

Diploma in **IT, Networking and Cloud**

Module 2 **Web Design and Development** Lab Manual

Disclaimer: The content is curated for educational purposes only.

© Edunet Foundation. All rights reserved.

Table of Contents

Learning Outcome - After completing this module, the student should be able to understand Hypertext Markup Language (HTML).....	13
Activity 1	14
Aim: Create HTML document using mark up Tags in HTML editor (Notepad), Open/run the html file in web browser to check the output.	14
Activity 2	17
Aim: Modify above HTML document using heading – paragraphs, Modify above HTML document using Line Breaks, Modify above HTML document using HTML Tags.....	17
Activity 3	21
Aim: Introduce new elements of HTML5	21
Activity 4	24
Aim: Create Text, Lists, Tables and iFrames	24
Activity 5	31
Aim: Create Hyperlinks, Images and Multimedia Working with Forms and controls.....	31
Activity 6	38
Aim: Enable Hypertext Transfer Protocol (HTTP) via GET and POST requests.....	38
Activity 7	42
Aim: Obtain input from users.....	42
Activity 8	45
Aim: Divide a webpage into logical sections	45
Activity 9	54
Aim: Display computer code with HTML	54
Activity 10	56
Aim: Annotation of images and graphics.....	56

Activity 11	58
Aim: Marking abbreviations.....	58
Activity 12	60
Aim: Add quotations and citations to web pages	60
Activity 13	62
Aim: Embed a webpage within another webpage	62
Activity 14	64
Aim: Create a data spreadsheet (2 hr)	64
Activity 15	66
Aim: Optimize HTML table rendering (1Hr).....	66
Activity 16	68
Aim: Create collapsible content with HTML (1Hr)	68
Activity 17	71
Aim: Add context menus to a webpage (2Hr).....	71
Activity 18	73
Aim: Create dialog boxes with HTML (2Hrs)	73
Activity 19	77
Aim: Add multiple languages into a single webpage (2Hrs).....	77
Activity 20	84
Aim: Controlling of HTML line breaking (1Hrs)	84
Activity 21	85
Aim: Mark changes (added and removed text) (2Hrs)	85
Activity 22	87
Aim: Add responsive image to a webpage (3Hrs).....	87

Activity 23	89
Aim: Add vector image to a webpage (3Hrs).....	89
Activity 24	90
Aim: Add a hit map on top of an image (2Hrs).....	90
Activity 25	92
Aim: Animation (1 hr).....	92
Activity 26	94
Aim: Transition (1 hr).....	94
Learning Outcome - Able to understand Scripting and styling the web	96
Activity 1	97
Aim: Apply CSS within a webpage (2Hrs)	97
Activity 2	99
Aim: Apply CSS to HTML	99
Activity 3	101
Aim: Select elements via element name, class or ID (2 Hrs).....	101
Activity 4	103
Aim: Select elements via attribute name and content (1 Hrs).....	103
Activity 5	105
Aim: Apply pseudo-elements (2 Hrs)	105
Activity 6	107
Aim: Specify colors in CSS (5 Hrs).....	107
Activity 7	109
Aim: Debug CSS in the browser.	109
Activity 8	113

Aim: Style text and customize a list of elements.....	113
Activity 9	116
Aim: Add shadows to text.....	116
Activity 10	118
Aim: Size CSS Boxes.....	118
Activity 11	121
Aim: Control overflowing content.....	121
Activity 12	124
Aim: Control the part of a CSS box to draw the background.....	124
Activity 13	127
Aim: Create fancy boxes (also see the Styling boxes module, generally).....	127
Activity 14	129
Aim: Use background-clip to control background image.....	129
Activity 15	132
Aim: Change the box model completely using box sizing.....	132
Activity 16	135
Aim: Control backgrounds.....	135
Activity 17	137
Aim: Apply control borders.....	137
Activity 18	140
Aim: Style an HTML table.....	140
Activity 19	145
Aim: Add shadows to boxes.....	145
Activity 20	148

Aim: Calculate specificity of a CSS selector.....	148
Activity 21	150
Aim: Control Inheritance in CSS	150
Activity 22	152
Aim: Apply filters in CSS.....	152
Activity 23	154
Aim: Apply blend modes in CSS.....	154
Activity 24	156
Aim: Apply CSS multi-column layouts.....	156
Activity 25	159
Aim: Apply CSS generated Content.....	159
Activity 26	162
Aim: Create CSS document by using ID selector	162
Activity 27	164
Aim: Create CSS document by using Class selector, Universal selector Grouping selector	164
Activity 28	167
Aim: Create CSS document with fonts: Bold, Italics, oblique.....	167
Activity 29	169
Aim: Design Style sheet document with text transformation: Uppercase, Lowercase and capitalize	169
Activity 30	172
Aim: Create CSS document with font size in different pixels	172
Activity 31	175
Aim: Create CSS document with font weight thinner, thicker, bold.....	175

Activity 32	178
Aim: Create CSS document with alignment center, right and left	178
Activity 33	182
Aim: Create CSS document with background colors and font colors	182
Activity 34	185
Aim: Create CSS document with text hovering	185
Activity 35	187
Aim: Create CSS document with text decoration	187
Activity 36	190
Aim: Create CSS document with block elements and objects	190
Activity 37	193
Aim: Create Lists and Tables	193
Activity 38	198
Aim: Create Box Model by using borders, Padding and Margin	198
Learning Outcome - After completing this module, the student should be able to understand JavaScript.....	200
Activity 1	203
Aim: Write a JavaScript function that reverse a number.....	203
Activity 2	206
Aim: Write a JavaScript function that returns a passed string with letters in alphabetical order.	206
Activity 3	208
Aim: Write a JavaScript function that accepts a string as a parameter and counts the number of vowels within the string.....	208
Activity 4	210

Aim: Write a JavaScript function that accepts a string as a parameter and converts the first letter of each word of the string in upper case.....	210
Activity 5	212
Aim: Write a JavaScript program to calculate number of days left until next Christmas. Learning outcome: Able to understand JavaScript	212
Activity 6	214
Aim: Write a JavaScript conditional statement to find the sign of product of three numbers. Display an alert box with the specified sign. Sample numbers: 3, -7, 2 Output: The sign is -..	214
Activity 7	217
Aim: Write a simple JavaScript program to join all elements of the following array into a string.	217
Expected Output : "Red,Green,White,Black" "Red,Green,White,Black" "Red+Green+White+Black"	217
Activity 8	219
Aim: Write a JavaScript function to check whether an `input` is an array or not.....	219
Activity 9	221
Aim: Write a JavaScript function to clone an array. Test Data : [1, 2, 4, 0] [1, 2, [4, 0]].....	221
Activity 10	223
Aim: Write a JavaScript program to sort the items of an array. Sample array : var arr1 = [3, 8, 7, 6, 5, -4, 3, 2, 1]; Sample Output : -4,-3,1,2,3,5,6,7,8.....	223
Activity 11	226
Aim: Write a JavaScript program to display the colors in the following way : Here is the sample array: color = ["Blue ", "Green", "Red", "Orange", "Violet", "Indigo", "Yellow "]; = ["th","st","nd","rd"] Output "1st choice is Blue ." "2nd choice is Green." "3rd choice is Red."	226
Activity 12.....	229
Aim: Create the following four functions in a separate JavaScript file. Also create a separate HTML file to test the functions.....	229

