
UNIT 2: Create HTML5 document using advanced techniques with JavaScript and CSS3

Most Essential Learning Competencies: *At the end of the course, you must be able to:*

1. Create static page using new features available with the new features of HTML5
-



Reading Activity

Earlier version of HTML5: HTML4

Earlier the version that was in use was HTML4 which was too complicated and it was not a child's play to design a perfect interactive website using it. But with the introduction of HTML5 now new opportunities arose and made the life of coders better. It has made the web life much more flexible. All the new features that have been introduced do not include JS. These inventions have changed the perspective of coders towards HTML.

HTML5 is introduced with new features. This version was released in October of 2014.

Benefits of Upcoming HTML Features

With invent of features in HTML5 it is not only possible to create better static websites but we can also create dynamic websites. Features such as audio, video, animations etc can be added to the webpage now without the use of JS.

Along with this it is possible to make our website responsive without the use of third party plugs. It is the need of an hour as equal numbers of users are assessing the website from desktops as that are from the smartphones.

New Features of HTML5

1. Video and Audio

Video and audio are the new tags that allow embedding of video in the website. YouTube also declare video embed by giving the code to embed for their videos. It helps the web to be more involved with multimedia. A new tag is also available in HTML5 and that is audio tag which is used to embed any audio in the web.

2. nav

The nav element is used for the part of a internet site that links to different pages at the website. The hyperlinks can be organized a number of approaches. below, the hyperlinks are displayed inside paragraph factors. An unordered list can also be used.

3. header

The header element can be used to institution collectively introductory factors on a website, such as a business enterprise brand, navigation objects, and occasionally, a search form

4. canvas

canvas is a tag of HTML which is newly introduced in HTML5. It is used to draw the images on the fly. It can be used for visual images, rendering graphs, game graphics.

5. footer

Footer is a tag, used to define the footer of a document or a section. Usually it contains the information about author and copyright etc. Address tag may be used to mark up the contact information in the footer.

6. New types for input tags

input is an attribute which is an old attribute but in HTML, it is reintroduced with new values like email, month, number, range, search, tel, color, week, url, time, date, datetime-local etc. These are the new values which can be contain by the input tag.

- **ContentEditable**

It is an attribute which is used to permit the user to edit the content. It creates What You See What You Get so easy. Content will be editable by clicking on it.

- **Progress**

This tag is used to check the progress of a task during execution of that. Progress tag can used with the conjunction of JavaScript. It is like progress bar.

- **section**

Section tag is used to divide a document or in parts or sections. For example: An article can have many sections like header, footer, latest news and section for main content etc.

- **main**

main is a tag which is used to contain the main content of the page. More than one main tag is not accepted in the document and this tag cannot be inside in article, aside, footer, header tags. It does not include the navigation bar, header and footer.

7. Figure and Figcaption

Earlier there was no way to of figure as well as give caption to that figure. But, with the introduction of figure as well as figcaption, it has become semantically possible to insert an image in a page with its caption.

8. Placeholders

This feature in html5 has provided the assistance to many new users. It gives the hint to what is to be inserted in a particular field of the form. It is there when the user has not started writing something in the input field. It is sometime also called dummy text. It is present temporarily.

9. Required Attribute

It is another important features that is there in the form tag. It helps in gathering of all the mandatory information that is there in the form. Without this it will not be possible to submit the form. It is boolean attribute. The form will all the required fields being filled will be allowed to submit.

It works with text, url, email, password, date, numbers, checkbox, file etc.

10. Preload Videos

It is an amazing feature for uploading the videos. It specifies the way to upload the video along with the loading of the page. This helps the browser in knowing about the improvisation of the user experience of the webpage. Though this is not a too mandatory features that is too be added. It helps in better representation of the page.

11. Display Control

Display attribute helps in specifying the behaviour of the elements. When this property is not specified, then the default values are taken.

12. Regular Expressions

With the help of regular expression we can add the particular pattern as an input. Such as the most common pattern that is used is [A-Za-z] {5,11}. It accepts the uppercase as well as lowercase letters. Along with this it states that the minimum length of characters is 5 and the maximum length of characters that is acceptable is 11.

13. Accessibility

With the invent of HTML5 it has played a great role in providing the best of the accessibility features to a website. This has made the use of website simplified. the people of almost an kind of disability such as visually impaired, color blind, low vision, blind etc can have access to the websites that have been designed with the accessibility features of HTML5.

Such as in forms the validation is the best example of providing accessibility. Labels should be properly marked.

14. Inline elements

To keep code up to mark, semantically these inline elements help a lot :

- **mark** – It highlights the content that is marked in some or the other way.
- **time** – This helps in adding current time as well as date to the webpage.
- **meter** – It helps in indicating that how much space in the storage disk is still there.
- **progress bar** – It helps in knowing the progress of the task that has been assigned for its completion.

