## What is HTML?

- Using HTML we can create our own static web pages.
- HTML Stands for Hypertext Mark-up Language.
- HTML Describes the structure for web pages using mark-up.
- HTML Elements are building blocks of HTML Pages.
- HTML Elements can also be representing as HTML tags.
- HTML tags are label pieces of content such as Headings, Paragraphs, and Tables and so on.
- Each HTML Document is divided into two parts such as Head Section and Body Section. Head Section can be represented with <head> tag and it is used to hold the configuration information such as title of the webpage, Script, Styles and other meta-information about the document. Body Section can be represented with <body> tag and it is used to what ever written in between the <body> tags those content will be displayed on webpage.
- Browsers don't support to display the HTML tags but use of these tags the Content will be displayed on webpage.

## Why we use HTML?

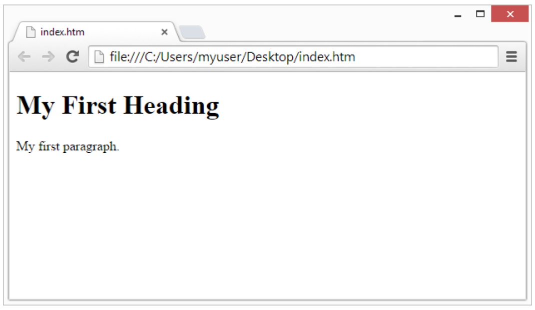
HTML is used to create WebPages; a web page may contain many hyperlinks, when you click on these hyperlinks the address of a webpage will be opened, and that one also contains some hyperlinks, like this communication happens in between the WebPages. These web pages can access anywhere in the world through the internet and it is also used to provide the user interface, because of this reasons we will use HTML.

## Version of HTML

| Version | Year |
|---|---|
| HTML | **1991** |
| HTML 2.0 | **1995** |
| HTML 3.2 | **1997** |
| HTML 4.01 | **1999** |
| XHTML | **2000** |
| HTML 5 | **2014** |

## What is Browser

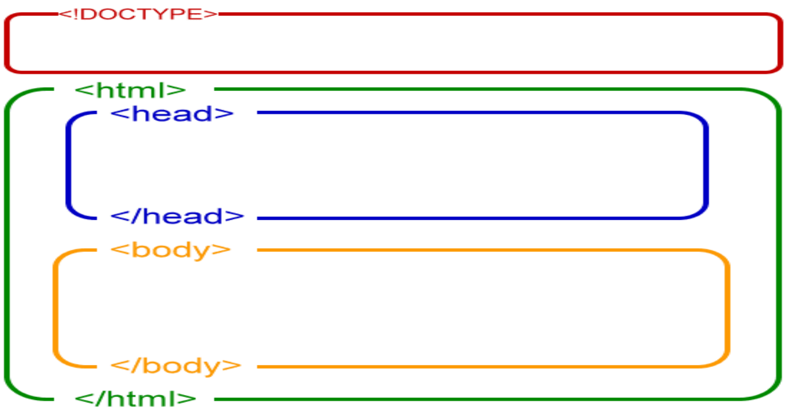
The purpose of a web browser (Chrome, IE, Firefox, Safari) is to read HTML documents and display them. The browser does not display the HTML tags, but uses them to determine how to display the document:



My First Heading

My first paragraph.

## HTML Page Structure



## What is <!DOCTYPE> in HTML 5?

- <!DOCTYPE> is used to instruct the browser about what version of the HTML Document is Written in and browser knows what type of document to expect.
- <!DOCTYPE> must be declared at very first of the HTML Document, above the <html> tag <!DOCTYPE> Declared. It is not an HTML tag.The <!DOCTYPE> declaration is NOT case sensitive.
- In HTML 4.01 refers to DTD (Document Type Definition) and it is based on SGML (Std. Generalized markup language). DTD defines the rules for markup language, so that browser will display content correctly.
- HTML 5 is not based on SGML and so, doesn’t require to refer to DTD.
  Syntax: <!DOCTYPE html>

## What happens if <!DOCTYPE> is not Specified?

- If document type is not mentioned, browser will go to Quirks mode. Quirks mode depends upon the web browser version.
- If is older version then this will not support HTML5 tags such as < article >, < footer >, < header >, <nav>, < section > may not be supported if the Doctype is not declared.

## What is HTML Elements or tags?

- HTML Element name surrounded by the angular brackets is known as HTML Element.
- Normally HTML Elements comes in a pair like Start tag (<p>) and End tag (</p>).
- Start tag is also known as opening tag and End tag is also known as closing tag. Closing tag is same as the opening tag but only difference is insert forward slash before the element name.
- Don’t forgot Close tag, if you forgot then we will get unexpected results.

## What is HTML Attributes?

- HTML Elements can have attributes.
- Attributes is used to provide the additional information about the element.
- Attributes always mentioned at start tag only.

**Ex:** <a href=”https://www.google.com”>Google</a>

Here href is the attribute and <a> is the start tag.

## HTML Headings

- HTML Headings are defined with <h1> to <h6>.
- <h1> defines the Most Important Heading and <h6> defines the least Important Heading.
- <h1> followed by <h2>, <h2> followed by <h3> and so on <h5> followed by <h6>.

**Ex**: <h1>This is Heading</h1>

## HTML Paragraph.

- HTML Paragraphs are defined with <p> tag.
- Using <p> tag is used to display the paragraph content on the webpage.

Ex: <p>This is a Paragraph</p>

## What is <div> tag?

- <div> tag defines the division or section of an HTML Document.
- It is a block level element. So, line break is added before and after it.
- This is a structural tag, just adding this tag no styles will be applied by default. If you want to add the styles then we will use CSS.

**Ex**: <div>Section of any Content</div>

## What is <span> tag?

- <span> tag is used to apply various styles for specific character or a specific word or a group of words.
- <span> tag is a inline element. So, line break is not added before and after the tag.
- This is a structural tag, just adding this tag no styles will be applied by default. If you want to add the styles then we will use CSS.

**Ex**: <p>This is related to <span>Section</span></p>

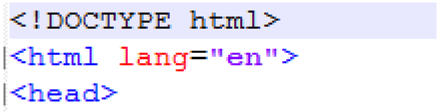
## HTML Text Formatting

- HTML Text formatting is used to apply the various styles for HTML Content.
- For HTML Text formatting we use the following tags:

<b>
<strong>
<i>
<em>
<small>
<sup>
<sub>
<ins>
<del>
<mark>

## The lang Attribute

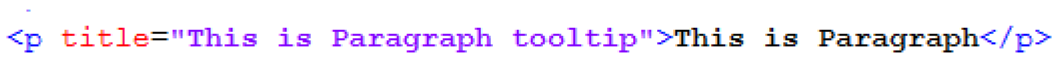
- The language of the document can be declared in the <html> tag.
- The language is declared with the lang attribute.
- Declaring a language is important for accessibility applications (screen readers) and search engines: Here **en** indicates the language of the document.



```
<!DOCTYPE html>
<html lang="en">
<head>
```

## The title Attribute

Here, a title attribute is added to the <p> element. The value of the title attribute will be displayed as a tooltip when you mouse over the paragraph:



```
<p title="This is Paragraph tooltip">This is Paragraph</p>
```

## HTML Lists

- The content will be displayed on browser in list format is called as HTML Lists; there are three types of lists available such as unordered list, Ordered list and Description list.

***Unordered list:***

- Unordered list can be represented with <*ul*> tag. Each list item in the unordered list can be represented with <*li*>tag.
- By default unordered list type is desc. If you want to change the default type then we will use the special attribute as **type.**
- We have an various types as follows: desc,square,circle and none.

```
Ex:
 <ul type="circle">
        <li>HTML</li>
        <li>CSS</li>
        <li>JS</li>
  </ul>
```

***Ordered list:*** ordered list can be represented with <*ol*> tag. Each list item in the unordered list can be represented with <*li*>tag.

- By default ordered list type is number. If you want to change the default type then we will use the special attribute as **type.**
- We have an various types as follows: Number (1,2,3), Big Characters (A,B,C), Small Characters (a,b,c), Small Roman numbers (i,ii,iii), Big Roman numbers (I,II,III)

```
Ex: <ol type="A">
        <li>HTML</li>
        <li>CSS</li>
        <li>JS</li>
</ol>
```

***Description list:*** Description list can be represented with <*dl*>tag. Each items in Description list can be represented with <*dt*> and <*dd*> tags.
Here <dt> defines the definition tern and <dd> defines the description data.

```
Ex: <dl>
        <dt>HTML</dt>
          <dd>HTML is used to create static webpages</dd>
     <dl>
```

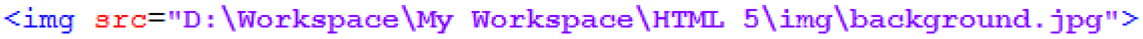
## HTML Image <img> tag

- We can display the images on webpage using the tag as <img> tag. <img> tag contains the following attributes.

*Ex:*<imgsrc="image.jpg" alt="image text" width="300" height="100">

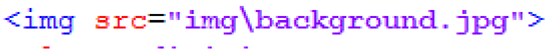
***Src="--":*** This **src** attribute are used to provide the address of an image. Here we can provide the path in two ways those are absolute path and relative path.

- Absolute path is used to provide the address of an image from the root directory.



```
<img src="D:\Workspace\My Workspace\HTML 5\img\background.jpg">
```

- Relative path is used to provide the address of an image from the current directory.



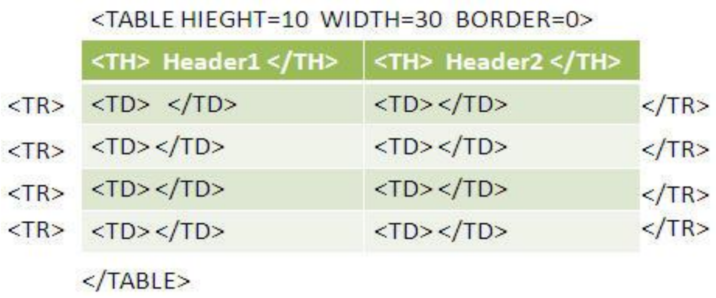
```
<img src="img\background.jpg">
```

***alt:*** alt attribute defines the alternative text for the image. If the image is not loaded properly then this time alternative text will be displayed instead of image. If the image is loaded properly then image will be displayed on the web browser.

***Width and height:*** By default every image having its own width and height sizes. If you override these default sizes then we will use the attributes as width and height attributes.