a) Create a function that uses an alert to display the hostname of the current URL when the button is clicked.....	229
b) Create a function to display a confirmation box with the message "Are you human?", and output what the user clicked	229
c) Display a prompt box which asks the user for her/his name, store the user's response in person, and output a message; "Hello " + person + "! How are you today?	229
d) Use the switch statement together with prompt () to execute a block of code based on user input. Click the button to display a dialog box which will ask for the user's favourite drink. ..	229
Activity 13.....	238
Aim: Write a JavaScript function to remove specified number of characters from a string.....	238
Activity 14.....	240
Aim: Develop and demonstrate a HTML5 file that includes JavaScript script that uses functions for the following problems:	240
a. Parameter: A string	240
Output: The position in the string of the left-most vowel	240
b. Parameter: A number.....	240
Output: The number with its digits in the reverse order.....	240
Activity 15.....	244
Aim: Write a JavaScript code that displays text “TEXT-GROWING” with increasing font size in the interval of 100ms in RED COLOR, when the font size reaches 50pt it displays “TEXT-SHRINKING” in BLUE color. Then the font size decreases to 5pt.	244
Activity 16.....	247
Aim: Create a Tip Calculator as a single page web application (SPA). Design an interface that allows you to enter the amount of the tip. The percentage you would like to tip, and the number of people to split the tip with. Do not use 3 text input elements! Calculate and dynamically display the tip.....	247
Activity 17.....	256
Aim: Write a JavaScript function to validate whether a given value is object or not.....	256

Activity 18.....	258
Aim: Write a JavaScript function to validate whether a given value type is pure json object or not	258
Activity 19.....	260
Aim: Write a JavaScript program to count number of words in string.....	260
Note:	260
• Remove white-space from start and end position.....	260
• Convert 2 or more spaces to 1.....	260
• Exclude newline with a start spacing.	260
Activity 20.....	263
Aim: Write a JavaScript function to check a given value contains alpha, dash and underscore.	263
Activity 21.....	266
Aim: Write a JavaScript function to check whether a given value represents a domain or not. 266	
Write a JavaScript function to check whether a given value is html or not.	266
Learning Outcome	271
After completing this module, the student should be able to understand basic of bootstrap and jQuery.	271
Activity 1	272
Aim: Building responsive webpage using bootstrap	272
Activity 2	290
Aim: Use jQuery selectors to identify elements with some properties in a hypothetical page ..	290
Activity 3	300
Aim: Write jQuery Code to change the hyperlink and the text of an existing link	300
Activity 4	302

Aim: How to Print a Page Using jQuery	302
Activity 5	305
Aim: Display and hide message shown in the div tag on click of the buttons	305
Activity 6	308
Aim: Create one button and a textbox. On click of the button the text written in text box should display on the button.....	308
Activity 7	311
Aim: Toggle a specified class when an element is clicked	311
Activity 8	314
Aim: Disable the submit button until the visitor has clicked a check box	314
Activity 9	317
Aim: Create a text input field. Listen for the key up event. Alert the value of the text box whenever key up occurs	317
Activity 10	320
Aim: Set a timer to delay execution of subsequent items in the queue	320
Activity 11	323
Aim: Find all the text nodes inside a paragraph and wrap them with an italic tag.....	323
Activity 12	326
Aim: Write a jquery to attach a change event to the select element (Use to create a drop-down list.) that gets the text for each selected option and writes them in a paragraph	326
Activity 13	329
Aim: Find the widths and heights of various elements. Get the scroll top and left of an element. Access the position of an element.	329
Learning Outcome - Able to understand database and its commands	333
Activity 1	334

Aim: Installing MySQL on windows	334
Activity 2	344
Aim: Creating and Manipulating Database objects and Applying Constraints (DDL)	344
Activity 3	352
Aim: Manipulating Data with Database Objects (DML)	352
Commands of DML.....	352
1. SELECT.....	352
2. INSERT.....	355
3. UPDATE.....	357
4. DELETE.....	357
Activity 4	362
Aim: SQL Single row functions	362
Activity 5	365
Aim: Displaying Data from Multiple Tables (Join)	365
Activity 6	377
Aim: SQL Multiple Row Functions (Aggregate Function).....	377
Activity 7	387
Aim: SQL using Sub Query.....	387

Learning Outcome - After completing this module, the student should be able to understand Hypertext Markup Language (HTML).

To meet the learning outcome, a student has to complete the following activities

1. Create HTML document using markup Tags in HTML editor (Notepad) (Open/run the html file in web browser to check the output (30 mins)
2. Modify above HTML document using heading – paragraphs, modify above HTML document using Line Breaks, modify above HTML document using HTML Tags. (30 mins)
3. Introduce new elements of HTML5 (1 Hrs)
4. Create Text, Lists, Tables and iFrames (2 Hrs)
5. Create Hyperlinks, Images and Multimedia Working with Forms and controls. (3 Hrs)
6. Enable Hypertext Transfer Protocol (HTTP) via GET and POST requests (1 Hrs)
7. Obtain input from users. (5 Hrs)
8. Divide a webpage into logical sections (1 Hr)
9. Display computer code with HTML (1 Hr)
10. Annotation of images and graphics. (2 Hrs)
11. Marking abbreviations (1 Hr)
12. Add quotations and citations to web pages (2 Hrs)
13. Embed a webpage within another webpage (2 Hrs)
14. Create a data spreadsheet (2 Hrs)
15. Optimize HTML table rendering (1 Hr)
16. Create collapsible content with HTML (1 Hr)
17. Add context menus to a webpage (2 Hr)
18. Create dialog boxes with HTML (2 Hrs)
19. Add multiple languages into a single webpage (2 Hrs)
20. Controlling of HTML line breaking (1 Hrs)
21. Mark changes (added and removed text) (2 Hrs)
22. Add responsive image to a webpage (3 Hrs.)
23. Add vector image to a webpage (3 Hrs.)
24. Add a hit map on top of an image (2 Hrs.)
25. Animation (1 hrs.)
26. Transform (1 hrs.)

Activity 1

Aim: Create HTML document using mark up Tags in HTML editor (Notepad), Open/run the html file in web browser to check the output.

Learning outcome: HyperText MarkUp Language (HTML)

Duration: 30 mins

List of Hardware/Software requirements:

1. Windows/Ubuntu OS.....
2. Text Editors- Notepad++, Sublime Text, etc.
3. Browser

Program 1:

```
<!DOCTYPE html>

<html>
  <head>          <!-- Document Head Starts -->
    <title>Markup Tags</title>
  </head>          <!-- Document Head Ends -->
  <body>          <!-- Document Body Starts -->
    <p><mark>My First Paragraph. </mark>We are using mark tag</p> <!--Paragraph element -->
  </body>          <!-- Document Body Ends -->
</html>
```

Output/Results snippet:



My First Paragraph

Program 2:

```
<!DOCTYPE html>

<html>

<head>          <!-- Document Head Starts -->

<title>Markup Tags</title>

</head>          <!-- Document Head Ends -->

<body>          <!-- Document Body Starts -->

<center>

<font size="20">My Web Page</font>    <!--Font element -->

</center>

</body>          <!-- Document Body Ends -->

</html>
```

Output/Results snippet:



My First Paragraph

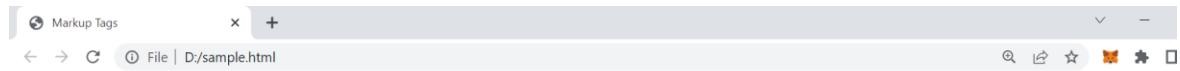
Program 3: Open/run the html file in web browser to check the output.

Step 1: Press "Windows-E" to launch Windows Explorer.

Step 2: Navigate to the folder that contains your HTML file.

Step 3: Double-click the file. Your default browser displays the HTML document. If the browser is not open, Windows launches it.

