**HTML5**

**Form Elements:**

1. **<datalist> : -** it specifies the list of predefined elements for the input element. The list attribute of the <input> element should be same as the id attribute of the <datalist> element. We can see the dropdown arrow on the input box with predefined values.

**Ex :**

<form action=””>

<input **list=”browsers”** >

<datalist **id=”browsers”>**

<option value=”IE” />

<option value=”firefox”/>

<option value=”chrome” />

</datalist>

</form>

1. **<keygen> :-** it provides an secure way to authenticate the users. When the form is submitted , it generates 2 keys as private and public. Private key is stored in local and the public key is sent to the server used to generate the client certificate to authenticate the user in future.

**Ex:**

<form action="/action\_page.php">  
  Username: <input type="text" name="user">  
  Encryption: <keygen name="security">  
   <input type="submit">  
 </form>

1. **<output> :-** it is used to represent the result of the calculation.

**Ex:**

<form action="/action\_page.php"  
  oninput="x.value=parseInt(a.value)+parseInt(b.value)">  
  0  
   <input type="range"  id="a" name="a" value="50">  
   100 +  
   <input type="number" id="b" name="b" value="50">  
  =  
   <output name="x" for="a b"></output>  
  <br><br>  
  <input type="submit">  
</form>

**Input Types :**

1. **Color :-** It will show up the color palette depends on the browser.

**Ex:**

<form>  
  Select your favorite color:  
  <input **type="color"** name="favcolor">  
</form>

1. **Date :-** Used with input element. It will show up the date picker on the input element. We

**Ex:**

<form>  
  Enter a date before 1980-01-01:  
  <input type="date" name="bday" max="1979-12-31"><br>  
  Enter a date after 2000-01-01:  
  <input type="date" name="bday" min="2000-01-02"><br>  
</form>

1. **Datetime-local :-** it creates the date time input field with no timezone. It will show up the date picker when we enter value into text box.

**Ex:**

<form>  
  Birthday (date and time):  
  <input type="datetime-local" name="bdaytime">  
</form>

1. **Email:-** It used with input elements , to enter the emails. It automatically validates the email address.

**Ex:**

<form>  
  E-mail:  
  <input type="email" name="email">  
</form>

1. **Month :-** it allows to enter the month and year.

**Ex:**

<form>  
  Birthday (month and year):  
  <input type="month" name="bdaymonth">  
</form>

1. **Number:** it is used to set an numeric input field. We can also specify the range . it automatically validates the user input whether it is with in the range

**Ex:**

<form>  
  Quantity (between 1 and 5):  
  <input type="number" name="quantity" min="1" max="5">  
</form>

1. **Range :-** it specifies the range of values can be selected .

**Ex:**

<form>  
  <input type="range" name="points" min="0" max="10">  
</form>

1. **Search: -** it is used for search fields. It behaves like regular text field.

**Ex:**

<form>  
  Search Google:  
  <input type="search" name="googlesearch">  
</form>

1. **Tel:** it is used to specify the telephone number input fields.

**Ex:**

<form>  
  Telephone:  
  <input type="tel" name="usrtel">  
</form>

1. **Time:-** is used to specify the time field

**Ex:**

<form>  
  Select a time:  
  <input type="time" name="usr\_time">  
</form>

1. **url :-** is used to specify the url in the input field.

**Ex:**

<form>  
  Add your homepage:  
  <input type="url" name="homepage">  
</form>

1. **week:** is used to select the week and year.

**Ex:**

<form>  
  Select a week:  
  <input type="week" name="week\_year">  
</form>

**Input Attributes:**

1. **max : -** specifies an maximum value for your input field
2. **min :** - specifies an minimum values for your input field
3. **pattern :** specifies an regular expression to check the input value against with
4. **step:**- specifies an intervals for the input field
5. **required:** specifies that input value is required.