## HTML Tables

- HTML Tables are defined with <table> tag. We can display the html content on the webpage in table format then we will use tables.
- Each and every table consists of two sections: table head section and table body section. The table head section defined with the tag as <thead> tag, Each cell in the <thead> tag is represented with <th> tag and table body section defined with the tag as <tbody> and Each cell in the <tbody> is represented with <td> tag.
- The table data is represented with <td> tag. Each row of a table is represented with <tr> tag.
- HTML tables by default no borders will be displayed on the webpage if you want to use borders for the table then you will use CSS.



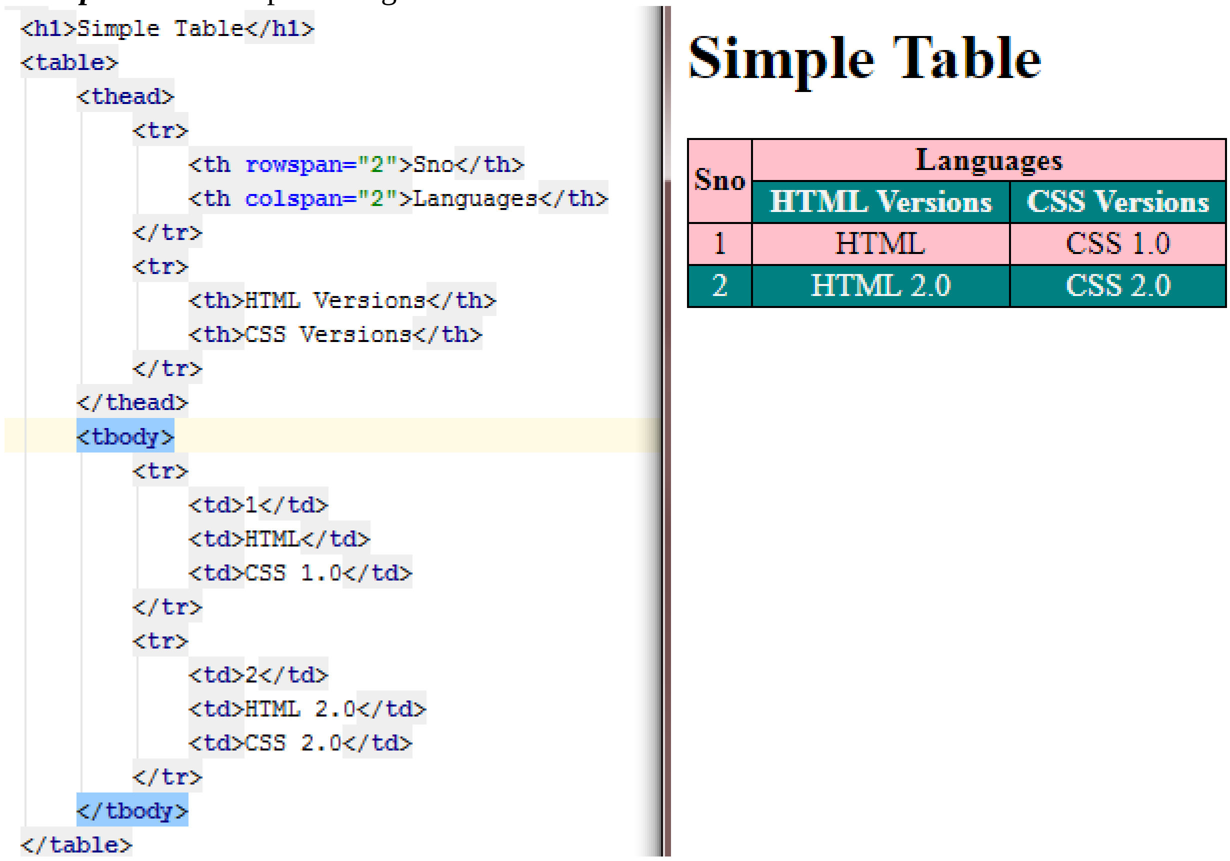
<TABLE HIEGHT=10 WIDTH=30 BORDER=0>

| | <TH> Header1 </TH> | <TH> Header2 </TH> | |
|---|---|---|---|
| <TR> | <TD> </TD> | <TD></TD> | </TR> |
| <TR> | <TD></TD> | <TD></TD> | </TR> |
| <TR> | <TD></TD> | <TD></TD> | </TR> |
| <TR> | <TD></TD> | <TD></TD> | </TR> |

</TABLE>

We have an special attributes called colspan and rowspan.
***<colspan>:*** <colspan> tag is used to combine two or more columns of a table.

***<rowspan>:*** <rowspan> tag is used to combine two or more rows of a table.



```
<h1>Simple Table</h1>
<table>
    <thead>
        <tr>
            <th rowspan="2">Sno</th>
            <th colspan="2">Languages</th>
        </tr>
        <tr>
            <th>HTML Versions</th>
            <th>CSS Versions</th>
        </tr>
    </thead>
    <tbody>
        <tr>
            <td>1</td>
            <td>HTML</td>
            <td>CSS 1.0</td>
        </tr>
        <tr>
            <td>2</td>
            <td>HTML 2.0</td>
            <td>CSS 2.0</td>
        </tr>
    </tbody>
</table>
```

# Simple Table

| Sno | Languages | |
|---|---|---|
| | HTML Versions | CSS Versions |
| 1 | HTML | CSS 1.0 |
| 2 | HTML 2.0 | CSS 2.0 |

## HTML Links or <a> tag

- HTML links are used to convert normal text as a link or clickable text or hyperlink or hypertext by using the tag as <a> tag or anchor tag.

**Ex**: <a href=”www.google.com”  target=”_blank”>google</a>

- Here href defines hypertext reference. This href specifies the address of the page to where the control as to jump while click the link.
- Normally every hyperlink opened in same tab, if you want to open the link in new tab then we will use the special attribute as target attribute and mention the value as **_blank.**
- We can also convert the images into clickable image. When we click on image it will take it into related web address.

**Ex:**
<a href=”https://www.natureimages.com”  target=”_blank”>
<imgsrc=”nature.jpg”>
</a>

## HTML <iframe> tag

- <iframe> tag specifies an inline frame.
- Using HTML <iframe> tag is to display the webpage within the webpage and it is also used to insert the content from another source.

- Adding Youtube videos to our webpage using iframe tag. How to add means goto youtube website – Select video what you want – and click on share – click on embed – Select embed options and copy link and paste it iframe element in the source code.
- Each and every <iframe> tag contains the as its own width and height sizes if you want to override the sizes then we will use CSS.

```
<iframe src=”https://www.w3schools.com” width=”560” height=”200”></iframe>
```

## HTML Entities

- HTML Entities are used to display some special reserved characters or some special symbols on the webpage.

| Ex: | Symbols | Entity |
|---|---|---|
| | < | &lt |
| | > | &gt |
| | Registered | &reg |
| | Copyright | &copy |
| | $ | &#36 |
| | Rupee | &$8377 |

## Do all character entities display properly on all systems?

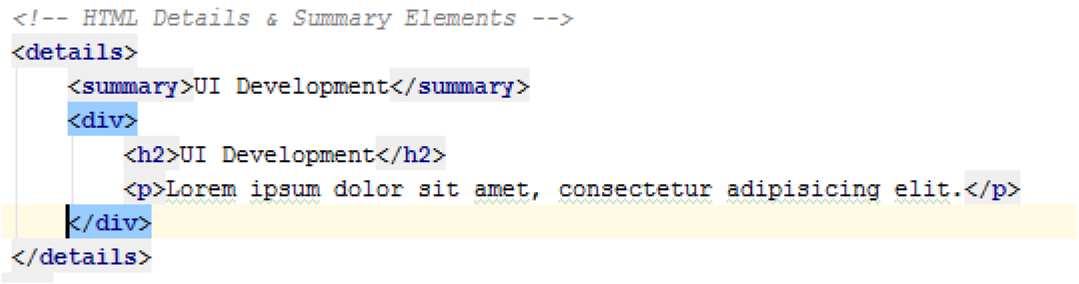
No, there are some character entities that cannot be displayed on systems. When the operating system on which the browser is running does not supports the characters. When that happens, these characters are displayed as boxes.

## Why are there both numerical and named character entity values?

The numerical values are taken from the ASCII values for the various characters, but these can be difficult to remember. Because of this, named character entity values were created to make it easier for web page designers to use.

## <details>, <summary> tag:

- <details> tag is used to create an interactive widgets that the user can open it and close it.
- <summary> tag defines visible heading for the <details> tag. The heading can be clicked to view/hide the details.



```
<!-- HTML Details & Summary Elements -->
<details>
    <summary>UI Development</summary>
    <div>
        <h2>UI Development</h2>
        <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit.</p>
    </div>
</details>
```

# HTML Forms

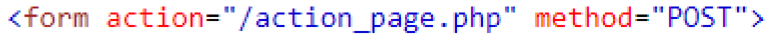
- Form is an area, which contains various form fields to fill the data in form fields and click on submit button then immediately browser will collects the form data and send a HTTP request to the server, then server will take that data and process data and get back to related result.
- HTTP stands for hypertext transfer protocol. This is used to transfer the data between browser to server and server to browser.
- HTTP request having various methods like GET and POST methods. GET Method is used to get the data from the server. POST Method is used to post the data to server.

*The HTML forms can be categorized into 3-types*

- ➢ Form Elements
- ➢ Input Attributes
- ➢ Input Types

## *i. Form Elements*

***<form>:*** Display the form fields on the webpage we will use the root tag as <form> tag. We will mention all the <form> related elements mentioned in between the <form> tag only. <form> tag mainly contains two attributes action and method.

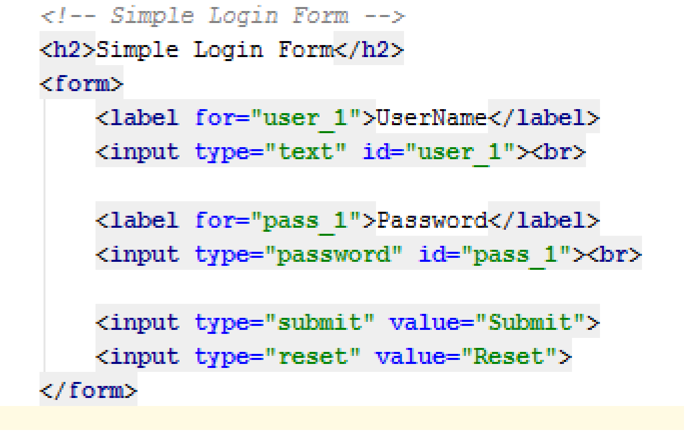


```
<form action="/action_page.php" method="POST">
```

***<label>:*** <label> tag is used to display the label for the input text fields.

***<input>:*** <input> tag is used to display various input fields on the webpage like textbox, password, radio, checkbox, submit and etc..

