>
              55<br/>
              11<br/>
              Sum 66
             </kbd>
             <pre>
                 sdjfhkjdg dfgdfgsdfg
                     sdfjghkljdfghjsdfgjhsldfsdfg
                 sdfgksjfhsdgf
             </pre>
        </body>
</html>
```

Output:


```
MMMMMMMMMMMMMMMMM
IIIIIIIIIIIII
MMMMMMMMMMMMMMMMM
IIIIIIIIIIIIIII
#include
int main()
{
int x,y;
printf("Enter Two integers:\n");
scanf("%d%d",&x,&y);
printf("Sum %d\n",x+y);
return 0;
}
55
11
Sum 66

            sdjfhkjdg dfgdfgsdfg
                sdfjghkljdfghjsdfgjhsldfsdfg
            sdfgksjfhsdgf
```

<blockquote>

When quoting blocks from other sources, it is customary on Web pages to indent those blocks from the main body of the text. The <blockquote> tag does exactly that and you can use <blockquote> for any text that you want to indent, not just quotations.

Example:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
    <body>
        <h4>W3C</h4>
```

```
        <blockquote
cite="https://en.wikipedia.org/wiki/World_Wide_Web_Consortium">
        <p>
        The World Wide Web Consortium (W3C) is the main international
standards organization for the World Wide Web (abbreviated WWW or W3). Founded and
currently led by Tim Berners-Lee, the consortium is made up of member
organizations which maintain full-time staff for the purpose of working together
in the development of standards for the World Wide Web.
            As of 10 April 2015, the World Wide Web Consortium (W3C) has 397
members. W3C also engages in education and outreach, develops software and serves
as an open forum for discussion about the Web.
        </p>
    </blockquote>
  </body>
</html>
```

Output:

W3C

The World Wide Web Consortium (W3C) is the main international standards organization for the World Wide Web (abbreviated WWW or W3). Founded and currently led by Tim Berners-Lee, the consortium is made up of member organizations which maintain full-time staff for the purpose of working together in the development of standards for the World Wide Web. As of 10 April 2015, the World Wide Web Consortium (W3C) has 397 members. W3C also engages in education and outreach, develops software and serves as an open forum for discussion about the Web.

Special Characters

Char	Number	Entity	Description
©	©	©	COPYRIGHT SIGN
®	®	®	REGISTERED SIGN
€	€	€	EURO SIGN
™	™	™	TRADEMARK
←	←	←	LEFTWARDS ARROW
↑	↑	↑	UPWARDS ARROW
→	→	→	RIGHTWARDS ARROW
↓	↓	↓	DOWNWARDS ARROW
&	&	&	AMPERSAND
>	>	>	GREATE THAN
<	<	<	LESS THAN
µ	µ	µ	MICRON
¿	&#191	&iquest	INVERTED QUESTION MARK

| – | – | – | EN DASH |
| — | — | — | EM DASH |

For more special symbol HTML interpretations, refer this link:
https://www.utexas.edu/learn/html/spchar.html

Note:

- The " entity was mistakenly omitted from the HTML 3.2 specification. While use of " generates error reports when validating against 3.2, browsers have continued to recognize the entity and its use is generally safe (sticklers may wish to use " instead). The omission has been corrected in the HTML 4.0 specification.
- The non-breaking space (or) can be used not only to prevent the separation of words by line wraps, but also to force a space equal in size to a keyboard/spacebar space (useful for indentation or wider word separation) or to "hold" space in the empty cell of a table (as in the table above).
- The middle dot (· or ·) can be used as a bullet and embedded anywhere in text. Because it is equal in size to a period, however, it may be necessary to apply <B> </B> or tags to enhance its graphic effect (use of <FONT SIZE="x"> </FONT> or <BIG> </BIG> elements is not recommended, as these will alter the character's vertical spacing relative to other characters in the same line).

<hr>

The <hr> tag defines a thematic break in an HTML page (e.g. a shift of topic). It is used to separate content (or define a change) in an HTML page.

Note:

- In HTML5, the <hr> tag defines a thematic break.
- In HTML 4.01, the <hr> tag represents a horizontal rule.
- However, the <hr> tag may still be displayed as a horizontal rule in visual browsers, but is now defined in semantic terms, rather than presentational terms.
- All the layout attributes are removed in HTML5. Use CSS instead.
- In HTML, the <hr> tag has no end tag.
- In XHTML, the <hr> tag must be properly closed, like this: <hr />.