**Ex:**

<form>  
  Quantity:  
  <input type="number" name="points" min="0" max="100" step="10" value="30">  
</form>

1. **autocomplete:-** it specifies the browser auto completes the possible input values when the user enters in to the input field. The possible values are “on” and “off”
2. **autofocus :-** The specified field will get the focus when the page loads
3. **novaldiate:**- specifies that the form should not be validate when submit
4. **form :**- specifies that the input field belong to one or more form.

**Ex:**

<form action="/action\_page.php" id="form1" **autocomplete="on">**

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

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

</form>

<p>The "Last name" field below is outside the form element, but still part of the form.</p>

Last name: <input type="text" name="lname" **form="**form1">

1. **formaction:-** it overrides the action attribute of the form element. It species the url for the form submission. It is used with input type=”submit” or “image”.
2. **formmethod :- :-** it overrides the method attribute of the form element. It is used with input type=”submit” or “image”.
3. **formnovaldiate :-** it overrides the novalidate attribute of the form element. It is used with input type=”submit”
4. **formenctype:-** it specifies that how form data to be encrypted when submitted. It is used with input type=”submit” or “image”.
5. **formtarget:-** it specifies the where the result is rendered once the form is submitted. It is used with input type=”submit” or “image”.

**Ex:**

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

First name: <input type="text" name="fname"><br>

Last name: <input type="text" name="lname"><br>

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

**<input type="submit" formmethod="post" formenctype="multipart/form-data" formaction="/action\_page\_post.php" formnovalidate formtarget="\_blank" value="Submit using POST">**

</form>

1. **list :-** it refers the <datalist> element
2. **multiple :-** it allowed to specify more than one value
3. **placeholder:-** it specifies an hint for the input field.

**Semantic elements:**

Semantic elements= elements with a meaning

1. **header :-** specifies the header of the document.
2. **Footer :-** specifies the footer of the document.
3. **Nav :-** defines the navigation links
4. **Section :-** defines the section of the document
5. **Article:**- specifies the independent , self-contained content
6. **Aside:-**
7. **Figure and figcaption :-**  figcaption is used to give the visual representation of the image. Both figure and caption grouped into <figure> element.

**Ex:**

<body>

**<article>**

**<header>**

**<h1>What Does WWF Do?</h1>**

**<p>WWF's mission:</p>**

**</header>**

**<p>WWF's mission is to stop the degradation of our planet's natural environment, and build a future in which humans live in harmony with nature.</p>**

**<footer>**

**<p>Posted by: Hege Refsnes</p>**

**<p>Contact information: <a href="mailto:someone@example.com">**

**someone@example.com</a>.</p>**

**</footer>**

**</article>**

**<nav>**

**<a href="/html/">HTML</a> |**

**<a href="/css/">CSS</a> |**

**<a href="/js/">JavaScript</a> |**

**<a href="/jquery/">jQuery</a>**

**</nav>**

**<aside>**

**<h4>Epcot Center</h4>**

**<p>The Epcot Center is a theme park in Disney World, Florida.</p>**

**</aside>**

**<figure>**

**<img src="pic\_mountain.jpg" alt="The Pulpit Rock" width="304" height="228">**

**<figcaption>Fig1. - The Pulpit Rock, Norway.</figcaption>**

**</figure>**

</body>

1. **Details :** -it specifies an additional details that the user can view or hide on demand
2. **Summary:-** defines an visible heading for the details section

**Ex:**

<body>

**<details>**

**<summary>Copyright 1999-2014.</summary>**

**<p> - by Refsnes Data. All Rights Reserved.</p>**

**<p>All content and graphics on this web site are the property of the company Refsnes Data.</p>**

**</details>**

<p><b>Note:</b> The summary element is not supported in Edge/Internet Explorer.</p>

</body>

1. **Main :-** defines the main content
2. **Mark :-** defines the marked or highlighted text
3. **Time:-**

**Setting the Viewport :-**

HTML 5 allows to set the viewport according to the device used such as desktop, mobile and tab. Viewport is the user visible area of the web page.

The following meta view port should be included in all web pages.