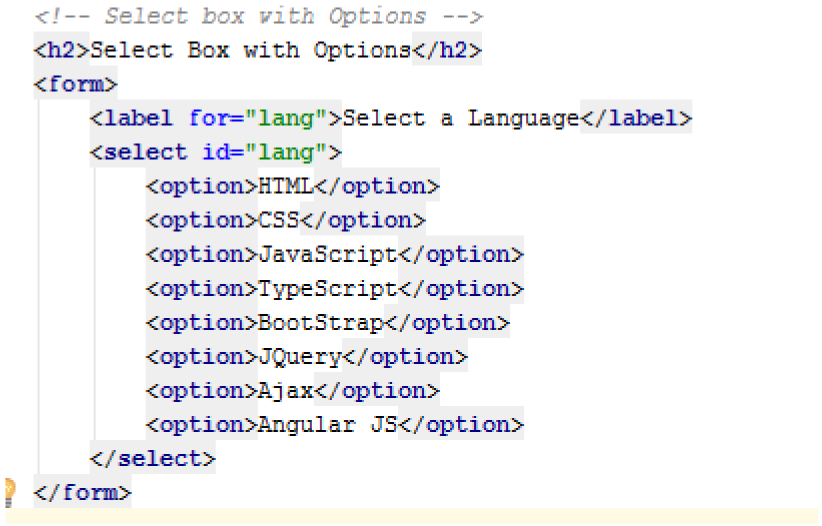
***Note:*** Here for attribute of the label tag and id attribute of the input tag must be the same.



```
<!-- Simple Login Form -->
<h2>Simple Login Form</h2>
<form>
    <label for="user_1">UserName</label>
    <input type="text" id="user_1"><br>

    <label for="pass_1">Password</label>
    <input type="password" id="pass_1"><br>

    <input type="submit" value="Submit">
    <input type="reset" value="Reset">
</form>
```

***<select> tag:***

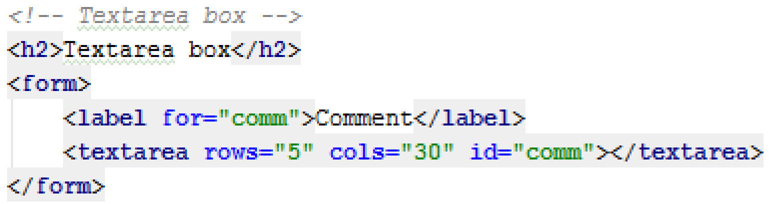
- This tag is used to display the select box on the webpage. Each item in the <select> tag must be represented in between the <option> tag. <option> tag is comes under <select> tag.



```
<!-- Select box with Options -->
<h2>Select Box with Options</h2>
<form>
    <label for="lang">Select a Language</label>
    <select id="lang">
        <option>HTML</option>
        <option>CSS</option>
        <option>JavaScript</option>
        <option>TypeScript</option>
        <option>BootStrap</option>
        <option>JQuery</option>
        <option>Ajax</option>
        <option>Angular JS</option>
    </select>
</form>
```

***<textarea> tag:***

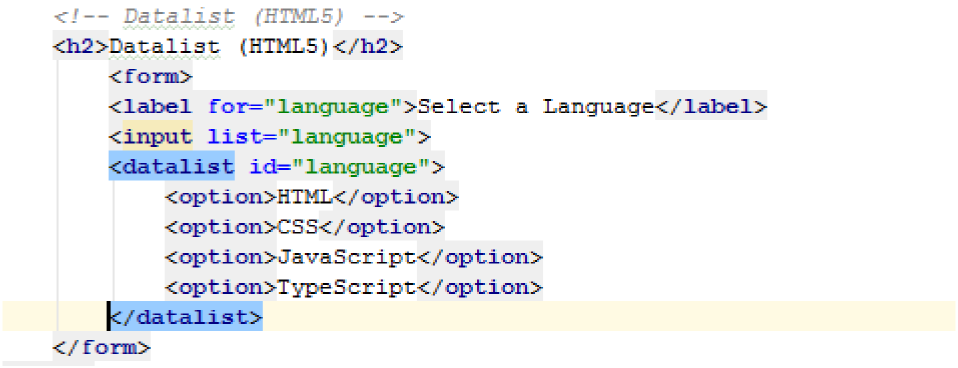
- This tag is used to display comment box or message box on the web page. This element having two attributes rows and cols.
- Here rows indicates the height of the textarea and cols indicates the length of the textarea.



```
<!-- Textarea box -->
<h2>Textarea box</h2>
<form>
    <label for="comm">Comment</label>
    <textarea rows="5" cols="30" id="comm"></textarea>
</form>
```

***<datalist> tag:***

- This tag newly introduced in HTML 5 Version.
- This is refinement of <select> tag.
- Here in the datalist all options are displayed based on the search query we provide in the <datalist> box.
- This is just like a google search box.

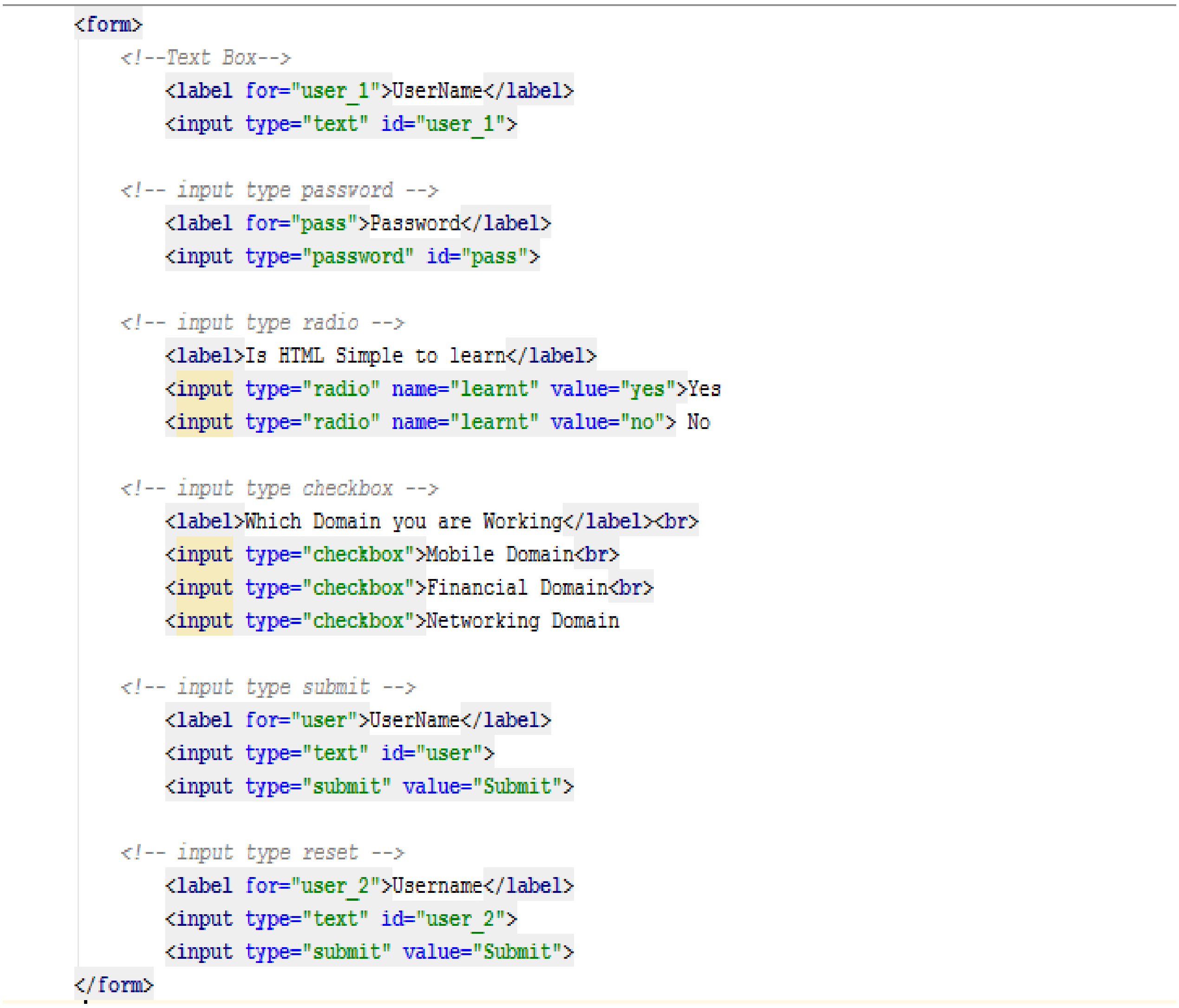


```
<!-- Datalist (HTML5) -->
<h2>Datalist (HTML5)</h2>
    <form>
    <label for="language">Select a Language</label>
    <input list="language">
    <datalist id="language">
        <option>HTML</option>
        <option>CSS</option>
        <option>JavaScript</option>
        <option>TypeScript</option>
    </datalist>
</form>
```

## ii. *HTML Input types*

- We can display the various input fields on the webpage by using a single <input> tag, with different type attribute values.
- Based on type input attribute values the browser will display various input field like text box, password, radio button, check box etc.
- HTML Input types are as follows

| | |
|---|---|
| type=”text” | To display text box on the webpage |
| type=”password” | To display password box on the webpage |
| type=”radio” | To display radio buttons on the webpage |
| type=”checkbox” | To display checkboxes on the webpage |
| type=”submit” | To display Submit button on the webpage |
| type=”reset” | To display reset button on the webpage |



```
<form>
    <!--Text Box-->
        <label for="user_1">UserName</label>
        <input type="text" id="user_1">

    <!-- input type password -->
        <label for="pass">Password</label>
        <input type="password" id="pass">

    <!-- input type radio -->
        <label>Is HTML Simple to learn</label>
        <input type="radio" name="learnt" value="yes">Yes
        <input type="radio" name="learnt" value="no"> No

    <!-- input type checkbox -->
        <label>Which Domain you are Working</label><br>
        <input type="checkbox">Mobile Domain<br>
        <input type="checkbox">Financial Domain<br>
        <input type="checkbox">Networking Domain

    <!-- input type submit -->
        <label for="user">UserName</label>
        <input type="text" id="user">
        <input type="submit" value="Submit">

    <!-- input type reset -->
        <label for="user_2">Username</label>
        <input type="text" id="user_2">
        <input type="submit" value="Submit">
</form>
```