Example:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
    <body>
        <h1>HTML</h1>
        <p>HTML is a language for describing web pages.</p>
        <hr color="red" width="50%" size="5" align="left"/>
        <h1>CSS</h1>
        <p>CSS defines how to display HTML elements.</p>
    </body>
</html>
```

<marquee>

The HTML <marquee> tag is used for scrolling piece of text or image displayed either horizontally across or vertically down your webpage.
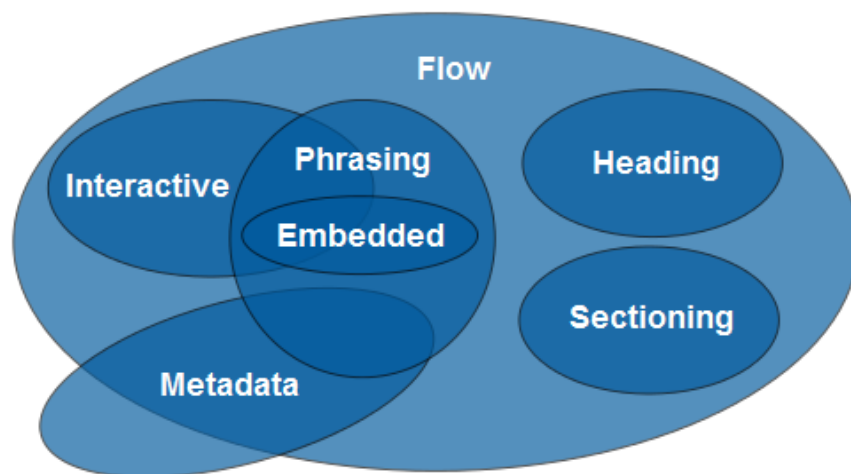
Note: The usage of <marquee> tag is discouraged from HTML5 as it is obsolete and can be removed at any time. It may work on some browser but, still not quite stable.

ATTRIBUTE	VALUE	EXAMPLE
behavior	scroll slide alternate	<marquee behavior="scroll">This is basic example of marquee</marquee>
bgcolor	rgb(x,x,x) #xxxxxx colorname	<marquee bgcolor="yellow">This is basic example of marquee</marquee>
direction	up down left right	<marquee behavior="scroll" direction="down">This is basic example of marquee</marquee>
hspace	pixels	Specifies horizontal space around the marquee.
loop	number	Specifies how many times to loop. The default value is INFINITE, which means that the marquee loops endlessly.
scrolldelay	seconds	Defines how long to delay between each jump.
scrollamount	number	Defines how how far to jump.
width	pixels or %	Defines the width of marquee.
vspace	pixels	Specifies vertical space around the marquee.

Example:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
        "http://www.w3.org/TR/html4/loose.dtd">
<html>
    <body>
        <marquee bgcolor="yellow" height="50%">This is basic example of
marquee</marquee>
    </body>
</html>
```

Content Model of any HTML Page

Heading content

h1, h2, h3, h4, h5, h6

Phrasing content

a*, abbr, area*, audio, b, bdi, bdo, br, button, canvas, cite, code, data, date, datalist, del*, dfn, em, embed, i, iframe, img, input, ins*, kbd, keygen, label, map*, mark, math, meter, noscript, object, output, progress, q, ruby, s, samp, script, select, small, span, strong, sub, sup, svg, textarea, time, u, var, video, wbr, *Text**

Sectioning content

article, aside, nav, section

Embedded content

audio, canvas, embed, iframe, img, math, object, svg, video

Interactive content

a, audio*, button, embed, iframe, img*, input*, keygen, label, object*, select, textarea, video*

Metadata content

base, link, meta, noscript, script, style, title

Flow content

a, abbr, address, area*, article, aside, audio, b, bdi, bdo, blockquote, br, button, canvas, cite, code, data, datalist, del, dfn, div, dl, em, embed, fieldset, figure, footer, form, h1, h2, h3, h4, h5, h6, header, hr, i, iframe, img, input, ins, kbd, keygen, label, main, map, mark, math, meter, nav, noscript, object, ol, output, p, pre, progress, q, ruby, s, samp, script, section, select, small, span, strong, style*, sub, sup, svg, table, textarea, time, u, ul, var, video, wbr, *Text**

Validating a HTML program

"validator.w3.org" is the online tool developed and maintained by W3C to validate a web page. It accepts either url or the total code of a webpage and shows the validation result according to the <!doctype> dtd we write at the top of the web page.

✎Notes