Output/Results snippet:



My First Paragraph

References:

- https://www.w3schools.com/html/html_editors.asp
- <https://www.tutorialrepublic.com/html-tutorial/html-get-started.php>
- <https://smallbusiness.chron.com/run-html-file-internet-browser-53175.html>
- <https://www.tutorialrepublic.com/html-tutorial/html-get-started.php>

Activity 2

Aim: Modify above HTML document using heading – paragraphs, Modify above HTML document using Line Breaks, Modify above HTML document using HTML Tags.

Learning outcome: HyperText MarkUp Language (HTML)

Duration: 30 mins

List of Hardware/Software requirements:

- 1 Windows/Ubuntu OS.....
2. Text Editors- Notepad++, Sublime Text, etc.
3. Browser

Program 1:

```
<!DOCTYPE html>

<html>
  <head>          <!-- Document Head Starts -->
    <title> Heading & Paragraph</title>
  </head>          <!-- Document Head Ends -->

  <body bgcolor="lightblue" >      <!-- Document Body Starts -->
    <h1>My First Heading</h1>      <!--This is a heading-->
    <h2>My First Heading</h2>
    <h3>My First Heading</h3>
    <h4>My First Heading</h4>
    <h5>My First Heading</h5>
    <h6>My First Heading</h6>

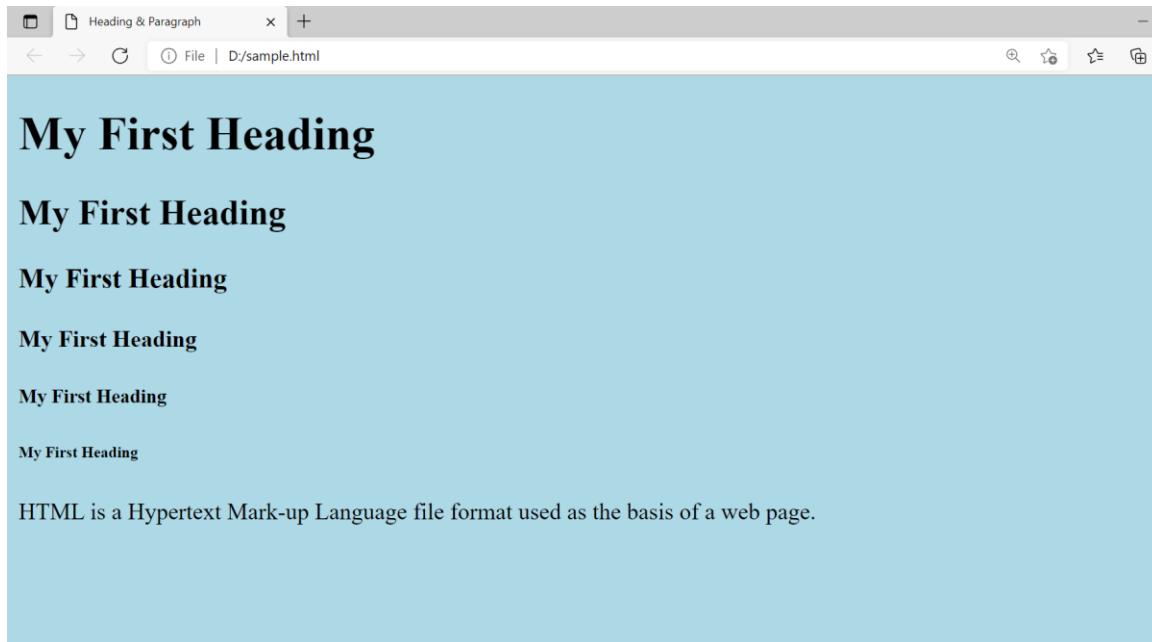
    <p>          <!--Paragraph element -->
```

HTML is a Hypertext Mark-up Language file format used as the basis of a web page.

```
</p>
```

```
</body>           <!-- Document Body Ends -->  
</html>
```

Output/Results snippet:



Program 2:

```
<!DOCTYPE html>  
  
<html>  
  
<head>           <!-- Document Head Starts -->  
  
<title> Heading Paragraph</title>  
  
</head>           <!-- Document Head Ends -->  
  
<body>           <!-- Document Body Starts -->  
  
<p>           <!-- Paragraph Element with break -->
```

To break lines
in a text,
use the br element.

```
</p>
</body>          <!-- Document Body Ends -->
</html>
```

Output/Results snippet:



To break lines
in a text,
use the br element.

Program 3:

```
<!DOCTYPE html>
<html>
<head>          <!-- Document Head Starts -->
<title> IBM </title>
</head>          <!-- Document Head Ends -->
<body >        <!-- Document Body Starts -->
<h1>IBM</h1>  <!--Heading Tag -->
<hr>            <!--Horizontal Rule -->
<p>            <!--Paragraph Element -->
```

International Business Machines (IBM), is a global technology company that provides hardware, software, cloud-based services and cognitive computing. </p>
<p>largest computer company in the world. </p>

```
</body>           <! -- Document Body Ends -->  
</html>
```

Output/Results snippet:



IBM

International Business Machines (IBM), is a global technology company that provides hardware, software, cloud-based services and cognitive computing.

largest computer company in the world.

References:

- https://www.w3schools.com/html/html_intro.asp
- <https://www.tutorialrepublic.com/html-tutorial/html-paragraphs.php>
- <https://www.tutorialrepublic.com/html-tutorial/html-paragraphs.php>

Activity 3

Aim: Introduce new elements of HTML5

Learning outcome: HyperText MarkUp Language (HTML)

Duration: 1 Hr

List of Hardware/Software requirements:

1. Windows/Ubuntu OS.....
2. Text Editors- Notepad++, Sublime Text, etc.
3. Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<body>

<h2>Example of video and audio tag</h2>

<video width = "300" height = "200" controls autoplay> <!--Video Element -->

    <source src = "/html5/foo.ogg" type = "video/ogg" />
    <source src = "/html5/foo.mp4" type = "video/mp4" />

    Your browser does not support the video element.

</video>

<audio controls autoplay> <!--Audio Element -->

    <source src = "/html5/audio.ogg" type = "audio/ogg" />
    <source src = "/html5/audio.wav" type = "audio/wav" />

    Your browser does not support the audio element.

</audio><br>
```

```
<svg id = "svgelem" height = "100" xmlns = "http://www.abc.org/2000/svg">    <!--svg Element-->

    <circle id = "redcircle" cx = "50" cy = "50" r = "50" fill = "red" />

</svg>

<br>

<h1> HTML Nav tag</h1>

<nav>          <!--Nav Element -->

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

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

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

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

</nav>

<h1>The progress element</h1>

<label for="file">Downloading progress:</label>

<progress id="file" value="32" max="100"> 32% </progress>    <!--Progress Element -->

<h2 style="font-size:25px; font-style:italic;">

    Placeholder Attribute in Input Element <!--Placeholder Attribute in Input Element-->

</h2>

<form action=" ">

    <input type="text" name="fname"