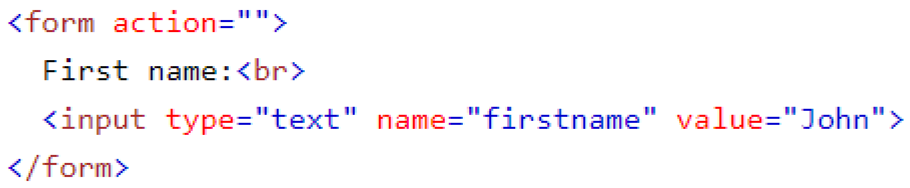
### *ii(a). HTML 5 input types*

HTML5 Version ‘w3c.org’ introduced new input type attribute values as follows:

| | |
|---|---|
| type=”color” | Select color on the webpage |
| type=”date” | Select date on the webpage |
| type=” datetime-local” | Select date and time on the webpage |
| type=”time” | Select time on the webpage |
| type=”week” | Select week on the webpage |
| type=”month” | Select month on the webpage |
| type=”email” | Email with default validation |
| type=”number” | Number with default validation |
| type=”range” | Range selection on the webpage |
| type=”file” | For file upload on the webpage |
| type=”search” | For search like google |
| type=”url” | Display url box on the webpage |

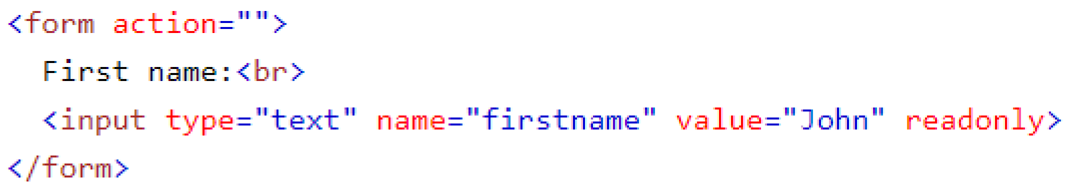
## *iii. HTML input attributes*

***Value=” ”:*** Value attribute is used to hold the actual value of that specific form field.



```
<form action="">
  First name:<br>
  <input type="text" name="firstname" value="John">
</form>
```

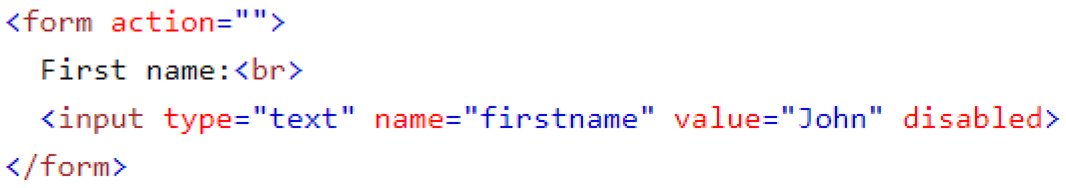
***readonly:*** This attribute is used to make the input field as readonly that means we can’t edit the text in the field.



```
<form action="">
  First name:<br>
  <input type="text" name="firstname" value="John" readonly>
</form>
```

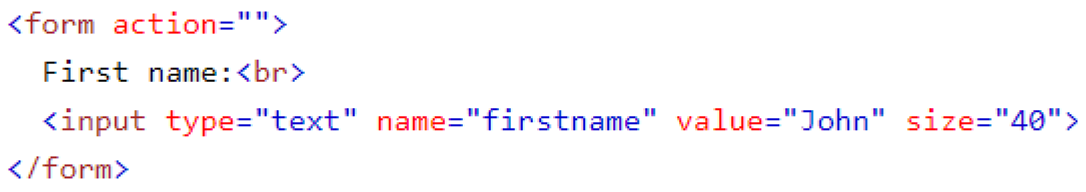
***disable:***

- The disabled attribute specifies that the input field is disabled.
- A disabled input field is unusable and un-clickable, and its value will not be sent when submitting the form



```
<form action="">
  First name:<br>
  <input type="text" name="firstname" value="John" disabled>
</form>
```

***size:*** size attribute is used to increase or decrease the size of an input field.

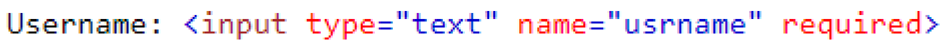


```
<form action="">
  First name:<br>
  <input type="text" name="firstname" value="John" size="40">
</form>
```

***rows,cols:*** rows indicates the height of the textarea and cols indicates the length of the textarea.

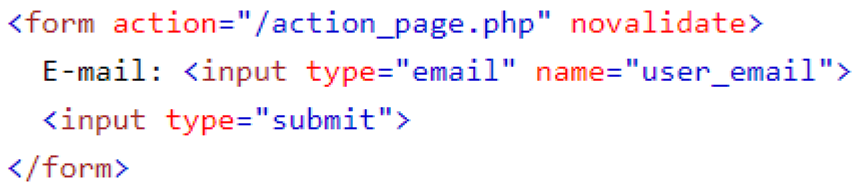
### *iii (a). HTML5 input attributes*

***required:*** By default all the input fields are optional. If you want to make the input field as mandatory then we will use required attribute.



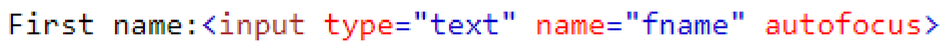
```
Username: <input type="text" name="usrname" required>
```

***novalidate:*** By default most of the HTML5 form fields are having its own validation messages. In order to disable the default validation messages then we will use novalidate attribute.



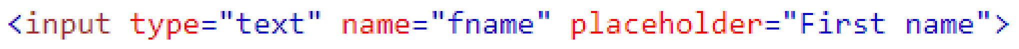
```
<form action="/action_page.php" novalidate>
  E-mail: <input type="email" name="user_email">
  <input type="submit">
</form>
```

***autofocus:*** By default none of the form field is automatically focused. In order to make any form field on the webpage to automatically focused we have to use this attribute.



```
First name:<input type="text" name="fname" autofocus>
```

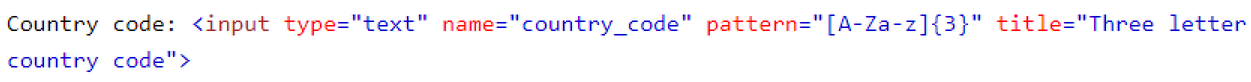
***placeholder:*** this is an refinement of <label> tag. Here the label will be displayed inside the input field itself.



```
<input type="text" name="fname" placeholder="First name">
```

***Pattern:***

- Most of the HTML5 form fields are using its own default patterns. In order to override the patterns of each form fields using this attribute.
- The pattern attribute specifies a regular expression that the <input> element's value is checked against.
- The pattern attribute works with the following input types: text, search, url, tel, email, and password.

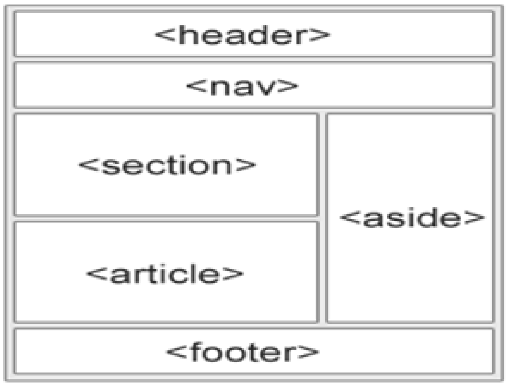


```
Country code: <input type="text" name="country_code" pattern="[A-Za-z]{3}" title="Three letter
country code">
```

## HTML5 Layout Elements

- In the HTML5 version ‘w3c.org’ introduced a set of layout elements to define a structure of any webpage. These layout elements are structural tag, just adding these tags no styles will be applied by default. If you want to add the styles to those structural tags we use the concept called CSS.

Structure of Webpage as mentioned at below:



***<header>:***

- Header section defines the main header of the webpage. This header appears at the top of the webpage. Header contains *company logo, company title and company subtitle* etc.

***<footer>:***

- Footer section defines the main footer of any webpage. This footer appears at bottom of the webpage. Footer contains author information and copyright information etc...

***<aside>:***

- <aside> tag is used to display the sidebar of any webpage. It may be appear at left side or right side of webpage. Sidebar contains some links related to main content.

***<nav>:***

- <nav> tag defines navigation bar. Navigation bar displayed at top of the webpage, below header we can display the top navigation. Top navigation may contains links as Home, About Us, Contact Us etc..

***<section> :***

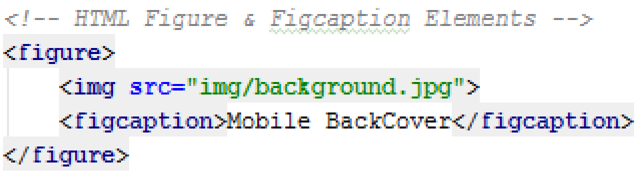
- section tag is used to divide the web page into various sections like Home section, about section etc..
- A section of a webpage may contain various no. of articles. This is an structural tag, just adding these tags no styles will be applied by default. If you want to add the styles to those structural tags we use the concept called CSS.

***<article>:***

- <article> tag is used to write any article like news paper article, blog post inside of any section of a webpage.
- Each <article> tag will be defined inside a <section> tag. This is also a structural tag.