**<meta name=”viewport” content=”width=device-width ,initial-scale=1.0” />**

**Graphics Elements :**

1. **Canvas :-** is used to draw an image or graphics on a web page. By default , I will be an empty canvas . We can draw line or circle or draw any image in canvas. It is an rectangular area on the web page. We can fill a text also.

**Ex:**

<body>

<p>Image to use:</p>

<img id="scream" src="img\_the\_scream.jpg" alt="The Scream" width="220" height="277">

<p>Canvas to fill:</p>

**<canvas id="myCanvas" width="250" height="300"**

**style="border:1px solid #d3d3d3;">**

**Your browser does not support the HTML5 canvas tag.</canvas>**

<p><button onclick="myCanvas()">Try it</button></p>

<script>

function myCanvas() {

var c = document.getElementById("myCanvas");

**var ctx = c.getContext("2d");**

**var img = document.getElementById("scream");**

**ctx.drawImage(img,10,10);**

}

</script>

</body>

1. **Svg:** it is an container for graphics . SVG stands for Scalar Vector Graphics. It has several methods to draw an image , circle and rectangle etc.
2. **Google Maps:** it is used to display the google maps in the web page

**Media Elements:**

1. **Video :-** <video> element is used to display the video in the html

**Ex:**

<video width="320" height="240" controls>  
  <source src="movie.mp4" type="video/mp4">  
  <source src="movie.ogg" type="video/ogg">  
Your browser does not support the video tag.  
</video>

**Controls:-** This attribute adds an video controls like play,pause and stop etc.

**Autoplay:**- This attribute automatically plays an video when the page loads

**Source:**- This element specifies an source video file location

1. **Audio :-**  <audio> element is used to add an audio file in html.

**Ex:**

<audio controls>  
  <source src="horse.ogg" type="audio/ogg">  
  <source src="horse.mp3" type="audio/mpeg">  
Your browser does not support the audio element.  
</audio>

1. **Plugins:** it is used to extend the functionality of the web browser.

<object> and <embed> elements are used to include the html or image or plugin into html page.

**Ex:1**<body>

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

<object width="100%" height="500px" data="snippet.html"></object>

<object data="audi.jpeg"></object>

</body>

**Ex:2**

<body>

<embed width="400" height="50" src="bookmark.swf">

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

<embed src="audi.jpeg">

</body>

1. **Youtube:-** you tube videos can be played by iframe , object or embed element.

**Ex:**

<object width="420" height="315"  
data="https://www.youtube.com/embed/XGSy3\_Czz8k">  
</object>

<embed width="420" height="315"  
src="https://www.youtube.com/embed/XGSy3\_Czz8k">

<iframe width="420" height="315"  
src="https://www.youtube.com/embed/XGSy3\_Czz8k?controls=0">  
</iframe>

**API’s:**

1. **Geolocation : -** This api is used to locate the users position. It is used to get the geographical position of the user.
2. **Drag/Drop :-** This api is used to drag and drop an element in the web page.

To make an element draggable , we need to set the draggable attribute.

<img draggable="true">

1. **LocalStorage: -** it is an place to store the data without affecting the performance. It acts like an cookie. It provides two object to store the data locally. The data willnot be deleted an itwill be available for next day or week etc..

Window.localStorage - > store data without any expiration date

Window.sessionStorage -> store data for one session. The data will be deleted once the user close the browser or tab

**Ex: 1**

// Store  
localStorage.lastname = "Smith";  
// Retrieve  
document.getElementById("result").innerHTML = localStorage.lastname or localStorage.getItem("lastname");

//remove

localStorage.removeItem("lastname");

**Ex:2**

sessionStorage.lastname = "Smith";  
// Retrieve  
document.getElementById("result").innerHTML = sessionStorage.lastname or sessionStorage.getItem("lastname");

//remove

sessionStorage.removeItem("lastname");

1. **Web Workers :-** it is a java script running on the background , without affecting the performance of the web page. There are some javascripts , which makes the page unresponsive . But by using the web workers we can make the java script to run in background and we can continue our activity on the web page.
2. **Server-Sent events:-** it gets the update from the server. The EventSource object is used to receive the events from server.