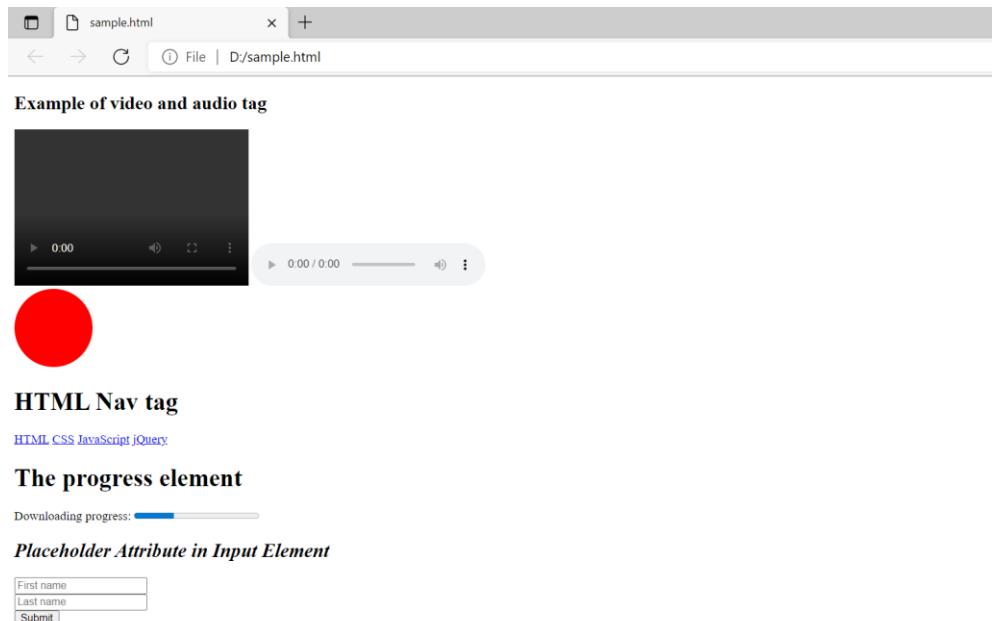
        placeholder="First name">

    <br>

    <input type="text" name="lname">
```

```
placeholder="Last name">  
<br>  
<input type="submit" value="Submit">  
</form>  
  
</body>  
</html>
```

Output/Results snippet:



References:

- https://www.w3.org/wiki/HTML/New_HTML5_Elements
- <https://www.geeksforgeeks.org/html5-new-tags/>
- <https://www.javatpoint.com/html-new-elements>

Activity 4

Aim: Create Text, Lists and iFrames

Learning outcome: HyperText MarkUp Language (HTML)

Duration: 2 Hrs

List of Hardware/Software requirements:

1. Windows/Ubuntu OS.....
2. Text Editors- Notepad++, Sublime Text, etc.
3. Browser

Program 1: A simple HTML webpage with the body Texts.

```
<!DOCTYPE html>

<html>
  <head>          <!-- Document Head Starts -->
    <title>Text,Lists,Tables and Frames </title>
  </head>          <! -- Document Head Ends -->
  <body>          <!-- Document Body Starts -->
    <b>Bold text.</b><br>    <!-- This text is Bold -->
    <i>Italic text.</i><br>    <!-- This text is Italic -->
    <pre>Preformatted text    <!-- This text is Preformatted text -->
      displays just
      as you
      type it...
      ...line breaks,
      spaces...

```

...and all!

</pre>

<tt>Teletype text - sometimes referred to as typewriter text.</tt>
 <!-- This text is Teletype Text-->

<cite>Citation text.</cite>
 <!-- This text is Citation -->

Emphasized text.
 <!-- This text is Emphasize -->

<code>Code text.</code>
 <!-- This text is Codetext -->

<big>Big text.</big>
 <!-- This text is Big -->

<small>Small text.</small>
 <!-- This text is Small -->

Delete this text.
 <!-- This text is Delete Text -->

<ins>Insert this text.</ins>
 <!-- This text is Insertion -->

<kbd>Keyboard text - text to be entered by the user.</kbd>
 <!-- This text is Keyboard text-->

<q>Quotation text.</q>
 <!-- This text is Quotation text -->

<samp>Sample text (output from a computer program).</samp>
 <!-- This text is Sample Text-->

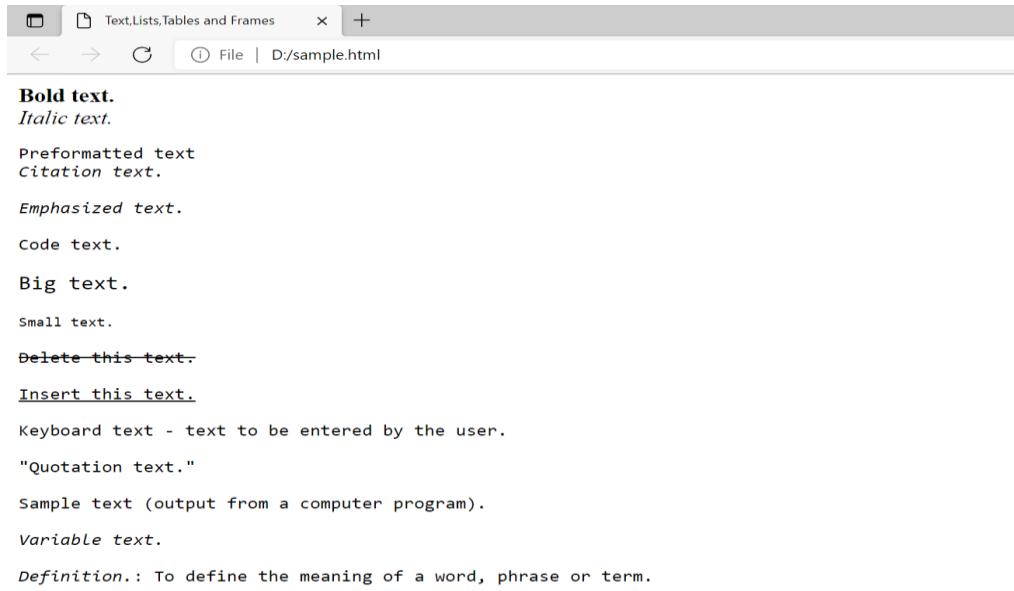
<var>Variable text.</var>
 <!-- This text is Variable Text -->

<dfn>Definition.</dfn>: To define the meaning of a word, phrase or term.
 <!-- This text is Document Type Definition -->

</body> <!-- Document Body Ends -->

</html>

Output/Results snippet:



The screenshot shows a web browser window with the title "Text, Lists, Tables and Frames". The address bar shows "File | D:/sample.html". The page content is a sample of various text styles and annotations:

- Bold text.**
- Italic text.*
- Preformatted text
- Citation text.*
- Emphasized text.
- Code text.
- Big text.
- Small text.
- ~~Delete this text.~~
- Insert this text.
- Keyboard text - text to be entered by the user.
- "Quotation text."
- Sample text (output from a computer program).
- Variable text.
- Definition.:* To define the meaning of a word, phrase or term.

Program 2: A simple HTML webpage with the body Tables.

```
<!DOCTYPE html>

<html>

<head>          <!-- Document Head Starts -->

<title> Tables </title>

</head>          <! -- Document Head Ends -->

<body >        <!-- Document Body Starts -->

<table class="example3" border="2"> <!--Table Tag Starts -->

<tr>            <!--Table Row Starts -->

<th colspan="2">Table header</th>      <!--This is Table Head -->

</tr>            <!--Table Row Ends -->

<tr>            <!--Table Row Starts -->

<td width="20%">Table cell 1</td><td>Table cell 2</td>

</tr>            <!--Table Row Ends -->

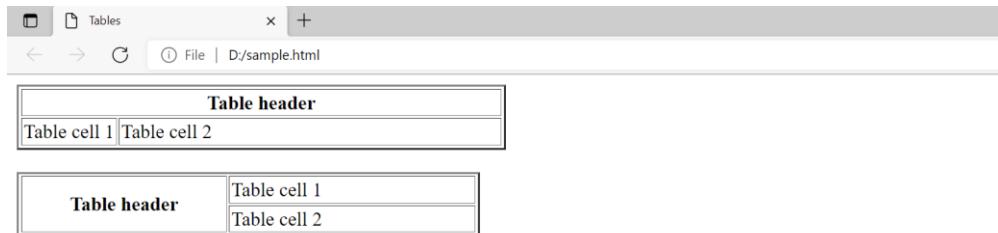
</table><br>        <!--Table Tag Ends -->
```

```

<table class="example4" border="2">      <!--Table Tag Starts -->
<tr>                                <!--Table Row Starts -->
<th rowspan="2" width="25%">Table header</th> <!--This is Table Head -->
<td width="30%">Table cell 1</td>      <!--This is Table Data -->
</tr>                                <!--Table Row Ends -->
<tr>                                <!--Table Row Starts -->
<td width="30%">Table cell 2</td>      <!--This is Table Data -->
</tr>                                <!--Table Row Ends -->
</table>                            <!--Table Tag Ends -->
</body>                                <!-- Document Body Ends -->
</html>

```

Output/Results snippet:



Program 3: A simple HTML webpage with the body List.