15. Dynamic Page Support

Nowadays there is need of dynamic as well as interactive websites rather than static websites. Here are enormous features that provide the dynamic touch to the website :

- **mark** – It highlights the content that is marked in some or the other way.
- **time** – This helps in adding current time as well as date to the webpage.
- **meter** – It helps in indicating that how much space in the storage disk is still there.
- **progress bar** – It helps in knowing the progress of the task that has been assigned for its completion.

many more such features are there to make the page dynamic.

16. Email attribute

When in a form we write the type as email, then browser by itself gets the instruction from the code to write an email with the proper as well as valid format of writing an email. This was not possible in the earlier browsers.

17. Cryptographic nonces

In this newer version of HTML, we can add cryptographic nonces to all the styles as well as scripts. Here, we usually use nonce attribute inside script and style tag. This nonce tag basically generates a random number which is for one time use only.

So, it is regenerated each time the page refreshes. It is great features as it can be used to increase the security of the content of the page. This helps in stating and providing the authority to the webpage to specify a particular script or style.

18. Reverse Links

rev attribute is back in action again with the use of HTML 5.1. It basically allows the web users to again use the link and a or anchor tag elements. It explains the relationship between the current document as well as the linked document but in the opposite direction.

19. Zero width images

Now the web developers can make the width of the images as zero. This feature is of great help when there is no need to show them to the users such as while tracking the image files as otherwise it would take more space. It is advisable to use the zero width images with the alt tag that is empty.

The above listed features are all the new features that have been introduced in HTML5 version. It has given a new life to the HTML language. The ease of designing a webpage that these features have provided is commendable. There are many more features of HTML5 which are newly introduced. Features of HTML5 is supported by the latest versions of browsers.

HTML Input Types

Here are the different input types you can use in HTML:

1. `<input type="button">`
2. `<input type="checkbox">`
3. `<input type="color">`
4. `<input type="date">`
5. `<input type="datetime-local">`
6. `<input type="email">`
7. `<input type="file">`
8. `<input type="hidden">`
9. `<input type="image">`
10. `<input type="month">`
11. `<input type="number">`
12. `<input type="password">`
13. `<input type="radio">`
14. `<input type="range">`
15. `<input type="reset">`
16. `<input type="search">`
17. `<input type="submit">`
18. `<input type="tel">`
19. `<input type="text">`
20. `<input type="time">`
21. `<input type="url">`
22. `<input type="week">`

**Self-Check****Quiz 1.1**

Instructions: Write your answer on the Answer Sheet (AS) provided in this module (1-point each).

1. Enumerate at least 10
 - A. *Features of HTML5*
 - B. *Input Types*



Laboratory Activity

Activity 1.1

Working with Input Types

First to do:

- ✓ Use **Brackets** as your text editor (or any text editor you are comfortable with)
- ✓ Save all your files in a folder with the name “**HTML5 Input Types**” on your desktop.
- ✓ Save individual file as the name of the sample implies. Example *text.htm* for the sample input type text.
- ✓ Copy-paste the html codes to text editor
- ✓ Open the html file from the folder in the desktop with any available web browser.

1. Text (text.htm)

```
<form>
  <label for="fname">First name:</label><br>
  <input type="text" id="fname" name="fname"><br>
  <label for="lname">Last name:</label><br>
  <input type="text" id="lname" name="lname">
</form>
```

2. Password (password.htm)

```
<form>
  <label for="username">Username:</label><br>
  <input type="text" id="username" name="username"><br>
  <label for="pwd">Password:</label><br>
  <input type="password" id="pwd" name="pwd">
</form>
```

3. Submit (submit.htm)

```
<form action="/action_page.php">
  <label for="fname">First name:</label><br>
  <input type="text" id="fname" name="fname" value="John"><br>
  <label for="lname">Last name:</label><br>
  <input type="text" id="lname" name="lname" value="Doe"><br><br>
  <input type="submit" value="Submit">
</form>
```

4. Reset (reset.htm)

```
<form action="/action_page.php">
  <label for="fname">First name:</label><br>
  <input type="text" id="fname" name="fname" value="John"><br>
  <label for="lname">Last name:</label><br>
  <input type="text" id="lname" name="lname" value="Doe"><br><br>
  <input type="submit" value="Submit">
  <input type="reset">
</form>
```

5. Radio Button (radiobutton.htm)

```
<!DOCTYPE html>
<html>
<body>
<h2>Radio Buttons</h2>
<p>The <strong>input type="radio"</strong> defines a radio button:</p>
<form action="/action_page.php">
  <input type="radio" id="male" name="gender" value="male">
  <label for="male">Male</label><br>
  <input type="radio" id="female" name="gender" value="female">
  <label for="female">Female</label><br>
  <input type="radio" id="other" name="gender" value="other">
  <label for="other">Other</label><br><br>
  <input type="submit" value="Submit">
</form>
</body>
</html>
```