## <figure> tag:

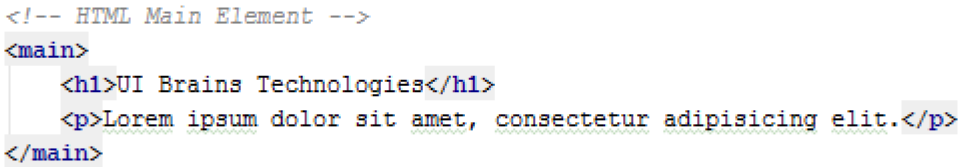
- <figure> tag is used to display the images on webpage in the gallery format. To display any image in the gallery format, we have to define the <img> tag inside the <figure> tag.
- <figcaption> tag is used to display the caption for the image in the gallery. The <figcaption> and <img> tag declare inside the <figure> tag.



```
<!-- HTML Figure & Figcaption Elements -->
<figure>
    <img src="img/background.jpg">
    <figcaption>Mobile BackCover</figcaption>
</figure>
```

## <main> tag:

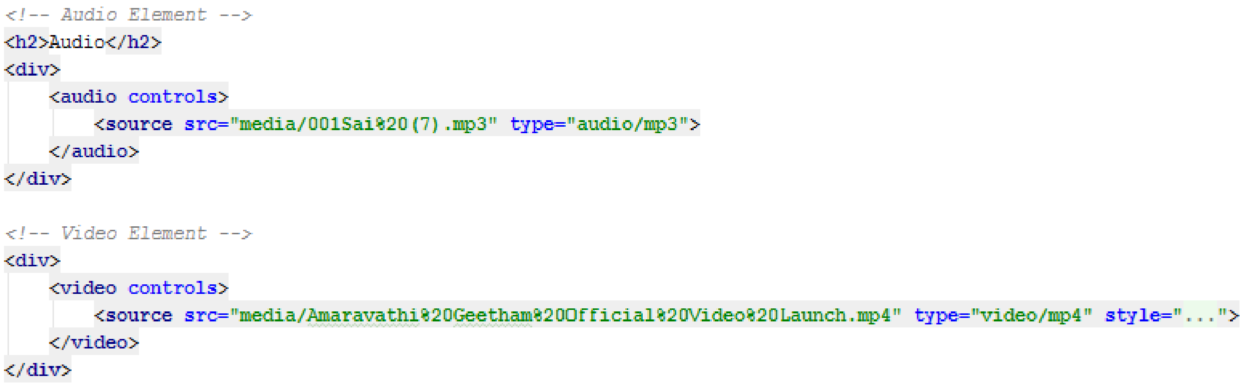
- <main> tag is used to display the main content on the webpage. The content inside the <main> tag should be unique. These content will not repeat anywhere in the document.



```
<!-- HTML Main Element -->
<main>
    <h1>UI Brains Technologies</h1>
    <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit.</p>
</main>
```

## <audio>/<video> tag:

- <audio>/<video> tag is used to play the audio files/video files on the webpage.
- Most preferable format audio/video type is .mp3/.mp4
- Here we will load the audio/video files from the local sources.
- HTML5 Supports three audio file formats those are .mp3, .wav and .ogg
- HTML5 Supports three video file formats those are .mp4, .webM and .ogg



```
<!-- Audio Element -->
<h2>Audio</h2>
<div>
    <audio controls>
        <source src="media/001Sai%20(7).mp3" type="audio/mp3">
    </audio>
</div>

<!-- Video Element -->
<div>
    <video controls>
        <source src="media/Amaravathi%20Geetham%20Official%20Video%20Launch.mp4" type="video/mp4" style="...">
    </video>
</div>
```

## What are new Media Elements in HTML5?

Following are the New Media Elements are present in HTML5:
1. <audio> tag : For playing audio.
2. <video> tag : For playing video.
3. <source> tag : For media resources for media elements.
4. <embed> tag : For embedded content.
5. <track> tag : For text tracks used in media players.

## Why Semantic Elements?

A **semantic element** clearly describes its meaning to both the browser and the developer. Examples of **semantic elements**: <section>, <article>, and <header> - Clearly defines its content, Examples of non-**semantic elements**: <div> and <span> - Tells nothing about its content.

## Do all HTML tags have an end tag?

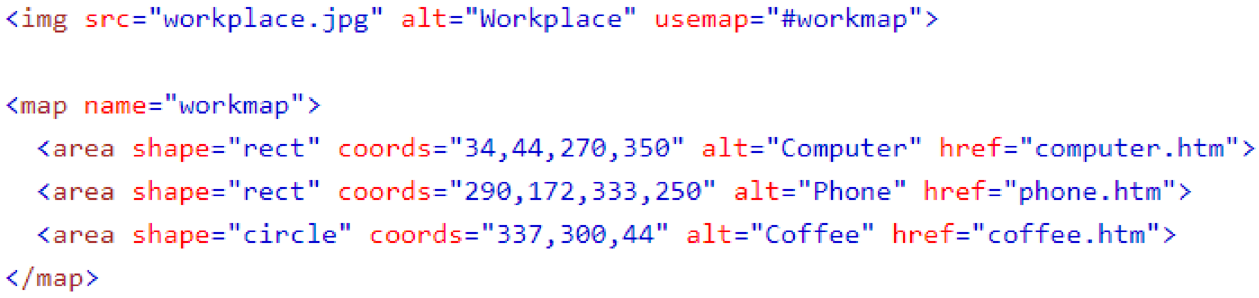
No. There are some HTML tags that don't need a closing tag. Ex: <image> and <br> tag.

## What is the difference between HTML elements and tags?

HTML elements communicate to the browser to render text. When the elements are enclosed by brackets <>, they form HTML tags. Most of the time, tags come in a pair and surround content.

## What is an image map?

We are creating multiple links on a single image is known as image map. Image map can be represented with <map> element.



```
<img src="workplace.jpg" alt="Workplace" usemap="#workmap">

<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="Coffee" href="coffee.htm">
</map>
```

The name attribute of the <map> tag is associated with the <img>'s usemap attribute and creates a relationship between the image and the map.

The <map> element contains a number of <area> tags that define the clickable areas in the image-map.

## What is a marquee?

Marquee is used to display the scrolling text on a web page. It scrolls the image or text up, down, left or right automatically. You mention the text in between the <marquee>......</marquee> tag what you want to scroll.

## How many tags can be used to separate a section of texts?

Three tags are used to separate the texts.

***<br> tag*** - Usually <br> tag is used to separate the line of text. Line break is added break and after the <br> tag.

***<p> tag*** - The <p> tag contains the text in the form of a new paragraph.

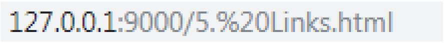
***<blockquote> tag*** - It is used to define a large quoted section. If you have a large quotation, then put the entire text within <blockquote>.............</blockquote> tag.

## What are empty elements?

HTML elements with no content are called empty elements. For example: <br>, <hr> etc.

## Why is a URL encoded in HTML?

- URLs can only be sent over the Internet using the ASCII character-set. If a URL contains characters outside the ASCII set, the URL has to be converted to ASCII Character-set.
- URL encoding replaces non-ASCII characters with a "%" followed by hexadecimal digits.
- URLs cannot contain spaces. URL encoding normally replaces a space with a plus (+) sign, or %20.



127.0.0.1:9000/5.%20Links.html

## How would you automatically transfer your visitors to a new web page?

- You can do it with the help of meta tag mentioned below:

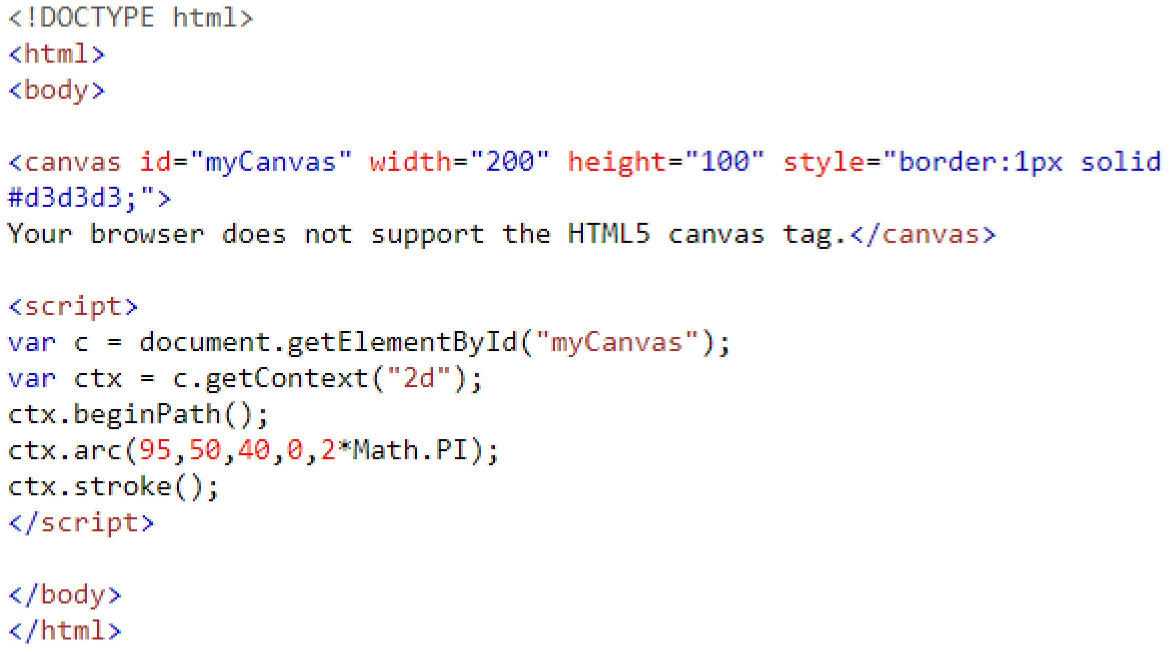
*<meta http-equiv="refresh" content="2"; url="http://www.yourname.com">*

- Place this tag between <head></head> .

- It will load yousite.com in 2 seconds.

## What is the canvas element in HTML5?

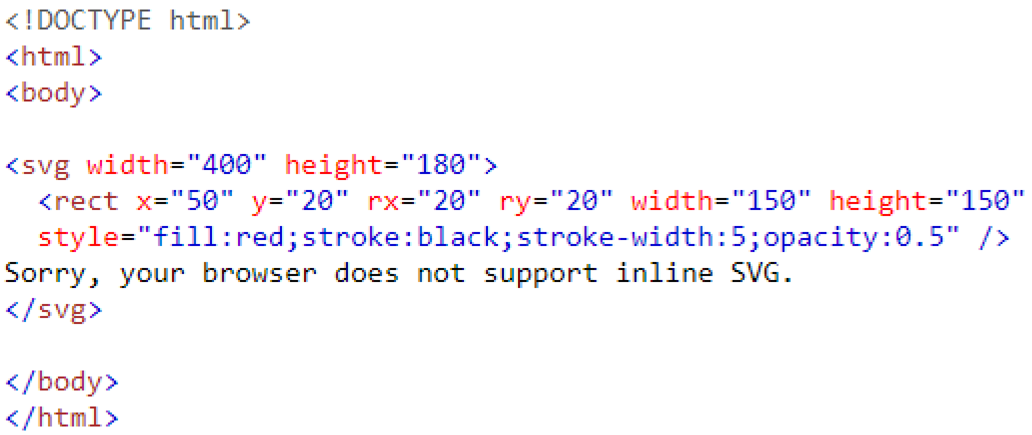
- Canvas is a element of HTML5 which uses JavaScript to draw graphics on a web page. A canvas is a rectangular area. Each and every pixel of it can be controlled by us. There are several methods for drawing paths, boxes, circles, characters, and adding images by using canvas.
- To add canvas tag to our HTML document we need id, width and height. Below example demonstrate circle canvas tag to your HTML document.