```

<!DOCTYPE html>
<html>
<head>                                <!-- Document Head Starts -->

```

```
<title> Lists </title>

</head>          <! -- Document Head Ends -->

<body>          <!-- Document Body Starts -->

<ol>            <!-- OrderedList Starts -->

<li>List item 1</li> <!--List of Items -->

<li>List item 2</li>

<li>List item 3</li>

</ol>          <! -- OrderedList Ends -->

<ul>            <!-- UnOrderedList Starts -->

<li>List item 1</li> <!--List of Items -->

<li>List item 2</li>

<li>List item 3</li>

</ul>          <! -- UnOrderedList Ends-->

<dl>            <!--This is Definition List Starts-->

<dt>Term 1</dt> <!--This is Definition Term -->

<dd>Definition of term 1</dd> <!--This is Definition Data -->

<dt>Term 2</dt> <!--This is Definition Term -->

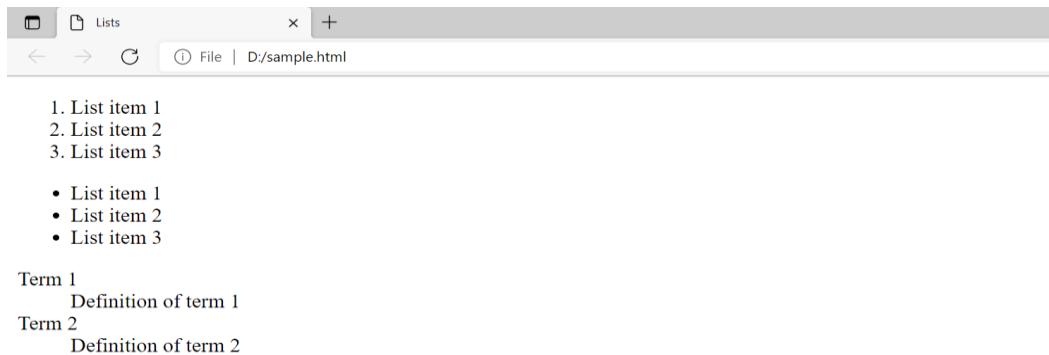
<dd>Definition of term 2</dd> <!--This is Definition Data -->

</dl>          <!--This is Definition List Ends-->

</body>          <! -- Document Body Ends -->

</html>
```

Output/Results snippet:



Program 3: A simple HTML webpage with the body Frames.

```
<!DOCTYPE html>

<html>

<head>          <! -- Document Head Starts -->

<title>Frame tag</title>

</head>          <! -- Document Head Ends -->

<frameset cols="25%,50%,25%">      <! -- Frameset Starts -->

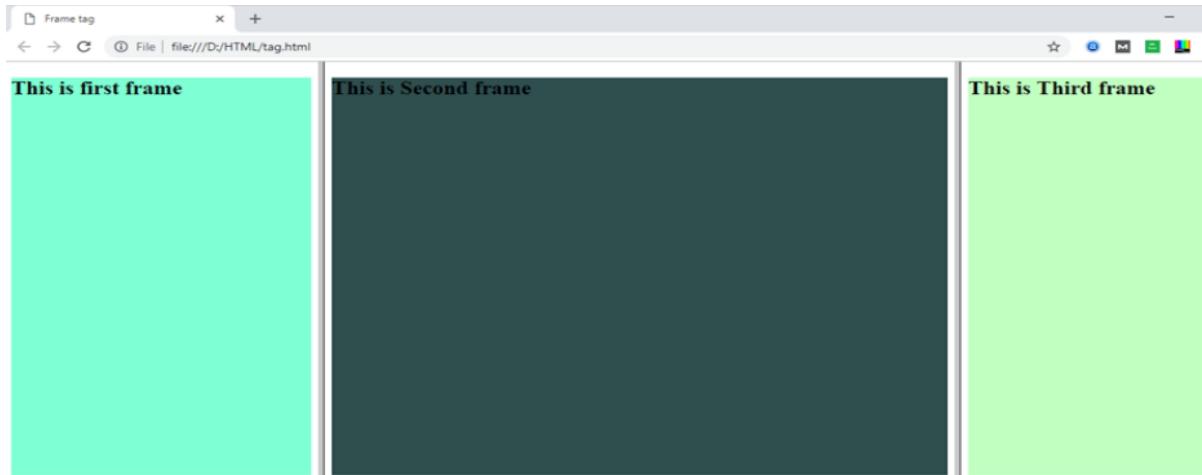
<frame src="frame1.html" >          <!--Frame element -->

<frame src="frame2.html">          <!--Frame element -->

<frame src="frame3.html">          <!--Frame element -->

</frameset>          <! -- Frameset Ends -->

</html>
```



References:

- <https://www.w3.org/TR/html4/present/frames.html>
- <https://www.javatpoint.com/html-tags>
- https://www.w3schools.com/html/html_iframe.asp

Activity 5

Aim: Create Hyperlinks, Images and Multimedia Working with Forms and controls.

Learning outcome: HyperText MarkUp Language (HTML)

Duration: 3 Hrs

List of Hardware/Software requirements:

1. Windows/Ubuntu OS.....
2. Text Editors- Notepad++, Sublime Text, etc.
3. Browser

Program 1: Create Hyperlinks, Images and Multimedia

```
<!DOCTYPE html>

<html>

<head>                                <!-- Document Head Starts -->
<title> Links with Paragraph</title>

</head>                                <!-- Document Head Ends -->
<body>                                <!-- Document Body Starts -->

<a href="https://www.google.com">Welcome to HTML</a><br>
<!--This is Hyperlink -->

<p>Locked in a frame? <a href="https://edunetworkworld.com/" target="_top">Click here!</a></p>
<!--This is Paragraph with Hyperlink -->