6. Check Box (checkbox.htm)

```
<!DOCTYPE html>
<html>
<body>
<h2>Checkboxes</h2>
<p>The <strong>input type="checkbox"</strong> defines a checkbox:</p>
<form action="/action_page.php">
  <input type="checkbox" id="vehicle1" name="vehicle1" value="Bike">
  <label for="vehicle1"> I have a bike</label><br>
  <input type="checkbox" id="vehicle2" name="vehicle2" value="Car">
  <label for="vehicle2"> I have a car</label><br>
  <input type="checkbox" id="vehicle3" name="vehicle3" value="Boat">
  <label for="vehicle3"> I have a boat</label><br><br>
  <input type="submit" value="Submit">
</form>
</body>
</html>
```


7. Button (button.htm)

```
<input type="button" onclick="alert('Hello World!')" value="Click Me! ">
```

8. Color (color.htm)

```
<!DOCTYPE html>
<html>
<body>
<h2>Show a Color Picker</h2>
<p>The <strong>input type="color"</strong> is used for input fields that should
contain a color.</p>
<form action="/action_page.php">
  <label for="favcolor">Select your favorite color:</label>
  <input type="color" id="favcolor" name="favcolor" value="#ff0000">
  <input type="submit" value="Submit">
</form>
<p><b>Note:</b> type="color" is not supported in Internet Explorer 11 or Safari 9.1
(or earlier).</p>
</body>
</html>
```

9. Date (date.htm)

```
<!DOCTYPE html>
<html>
<body>
<h2>Date Field</h2>
<p>The <strong>input type="date"</strong> is used for input fields that should contain
a date.</p>
<form action="/action_page.php">
  <label for="birthday">Birthday:</label>
  <input type="date" id="birthday" name="birthday">
  <input type="submit" value="Submit">
</form>
<p><strong>Note:</strong> type="date" is not supported in Safari or Internet Explorer
11 (or earlier).</p>
</body>
</html>
```

10. Email (email.htm)

```
<!DOCTYPE html>
<html>
<body>
<h2>Email Field</h2>
<p>The <strong>input type="email"</strong> is used for input fields that should
contain an e-mail address:</p>
<form action="/action_page.php">
  <label for="email">Enter your email:</label>
  <input type="email" id="email" name="email">
  <input type="submit" value="Submit">
</form>

</body>
</html>
```

11. File Upload (upload.htm)

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

<h1>File upload</h1>

<p>Show a file-select field which allows a file to be chosen for upload:</p>
<form action="/action_page.php">
  <label for="myfile">Select a file:</label>
  <input type="file" id="myfile" name="myfile"><br><br>
  <input type="submit" value="Submit">
</form>

</body>
</html>
```

12. Month (month.htm)

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

<h2>Month Field</h2>

<p>The <strong>input type="month"</strong> allows the user to select a month and
year.</p>

<form action="/action_page.php">
  <label for="bdaymonth">Birthday (month and year):</label>
  <input type="month" id="bdaymonth" name="bdaymonth">
  <input type="submit" value="Submit">
</form>

<p><strong>Note:</strong> type="month" is not supported in Firefox, Safari, or
Internet Explorer 11 (or earlier).</p>

</body>
</html>
```

13. Number (number.htm)

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

<h2>Number Field</h2>

<p>The <strong>input type="number"</strong> defines a numeric input field.</p>

<p>You can use the min and max attributes to add numeric restrictions in the input
field:</p>

<form action="/action_page.php">
  <label for="quantity">Quantity (between 1 and 5):</label>
  <input type="number" id="quantity" name="quantity" min="1" max="5">
  <input type="submit" value="Submit">
</form>

</body>
</html>
```

14. Search (search.htm)

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

<h2>Search Field</h2>
<p>The <strong>input type="search"</strong> is used for search fields (behaves like a
regular text field):</p>

<form action="/action_page.php">
  <label for="gsearch">Search Google:</label>
  <input type="search" id="gsearch" name="gsearch">
  <input type="submit" value="Submit">
</form>

</body>
</html>
```

15. Tel (telephone.htm)

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

<h2>Telephone Field</h2>

<p>The <strong>input type="tel"</strong> is used for input fields that should contain
a telephone number:</p>

<form action="/action_page.php">
  <label for="phone">Enter a phone number:</label><br><br>
  <input type="tel" id="phone" name="phone" placeholder="123-45-678" pattern="[0-
9]{3}-[0-9]{2}-[0-9]{3}" required><br><br>
  <small>Format: 123-45-678</small><br><br>
  <input type="submit" value="Submit">
</form>

</body>
</html>
```

**Read Additional Resources****HTML5 Cheat Sheets**

1. Week_1_WSU-HTML-Cheat-Sheet.pdf
2. Week1_html5-tag-cheat-sheet-2019.pdf

**Watch Video Resources**

1. Week1_New Elements in HTML5.mp4
2. Week1_HTML5 Forms input types.mp4

**Internet References**

1. <https://w3schools.com>
2. <https://windows-1.com/brackets-for-pc/>
3. <https://www.youtube.com/watch?v=mdDisqelEh0>
4. https://www.youtube.com/watch?v=8pITd2_bgso
5. <https://websitesetup.org/html5-cheat-sheet/>
6. <https://www.admecindia.co.in/web-design/10-new-features-html5-examples/>