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

<canvas id="myCanvas" width="200" height="100" style="border:1px solid
#d3d3d3;">
Your browser does not support the HTML5 canvas tag.</canvas>

<script>
var c = document.getElementById("myCanvas");
var ctx = c.getContext("2d");
ctx.beginPath();
ctx.arc(95,50,40,0,2*Math.PI);
ctx.stroke();
</script>

</body>
</html>
```

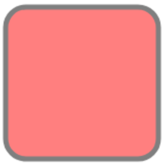
## What is SVG?

- SVG stands for Scalable Vector Graphics, SVG is used to define graphics for the Web, SVG has several methods for drawing paths, boxes, circles, text, and graphic images.



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

<svg width="400" height="180">
  <rect x="50" y="20" rx="20" ry="20" width="150" height="150"
  style="fill:red;stroke:black;stroke-width:5;opacity:0.5" />
Sorry, your browser does not support inline SVG.
</svg>

</body>
</html>
```

*Result:*



## Differences Between SVG and Canvas

- Canvas draws 2D graphics, on the fly (with a JavaScript).
- Canvas is rendered pixel by pixel. In canvas, once the graphic is drawn, it is forgotten by the browser. If its position should be changed, the entire scene needs to be redrawn, including any objects that might have been covered by the graphic.
- SVG is a language for describing 2D graphics in XML. SVG is XML based, which means that every element is available within the SVG DOM. You can attach JavaScript event handlers for an element.
- In SVG, each drawn shape is remembered as an object. If attributes of an SVG object are changed, the browser can automatically re-render the shape.

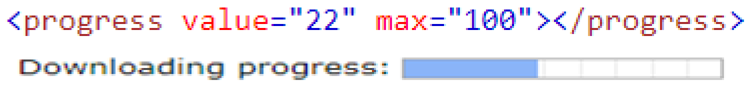
## Comparison of Canvas and SVG

| Canvas | SVG |
|---|---|
| • Resolution dependent<br>• No support for event handlers<br>• Poor text rendering capabilities<br>• You can save the resulting image as .png or .jpg<br>• Well suited for graphic-intensive games | • Resolution independent<br>• Support for event handlers<br>• Best suited for applications with large rendering areas (Google Maps)<br>• Slow rendering if complex (anything that uses the DOM a lot will be slow)<br>• Not suited for game applications |

## What is the difference between progress and meter tag?

- The progress tag is used to represent the progress of the task only while the meter tag is used to measure data within a given range.

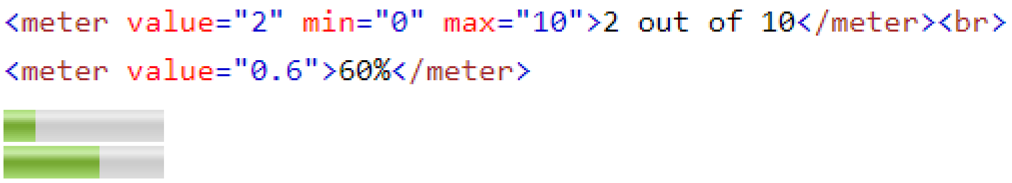
*Example of Progress tag:*



```
<progress value="22" max="100"></progress>
```

Downloading progress:

*Example of meter tag:*



```
<meter value="2" min="0" max="10">2 out of 10</meter><br>
<meter value="0.6">60%</meter>
```

## How are tags migrated from HTML4 to HTML5?

| No. | Typical HTML4 | Typical HTML5 |
|---|---|---|
| **1)** | <div id="header"> | <header> |
| **2)** | <div id="menu"> | <nav> |
| **3)** | <div id="content"> | <section> |
| **4)** | <div id="post"> | <article> |
| **5)** | <div id="footer"> | <footer> |

## What is the advantage of collapsing white space?

- The browser collapses the multiple white spaces into a single white space in HTML.
- This allows the developers to arrange the HTML code in a well organized and legible format.

## Does HTML support Javascript?

Yes, HTML supports JavaScript. We can use JavaScript anywhere in the HTML Coding. Mainly there are four sections where we can add JavaScript in HTML.

***Head Section*** : We can add JavaScript in Head section of HTML.
<head>…..Javascript…. </head>

***Body Section :*** <body>….. Javascript…</body>

***Head and Body both :*** We can add Javascript in both head and body section.
<body….Javascript…</body> and
<head>…..Javascript…. </head>

***External File:*** Script in and external file and then include in <head> ….. </head> section.

## What are the web standards?

Web standards are standards specified for the internet or World Wide Web aspects for improving internet usability by all major OS and Browsers.

## What is WWW?

WWW Stands for World Wide Web. It is the inter-connection of all the links called as internet.

## Are there instances where the text will appear outside of the browser?

By default, the text is wrapped to appear within the browser window. However, if the text is part of a table cell with a defined width, the text could extend beyond the browser window.

## What are two types of Web Storage in HTML5?

- Using web storage we can store the web applications data in the user's browser only.
- Before HTML5, application data had to be stored in cookies, included in every server request.
- Web storage is more secure, and it can be stored large amounts of data locally, without affecting website performance.
- HTML web storage provides two objects for storing data on the client browsers: those are session storage and local storage.

***Session Storage:***

It stores the data for only one session. The data is deleted when the user closes the specific browser tab.

```
<script type="text/javascript">
sessionStorage.blogName="OnlineInterviewQuestions";
document.write(sessionStorage.name);
</script>
```

***Local Storage:***

- Local storage is another type of HTML5 Web Storage. In local storage, data is not deleted automatically and there is no expiration date.
- Before HTML5 Local Stores was done with cookies. Cookies are not very good for large amounts of data, because they are passed on by every request to the server, so it was very slow and in-effective.
- In HTML5, the data is NOT passed on by every server request, but used ONLY when asked for. It is possible to store large amounts of data without affecting the website's performance. and the data is stored in different areas for different websites, and a website can only access data stored by itself and for creating localstores just need to call localStorage object like below we are storing name and address.

```
<script type="text/javascript">
localStorage.name="ABC";
localStorage.address="New Delhi India.";
document.write(localStorage.address);
</script>
```

## What is the Application Cache in HTML5 and why it is used?

The Application Cache concept means that a web application is cached. It can be accessible without the need for internet connection.

**Some advantages of Application Cache:**

1. Offline browsing – Web users can also use the application when they are offline.
2. Speed – Cached resources load quicker
3. Reduce the server load – The web browser will only download updated resources from the server.

## Differentiate different types of Doctypes from one another

Doctype helps the web browser to correctly render the web pages. There are different types of Doctype that are available and they are as follows:

1. ***Strict Doctype :*** It consists of all the HTML elements and it is also known as DTD (Document type definition) but it doesn't include the presentational and deprecated elements i.e. font, center, etc. Framesets related elements are also not allowed in this.

**For example:**
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN"
"http://www.w3.org/TR/html4/strict.dtd">

2. ***Transitional Doctype :*** It consists of all the HTML elements and attributes. It is also known as DTD (Document type definition). It includes the presentational and deprecated elements i.e. font, center, etc. Framesets related elements are also not allowed in this.

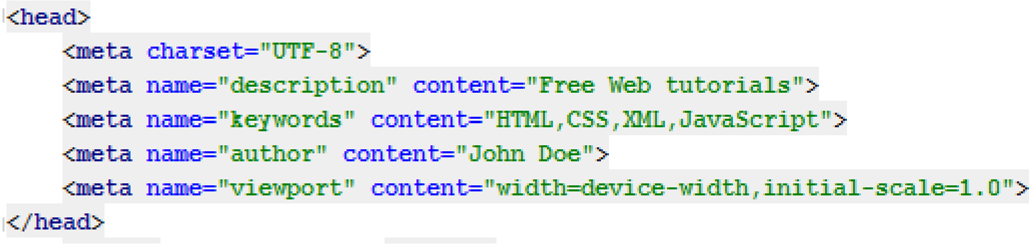
**For example:**
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">

3. ***Frameset Doctype :*** It consists of all the HTML elements and attributes. It is also known as DTD (Document type definition). It includes the presentational and deprecated elements i.e. font, center, etc. Framesets related elements are also allowed in this.

**For example:**
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Frameset//EN"
"http://www.w3.org/TR/html4/frameset.dtd">

## Why it is important to set the Meta information?

- Metadata is the data about the data or the information about the data. There is a tag <meta> that is being provided for the HTML document.
- This information won't be displayed anywhere and will not be visible to the user. It will be parsable by the machine which will parse it according to the requirement. It consists of the elements that are related to the page description, keywords, document related element.
- In the <head> section we will mention the <meta> tag. The meta information is being used by the web browser or by the search engines to rank and let the user find the pages easily.



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

## What is the main function of <pre> tag in HTML?

- <pre> tag defines the pre-formatted text that is used to display the text with the fixed width and uses a predefined fonts and it keeps both spaces and line breaks separate and show the text as it is.

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

## When should you use comments?

- Comments are very useful to mention in the document for easy identification purpose and other developers also easily identify what a section of HTML is for.
- Comments will not be displayed in the browser. The start of the comment is denoted by <!-- and the end is marked by -->. Anything in the middle will be completely ignored, even if it contains valid HTML.

```
<!-- This is a comment! -->

<!-- Comments can

    span multiple

    lines too -->

<!-- All of this is ignored. Even valid HTML like this: <span>Ska—doosh!</span> -->
```

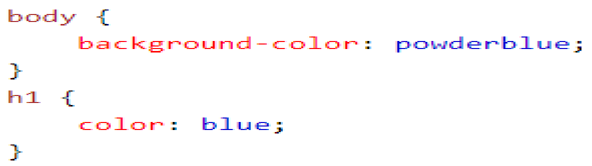
## How do you apply CSS styles to a web page?

- CSS (Cascading Style Sheets) can be used to make the html elements are more stylish. There are three ways of inserting a style sheet:
  - ❖ External style sheet
  - ❖ Internal style sheet
  - ❖ Inline style

***External Style Sheet***

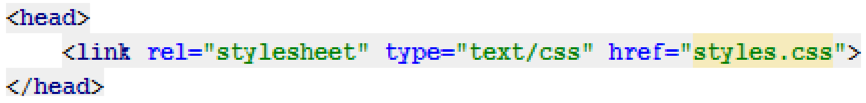
- With an external style sheet, you can change the look of an entire website by changing just one file!
- Each page must include a reference to the external style sheet file inside the <link> element. The <link> element goes inside the <head> section:
- An external style sheet can be written in any text editor. The file should not contain any html tags. The style sheet file must be saved with a .css extension.
- Here is how the "mystyle.css" looks:

*External CSS File: mystyle.css*



```
body {
    background-color: powderblue;
}
h1 {
    color: blue;
}
```

*HTML file:*



```
<head>
    <link rel="stylesheet" type="text/css" href="styles.css">
</head>
```

### *Internal Style Sheet*

- An internal style sheet may be used if one single page has a unique style.
- Internal styles are defined within the <style> element, inside the <head> section of an HTML page:

```
<head>
<style>
body {
   background-color: linen;
}
h1 {
   color: maroon;
   margin-left: 40px;
}
</style>
</head>
```

### *Inline Styles*

- An inline style may be used to apply a unique style for a single element.
- To use inline styles, add the style attribute to the relevant element. The style attribute can contain any CSS property.
- The example below shows how to change the color and the left margin of a <h1> element:

```
<h1 style="color:blue;margin-left:30px;">This is a heading</h1>
```

## *Cascading Order of CSS*

The Cascading order of CSS mentioned at below, where number one has the highest priority:

1. Inline style (inside an HTML element)
2. External and internal style sheets (in the head section)
3. Browser default

So, an inline style (inside a specific HTML element) has the highest priority, which means that it will override a style defined inside the <head> tag, or in an external style sheet, or a browser default value.