<br>

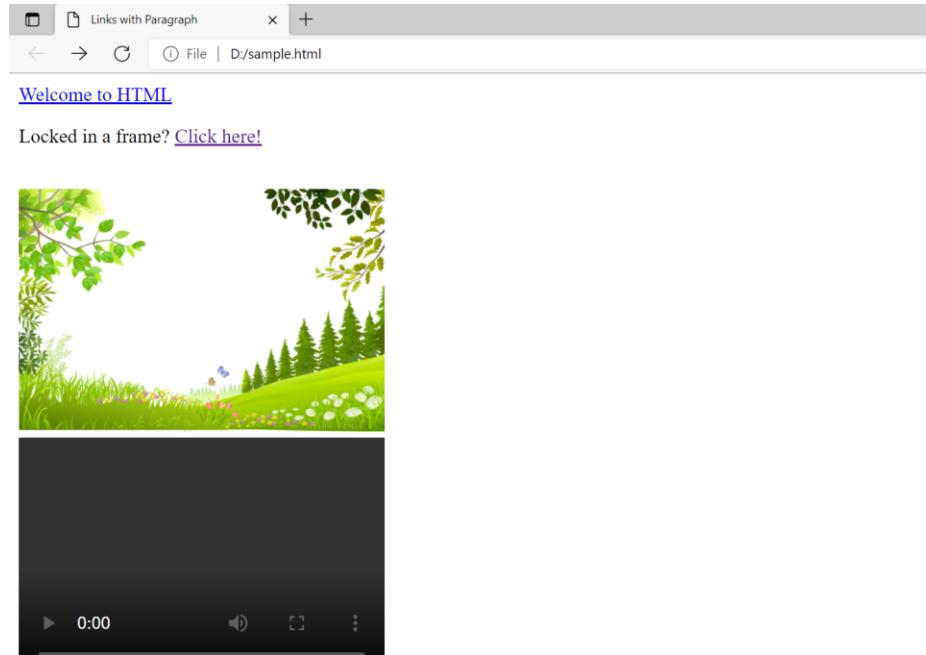
<a href="http://www.google.com">
</a>

<br>
<video width = "300" height = "200" controls autoplay> <!-- video Element Starts-->
```

<source src = "../video.mp4" type="video/mp4" />Your browser does not support the
<video> element.

```
</video>                                <!-- video Element Ends-->  
</body>                                <!-- Document Body Ends -->  
</html>
```

Output/Results snippet:



Program 2: Working with forms and controls

```
<!DOCTYPE html>  
<html>  
<head>                                <!-- Document Head Starts -->  
<title> Forms and Controls</title>  
</head>                                <!-- Document Head Ends -->
```

```
<body>          <!-- Document Body Starts -->  
<form>          <!-- Form Element Starts -->  
  
<table cellpadding="2" width="20%" bgcolor="lightblue" align="center" cellspacing="2">  
  <!--Table Tag Starts -->  
  
<tr>  <!--Table Row Starts -->  
  
<td colspan=2>    <!--This is Table Data -->  
  
<center><font size=4><b>Student Registration Form</b></font></center>  
  <!--This is font-->  
  
</td>  
</tr>          <!--Table Row Ends -->  
  
<tr>          <!--Table Row Starts -->  
  
<td>Name</td>    <!--This is Table Data -->  
  
<td><input type="text" name="textnames" id="textname" size="30"></td> <!--This is Textbox-->  
</tr>          <!--Table Row Ends -->  
  
<tr>          <!--Table Row Starts -->  
  
<td>Father Name</td>    <!--This is Table Data -->  
  
<td><input type="text" name="fathername" id="fathername" size="30"></td>  
  <!--This is Textbox-->  
  
</tr>          <!--Table Row Ends -->  
  
<tr>          <!--Table Row Starts -->  
  
<td>Postal Address</td>    <!--This is Table Data -->  
  
<td><input type="text" name="paddress" id="paddress" size="30"></td>  
  <!--This is Textbox-->  
  
</tr>          <!--Table Row Ends -->  
  
<tr>          <!--Table Row Starts -->
```

```
<td>Personal Address</td>  <!--This is Table Data -->  
<td><input type="text" name="personaladdress" id="personaladdress" size="30"></td>>  
  <!--This is Textbox-->  
</tr>          <!--Table Row Ends -->  
<tr>          <!--Table Row Starts -->  
<td>Sex</td>      <!--This is Table Data -->  
<td><input type="radio" name="sex" value="male" size="10">Male <!--This is Table Data --><!--  
-Input type is radio-->  
<input type="radio" name="sex" value="Female" size="10">Female</td>  
</tr>          <!--Table Row Ends -->  
<tr>          <!--Table Row Starts -->  
<td>City</td>      <!--This is Table Data -->  
<td><select name="City">  <! This is Dropdown List-->  
  <option value="-1" selected>select..</option>          <!--This is option for Cities-->  
  <option value="New Delhi">NEW DELHI</option>  
  <option value="Mumbai">MUMBAI</option>  
  <option value="Goa">GOA</option>  
  <option value="Patna">PATNA</option>  
</select></td>  
</tr>          <!--Table Row Ends -->  
<tr>          <!--Table Row Starts -->  
<td>Course</td>      <!--This is Table Data -->  
<td><select name="Course">  <! This is Dropdown List-->  
  <option value="-1" selected>select..</option>          <!--This is option for Course-->  
  <option value="B.Tech">B.TECH</option>
```

```
<option value="MCA">MCA</option>
<option value="MBA">MBA</option>
<option value="BCA">BCA</option>
</select></td>
</tr>          <!--Table Row Ends -->
<tr>          <!--Table Row Starts -->
<td>District</td>    <!--This is Table Data -->
<td><select name="District">      <! This is Dropdown List-->
<option value="-1" selected>select..</option>>    <!--This is option for Districts-->
<option value="Nalanda">NALANDA</option>
<option value="UP">UP</option>
<option value="Goa">GOA</option>
<option value="Patna">PATNA</option>
</select></td>
</tr>          <!--Table Row Ends -->
<tr>          <!--Table Row Starts -->
<td>State</td>    <!--This is Table Data -->
<td><select Name="State">      <! This is Dropdown List-->
<option value="-1" selected>select..</option>>    <!--This is option for States-->
<option value="New Delhi">NEW DELHI</option>
<option value="Mumbai">MUMBAI</option>
<option value="Goa">GOA</option>
<option value="Bihar">BIHAR</option>
</select></td>
```

```
</tr>          <!--Table Row Ends -->

<tr>          <!--Table Row Starts -->

<td>PinCode</td>  <!--This is Table Data -->

<td><input type="text" name="pincode" id="pincode" size="30"></td>  <!--This is Textbox-->

</tr>          <!--Table Row Ends -->

<tr>          <!--Table Row Starts -->

<td>EmailId</td>  <!--This is Table Data -->

<td><input type="text" name="emailid" id="emailid" size="30"></td>  <!--This is Textbox-->

</tr>          <!--Table Row Ends -->




<tr>          <!--Table Row Starts -->

<td>DOB</td>  <!--This is Table Data -->

<td><input type="text" name="dob" id="dob" size="30"></td>  <!--This is Textbox-->

</tr>          <!--Table Row Ends -->

<tr>          <!--Table Row Starts -->

<td>MobileNo</td>  <!--This is Table Data -->

<td><input type="text" name="mobileno" id="mobileno" size="30"></td>
  <!--This is Textbox-->