## **What are the rules established for HTML5?**

Some rules for HTML5 were established:

- New features should be based on HTML, CSS, DOM, and JavaScript
- Reduce the need for external plugins (like Flash)
- Better error handling
- More markup to replace scripting
- HTML5 should be device independent
- The development process should be visible to the public.

## **What are the new <input> types for form validation in HTML5?**

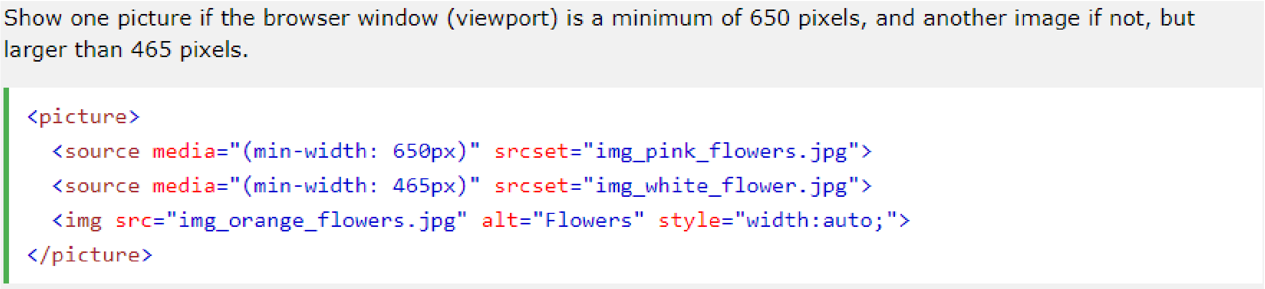
The new input types for form validation are email, URL, number, tel, and date.

## List out the new features of HTML5?

| | |
|---|---|
| *Semantic/Structural Elements* | <header> <footer><br><section> <article><br><aside> <nav> |
| *Form Input Elements* | <datalist> |
| *Form Input Attributes* | color,<br>date, datetime-local, time,<br>week, month,<br>email, tel, number, range,<br>search, file and url |
| *Form Attributes:* | required,<br>autocomplete,<br>novalidate,<br>pattern,<br>placeholder. |
| *Media tags* | <audio><br><video><br><embed><br><track><br><source> |
| *Graphics* | Canvas<br>SVG |

## The <picture> Element

- HTML5 introduced the <picture> element to add more flexibility when specifying image resources.
- The <picture> element contains a number of <source> elements, each referring to different image sources. This way the browser can choose the image that best fits the current view and/or device.
- Each <source> element has attributes describing when their image is the most suitable.
- The browser will use the first <source> element with matching attribute values, and ignore any following <source>elements.



Show one picture if the browser window (viewport) is a minimum of 650 pixels, and another image if not, but larger than 465 pixels.

```
<picture>
  <source media="(min-width: 650px)" srcset="img_pink_flowers.jpg">
  <source media="(min-width: 465px)" srcset="img_white_flower.jpg">
  <img src="img_orange_flowers.jpg" alt="Flowers" style="width:auto;">
</picture>
```

**Note:** Always specify an <img> element as the last child element of the <picture> element. The <img>element is used by browsers that do not support the <picture> element, or if none of the <source> tags matched.

## List out the advantages of HTML5?

### i. *Mutuality*

- Due to usability purpose, the websites made by developers are highly interactive nowadays and for this developers need to include fluid animations, stream video, play music and Social Network sites like Facebook and Twitter into the websites. Till now they have only the option to integrate it with the help of Flash or Silverlight, Flex or javascript like tools. But these consume so much time to develop and even the complexity of web application also increased.
- But now with the help of HTML5, it is possible to embed video and audio, high-quality drawings, charts. animation and many other types of rich content without using any plugins or third party programs as the functionality is now built into the browser.

### ii. *Cleaner markup / Improved Code*

- HTML 5 will enable web designers to use cleaner, neater code; we can remove most div tags and replace them with semantic HTML 5 elements.

### iii. *Improved Semantics*

- Now it is easy to see which parts of the page are headers, nav, footers, aside, etc as the tags are clearly describes its meaning to both the browser and the developer. By using HTML5 elements we can increase the semantic value of the web page as the codes are very standardized.

### iv. *Consistency*

- As websites adopt the new HTML5 elements we will see more greater consistency in terms of the HTML used to code a web page on one site compared to another. This will make it easier for designers and developers to immediately understand how a web page is structured.

### v. *Offline Application cache*

- All browsers have some kind of caching mechanism so that after some time of browsing, click on the Back button in the browser, hoping to see the previous page that was opened. However, as you are not connected to the internet and the browser didn’t cache the page properly, you are unable to view that page.
- Then you click on Forward button thinking that at least that page will load, but it doesn’t. You need to reconnect to the internet to be able to view the pages.
- HTML 5, thankfully, provides a smarter solution. While building the site, the developer can specify the files that the browser should cache. So, even if you refresh the page when you are offline, the page will still load correctly. This sort of caching has several advantages like offline browsing; files load much faster and reduced load on server

### vi. *Geolocation support*

- With help of Geolocation anyone can find out where you are in the world and share that information with people. There is different ways to figure out where you are — your IP address, your wireless network connection, which cell tower your phone is talking to, or dedicated GPS hardware that calculates latitude and longitude from information sent by satellites in the sky.
- But the new HTML5 geolocation APIs make the location, whether generated via GPS or other methods, directly available to any HTML5-compatible browser-based application.

## What is HTML5 Geolocation? How to use it ?

- HTML5 Geolocation is used to locate a user’s position
- The HTML5 Geolocation API is used to get the geographical position of a user.
- Since this can compromise user privacy, the position will not get unless the user approves it.

Use the ***getCurrentPosition()*** method to get the user’s position.

The example below is a simple Geolocation example returning the latitude and longitude of the user’s position:

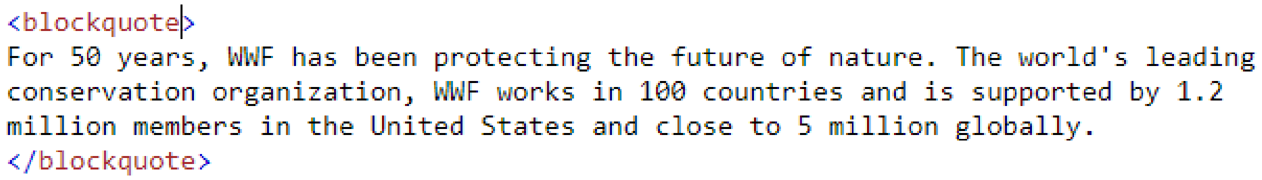
```
<script>
        var x=document.getElementById("demo");
        function getLocation(){
                if (navigator.geolocation){
                        navigator.geolocation.getCurrentPosition(showPosition);
                      }
                  else{
                        x.innerHTML="Geolocation is not supported by this browser.";}
                      }
                function showPosition(position)
                {
                x.innerHTML="Latitude: " + position.coords.latitude +"
                Longitude: " + position.coords.longitude;
                }
        </script>
```

## HTML <q> for Short Quotations

- The HTML <q> element defines a short quotation.
- Browsers usually insert quotation marks around the <q> element.

## HTML <blockquote> for Quotations

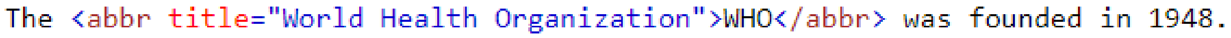
- The HTML <blockquote> element defines a section that is quoted from another source.
- Browsers usually indent <blockquote> elements.



```
<blockquote>
For 50 years, WWF has been protecting the future of nature. The world's leading
conservation organization, WWF works in 100 countries and is supported by 1.2
million members in the United States and close to 5 million globally.
</blockquote>
```

## HTML <abbr> for Abbreviations

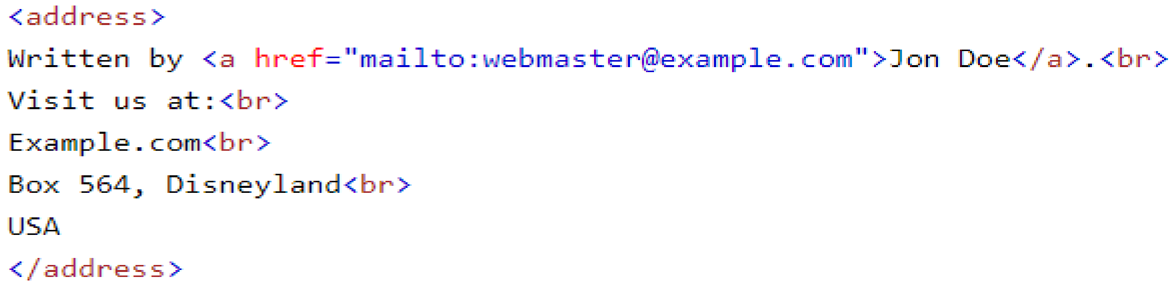
- The HTML <abbr> element defines an abbreviation or an acronym.
- Marking abbreviations can give useful information to browsers, translation systems and search-engines.



```
The <abbr title="World Health Organization">WHO</abbr> was founded in 1948.
```

## HTML <address> for Contact Information

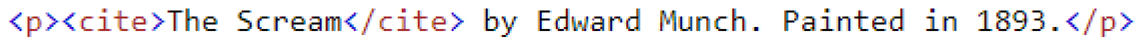
- The HTML <address> element defines contact information (author/owner) of a document or an article.
- The <address> element is usually displayed in italic. Most browsers will add a line break before and after the element.



```
<address>
Written by <a href="mailto:webmaster@example.com">Jon Doe</a>.<br>
Visit us at:<br>
Example.com<br>
Box 564, Disneyland<br>
USA
</address>
```