</tr>          <!--Table Row Ends -->

<tr>          <!--Table Row Starts -->

<td><input type="reset"></td>  <!--This is Table Data & Reset button-->

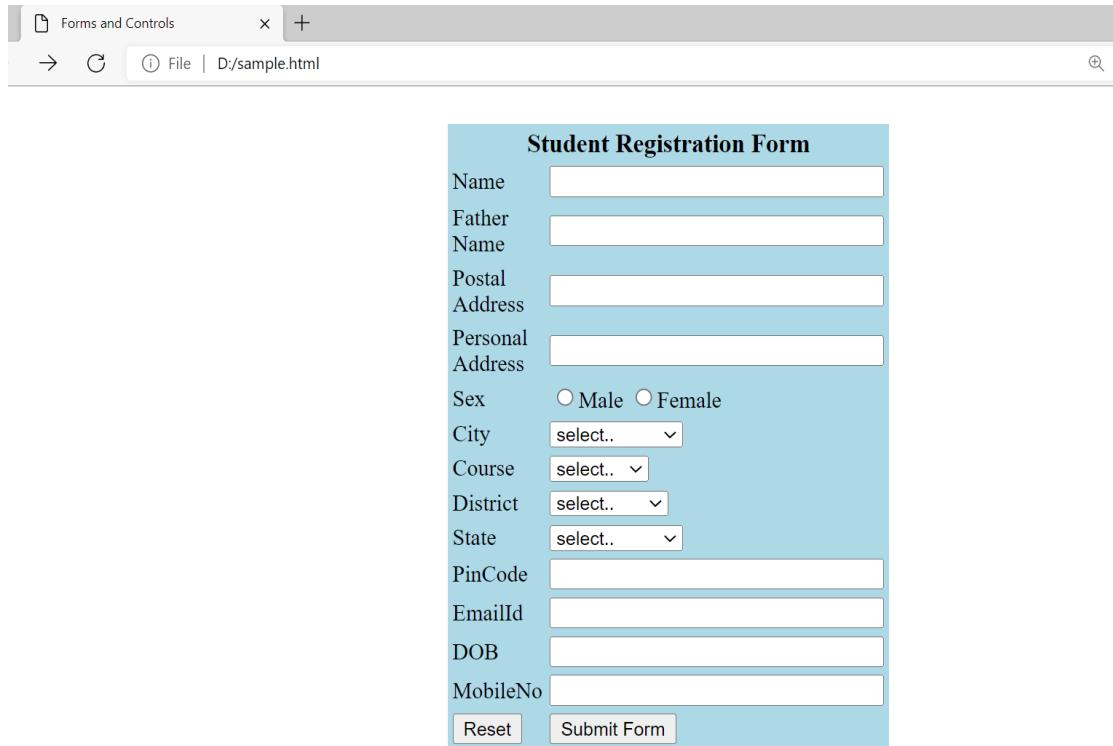
<td colspan="2"><input type="submit" value="Submit Form" /></td>  <!--submit button-->

</tr>          <!--Table Row Ends -->

</table>        <!--Table Tag Ends-->
```

```
</form>          <! -- Form Element Ends -->  
</body>          <! -- Document Body Ends -->  
</html>
```

Output/Results snippet:



The screenshot shows a browser window with the title 'Forms and Controls'. The address bar indicates the file is 'D:/sample.html'. The main content is a 'Student Registration Form' with the following fields:

- Name (text input)
- Father Name (text input)
- Postal Address (text input)
- Personal Address (text input)
- Sex (radio buttons for Male and Female)
- City (dropdown menu: select..)
- Course (dropdown menu: select..)
- District (dropdown menu: select..)
- State (dropdown menu: select..)
- PinCode (text input)
- EmailId (text input)
- DOB (text input)
- MobileNo (text input)
- Reset (button)
- Submit Form (button)

References:

- https://www.tutorialspoint.com/adobe_robohelp/adobe_robohelp_linking_images_multimedia.htm
- <https://www.scribd.com/document/275188671/Unit-2-Working-with-Links-Images-Forms-and-Multimedia-pdf>

Activity 6

Aim: Enable Hypertext Transfer Protocol (HTTP) via GET and POST requests

Learning outcome: HyperText MarkUp Language (HTML)

Duration: 1 Hr

List of Hardware/Software requirements:

1. Windows/Ubuntu OS.....
2. Text Editors- Notepad++, Sublime Text, etc.
3. Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

<title>Get </title>

</head>

<!--Body content Starts-->

<body>

<form action="action_page.php" method="get" target="_blank">

Name: <input type="text" name="fname" size="20"><br><br>

Age: <input type="text" name="age" size="20"><br><br>

<!--Click on the submit button, and the input will be sent to a page on the server called

"/action_page.php".-->

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

</form>

<p>Click on the submit button, and the input will be sent to a page on the server called
```

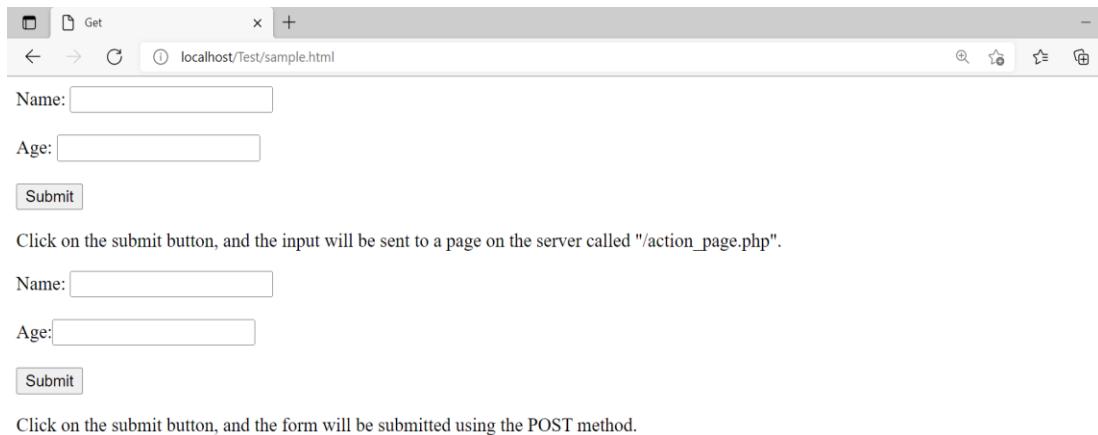
```
"/action_page.php".</p>
</body>
<!--Body content Ends-->
</html>
<!DOCTYPE html>
<html>
<head>
<title>Post </title>
</head>
<!--Body content Starts-->
<body>
<form action="action_page.php" method="post" target="_blank">
Name: <input type="text" name="fname" size="20"><br><br>
Age:<input type="text" name="age" size="20"><br><br>
<!--Click on the submit button, and the form will be submitted using the POST method.-->
<input type="submit" value="Submit">
</form>
<p>Click on the submit button, and the form will be submitted using the POST method.</p>
</body>
<!--Body content Ends-->
</html>
```

action_page.php

```
<?php
```

```
if( isset($_GET["fname"]) && isset($_GET["age"] ))  
{  
//Display Name and Age in Get Method  
  
echo "Welcome ". $_GET['fname']. "<br />";  
  
echo "You are ". $_GET['age']. " years old.";  
  
exit();  
  
}  
  
?>  
  
<?php  
  
if( isset($_POST["fname"]) && isset($_POST["age"] ))  
{  
//Display Name and Age in POST Method  
  
echo "Welcome ". $_POST['fname']. "<br />";  
  
echo "You are ". $_POST['age']. " years old.";  
  
exit();  
  
}  
  
?>
```

Output/Results snippet:



Get

localhost/Test/sample.html

Name:

Age:

Click on the submit button, and the input will be sent to a page on the server called "/action_page.php".

Name:

Age:

Click on the submit button, and the form will be submitted using the POST method.

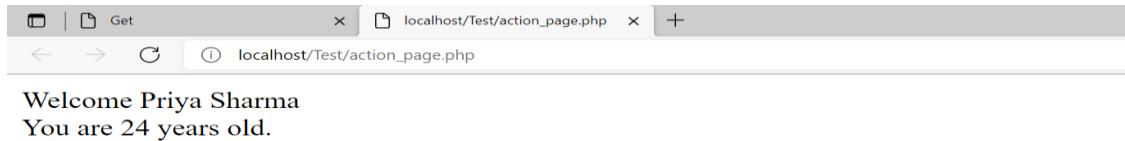
GET Method URL



localhost/Test/action_page.php?&fname=Priya+Sharma&age=24

Welcome Priya Sharma
You are 24 years old.

POST Method URL



localhost/Test/action_page.php

Welcome Priya Sharma
You are 24 years old.

References:

- <https://www.guru99.com/php-forms-handling.html>

Activity 7

Aim: Obtain input from users.