## HTML <cite> for Work Title

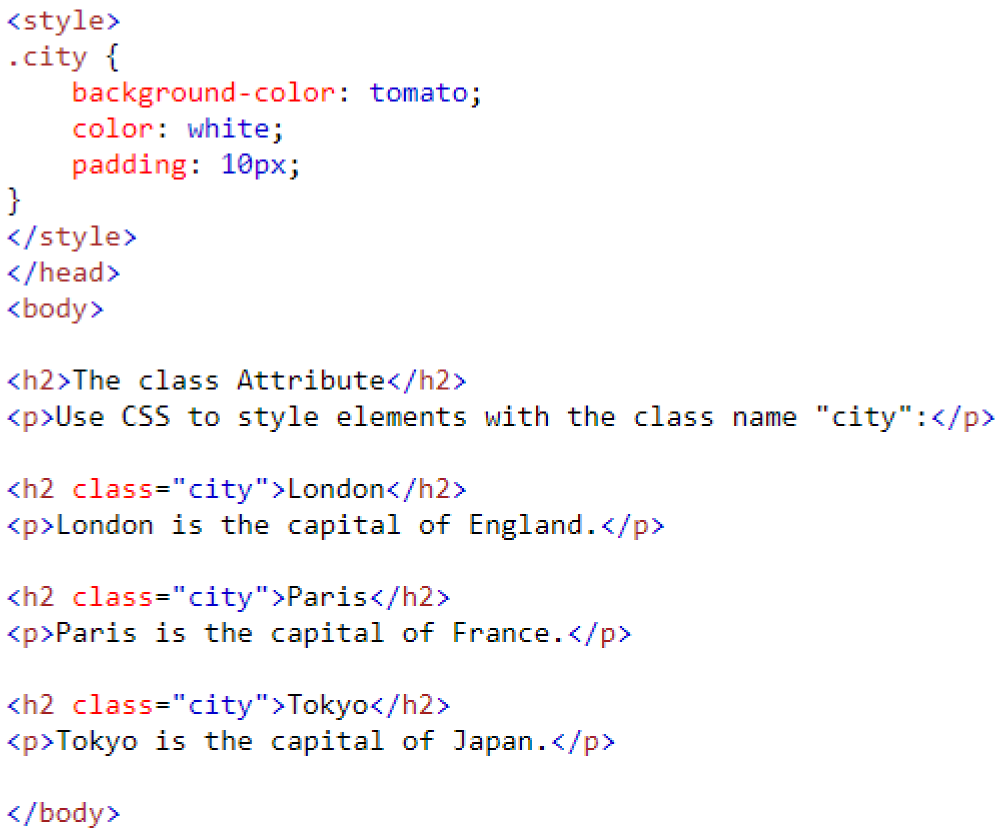
- The HTML <cite> element defines the title of a work.
- Browsers usually display <cite> elements in italic.



```
<p><cite>The Scream</cite> by Edward Munch. Painted in 1893.</p>
```

## The class Attribute

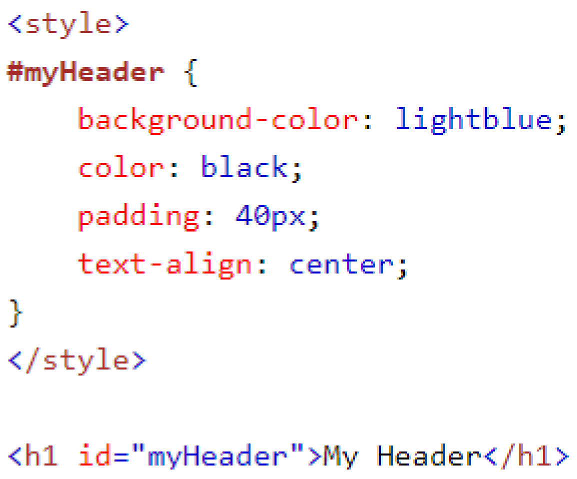
- The class attribute specifies one or more class names for an HTML element.
- The class name can be used by CSS and JavaScript to perform certain tasks for elements with the specified class name.
- In CSS, to select elements with a specific class, write a period (.) character, followed by the name of the class:



```
<style>
.city {
    background-color: tomato;
    color: white;
    padding: 10px;
}
</style>
</head>
<body>

<h2>The class Attribute</h2>
<p>Use CSS to style elements with the class name "city":</p>

<h2 class="city">London</h2>
<p>London is the capital of England.</p>

<h2 class="city">Paris</h2>
<p>Paris is the capital of France.</p>

<h2 class="city">Tokyo</h2>
<p>Tokyo is the capital of Japan.</p>

</body>
```

## The id Attribute

- The id attribute specifies a unique id for an HTML element (the value must be unique within the HTML document).
- The id value can be used by CSS and JavaScript to perform certain tasks for a unique element with the specified id value.
- In CSS, to select an element with a specific id, write a hash (#) character, followed by the id of the element:



```
<style>
#myHeader {
    background-color: lightblue;
    color: black;
    padding: 40px;
    text-align: center;
}
</style>

<h1 id="myHeader">My Header</h1>
```

## What is the difference between <figure> and <img> tag?

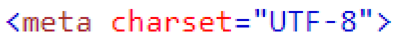
- Before HTML5 there is no way to add a caption to an image semantically through HTML. If you wanted to add a caption you'd have to add a paragraph with a class or something similar.
- In HTML5 a <figure>element was added. According to the W3C Specification, the figure element has an optional caption

## HTML Character Encoding (Character Sets)

To display an HTML page correctly, a web browser must know which character set (character encoding) to use.

- **ASCII** was the first **character encoding standard** (also called character set). ASCII defined 128 different alphanumeric characters that could be used on the internet: numbers (0-9), English letters (A-Z), and some special characters like ! $ + - ( ) @ < > .
- **ANSI (Windows-1252)** was the original Windows character set, with support for 256 different character codes.
- **ISO-8859-1** was the default character set for HTML 4. This character set also supported 256 different character codes.
  - ➢ Because ANSI and ISO-8859-1 were so limited, HTML 4 also supported UTF-8.
  - ➢ UTF-8 (Unicode) covers almost all of the characters and symbols in the world.
  - ➢ The default character encoding for HTML5 is UTF-8.

Example:



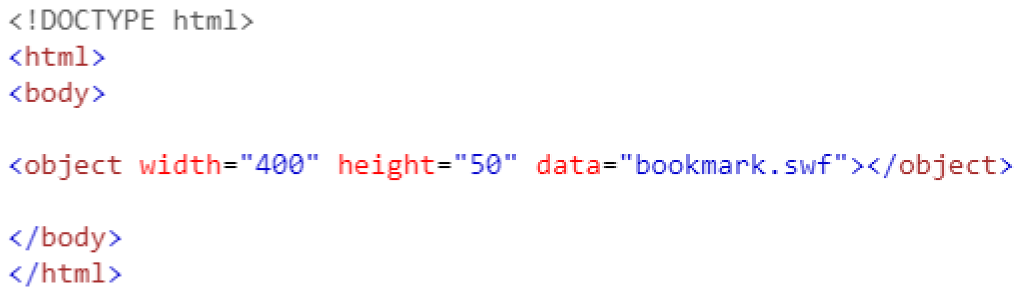
```
<meta charset="UTF-8">
```

## HTML Helper Plug-ins

- The purpose of a plug-in is to extend the functionality of a web browser.
- Plug-ins can be added to web pages with the <object> tag or the <embed> tag.
- Plug-ins can be used for many purposes: display maps, scan for viruses, verify your bank id, etc.
- To display video and audio: Use the <video> and <audio> tags.

## The <object> Element

- The <object> element is supported by all browsers.
- The <object> element defines an embedded object within an HTML document.
- It is used to embed plug-ins (like Java applets, PDF readers, Flash Players) in web pages.

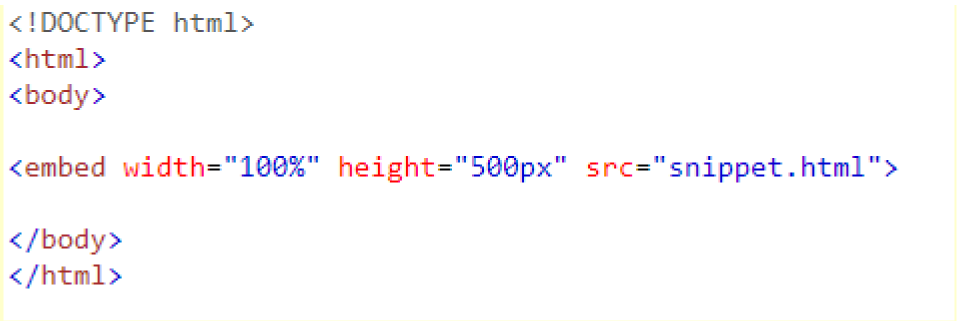


```
<!DOCTYPE html>
<html>
<body>

<object width="400" height="50" data="bookmark.swf"></object>

</body>
</html>
```

## The <embed> Element

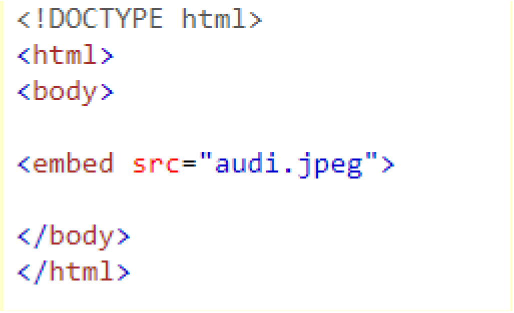
- The <embed> element is supported in all major browsers.
- The <embed> element also defines an embedded object within an HTML document.
- Web browsers have supported the <embed> element for a long time. However, it has not been a part of the HTML specification before HTML5.
- Note that the <embed> element does not have a closing tag. It cannot contain alternative text.

*Ex-1:*



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

<embed width="100%" height="500px" src="snippet.html">

</body>
</html>
```

*Ex-2:*



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

<embed src="audi.jpeg">

</body>
</html>
```

## What is a Web Worker?

- A web worker is a JavaScript program that runs in the background, without affecting the performance of the web page. When executing scripts in an HTML page, the page becomes unresponsive until the script is finished. But JavaScript is independently of other scripts.
- You can continue to do whatever you want: clicking, selecting things, etc., while the web worker runs in the background.

## HTML5 Server-Sent Events (SSE)

- When a web page automatically gets updates from a server is called as Server-Sent Events.
- This was also possible before, but the web page would have to ask if any updates were available. With server-sent events, the updates come automatically.
- Examples: Facebook/Twitter updates, stock price updates, news feeds, sport results, etc.