Learning outcome: HyperText MarkUp Language (HTML)

Duration: 5 Hrs

List of Hardware/Software requirements:

1. Windows/Ubuntu OS.....
2. Text Editors- Notepad++, Sublime Text, etc.
3. Browser

Code/Program/Procedure (with comments):

users.html

```
<html>
  <head>
    <title> Users </title>
  </head>
  <!--Body Content Starts-->
  <body>
    <form action="retrieve.php" method="post">
      Username: <input type="text" name="username" value="" /><br><br>
      Password: <input type="password" name="password" value= "" /><br><br>
      <!--If you click the "Submit" button, the form-data will be sent to a page called
      "/retrieve.php"-->
      <input type="submit" name="submit" value="Submit" />
    <p>If you click the "Submit" button, the form-data will be sent to a page called
    "/retrieve.php".</p>
```

```
</form>  
</body>  
<!--Body Content Ends-->  
</html>
```

retrieve.php

```
<?php  
//Display user Details  
echo "<pre>";  
print_r($_POST);  
echo "</pre>";  
echo "Username : {$_POST['username']}<br>";  
echo "Password : {$_POST['password']}";  
?>
```

Output/Results snippet:



The screenshot shows a web browser window with the title 'Users'. The address bar displays 'localhost/Test/users.html'. The page content is a form with two text input fields labeled 'Username:' and 'Password:', and a 'Submit' button below them.

If you click the "Submit" button, the form-data will be sent to a page called "/retrieve.php".

Obtain User Details



```
Array
(
    [username] => Aarti
    [password] => Aarti@123
    [submit] => Submit
)

Username : Aarti
Password : Aarti@123
```

References:

- <https://www.programming-techniques.com/2012/02/php-tutorial-getting-user-input-in-php-using-html-form.html>

Activity 8

Aim: Divide a webpage into logical sections

Learning outcome: HyperText MarkUp Language (HTML)

Duration: 1 Hr

List of Hardware/Software requirements:

1. Windows/Ubuntu OS.....
2. Text Editors- Notepad++, Sublime Text, etc.
3. Browser

Code/Program/Procedure (with comments):

divide.html

```
<!DOCTYPE html>

<html>
  <head>
    <meta charset="utf-8">
    <title>My page title</title>
    <link href="https://fonts.googleapis.com/css?family=Open+Sans+Condensed:300|Sonsie+One" rel="stylesheet" type="text/css">
    <link rel="stylesheet" href="style.css">
    <!-- the below three lines are a fix to get HTML5 semantic elements working in old versions of Internet Explorer-->
    <script src="https://cdnjs.cloudflare.com/ajax/libs/html5shiv/3.7.3/html5shiv.js"></script>
  </head>
  <body>
    <!-- Here is our main header that is used across all the pages of our website -->
```

```
<!-- Header Starts-->

<header>
  <h1>Header</h1>
</header>

<!--Header Ends-->

<!--Navigation Menu Starts-->

<nav>
  <ul>

<li><a href="#">Home</a></li>
<li><a href="#">Our team</a></li>
<li><a href="#">Projects</a></li>
<li><a href="#">Contact</a></li>
  </ul>

<!-- A Search form is another common non-linear way to navigate through a website. -->

<form>
  <input type="search" name="q" placeholder="Search query">
  <input type="submit" value="Go!">
</form>

</nav>

<!--Navigation Menu Ends-->

<!-- Here is our page's main content -->

<main>
  <!-- It contains an article -->
```

<article>

<h2>Article heading</h2>

<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Donec a diam lectus. Set sit amet ipsum mauris. Maecenas congue ligula as quam viverra nec consectetur ant hendrerit. Donec et mollis dolor. Praesent et diam eget libero egestas mattis sit amet vitae augue. Nam tincidunt congue enim, ut porta lorem lacinia consectetur.</p>

<h3>Subsection</h3>

<p>Donec ut librero sed accu vehicula ultricies a non tortor. Lorem ipsum dolor sit amet, consectetur adipisicing elit. Aenean ut gravida lorem. Ut turpis felis, pulvinar a semper sed, adipiscing id dolor.</p>

<p>Pelientesque auctor nisi id magna consequat sagittis. Curabitur dapibus, enim sit amet elit pharetra tincidunt feugiat nist imperdiet. Ut convallis libero in urna ultrices accumsan. Donec sed odio eros.</p>

<h3>Another subsection</h3>

<p>Donec viverra mi quis quam pulvinar at malesuada arcu rhoncus. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. In rutrum accumsan ultricies. Mauris vitae nisi at sem facilisis semper ac in est.</p>

<p>Vivamus fermentum semper porta. Nunc diam velit, adipiscing ut tristique vitae sagittis vel odio. Maecenas convallis ullamcorper ultricied. Curabitur ornare, ligula semper consectetur sagittis, nisi diam iaculis velit, is fringille sem nunc vet mi.</p>

</article>

<!-- the aside content can also be nested within the main content -->

<aside>

<h2>Related</h2>

```
<ul>
<li><a href="#">Oh I do like to be beside the seaside</a></li>
<li><a href="#">Oh I do like to be beside the sea</a></li>
<li><a href="#">Although in the North of England</a></li>
<li><a href="#">It never stops raining</a></li>
<li><a href="#">Oh well...</a></li>
</ul>
</aside>
</main>
```

!-- And here is our main footer that is used across all the pages of our website -->

```
<footer>
<p> ©Copyright 2020 All rights Reserved.</p>
</footer>
</body>
</html>
```

style.css

```
html, body {
margin: 0;
padding: 0;
}
html {
font-size: 10px;
background-color: #a9a9a9;
}
```

```
body {  
  width: 70%;  
  margin: 0 auto;  
}  
  
/* || typography */  
  
h1, h2, h3 {  
  font-family: 'Sonsie One', cursive;  
  color: #2a2a2a;  
}  
  
p, input, li {  
  font-family: 'Open Sans Condensed', sans-serif;  
  color: #2a2a2a;  
}  
  
h1 {  
  font-size: 4rem;  
  text-align: center;  
  color: white;  
  text-shadow: 2px 2px 10px black;  
}  
  
h2 {  
  font-size: 3rem;  
  text-align: center;  
}  
  
h3 {
```

```
font-size: 2.2rem;  
}  
  
p, li {  
font-size: 1.6rem;  
line-height: 1.5;  
}  
  
/* || header layout */  
  
nav, article, aside, footer {  
background-color: white;  
padding: 1%;  
}  
  
nav {  
height: 50px;  
background-color: #ff80ff;  
display: flex;  
margin-bottom: 10px;  
}  
  
nav ul {  
padding: 0;  
list-style-type: none;  
flex: 2;  
display: flex;  
}  
  
nav li {
```

```
display: inline;  
text-align: center;  
flex: 1;  
}  
  
nav a {  
display: inline-block;  
font-size: 2rem;  
text-transform: uppercase;  
text-decoration: none;  
color: black;  
}  
  
nav form {  
flex: 1;  
display: flex;  
align-items: center;  
height: 100%;  
padding: 0 2em;  
}  
  
input {  
font-size: 1.6rem;  
height: 32px;  
}  
  
input[type="search"] {  
flex: 3;
```

```
}
```

```
input[type="submit"] {
```

```
  flex: 1;
```

```
  margin-left: 1rem;
```

```
  background: #333;
```

```
  border: 0;
```

```
  color: white;}
```

```
/* || main layout */
```

```
main {
```

```
  display: flex;
```

```
}
```

```
article {
```

```
  flex: 4;
```

```
}
```

```
aside {
```

```
  flex: 1;
```

```
  margin-left: 10px;
```

```
  background-color: #ff80ff;
```

```
}
```

```
aside li {
```

```
  padding-bottom: 10px;
```

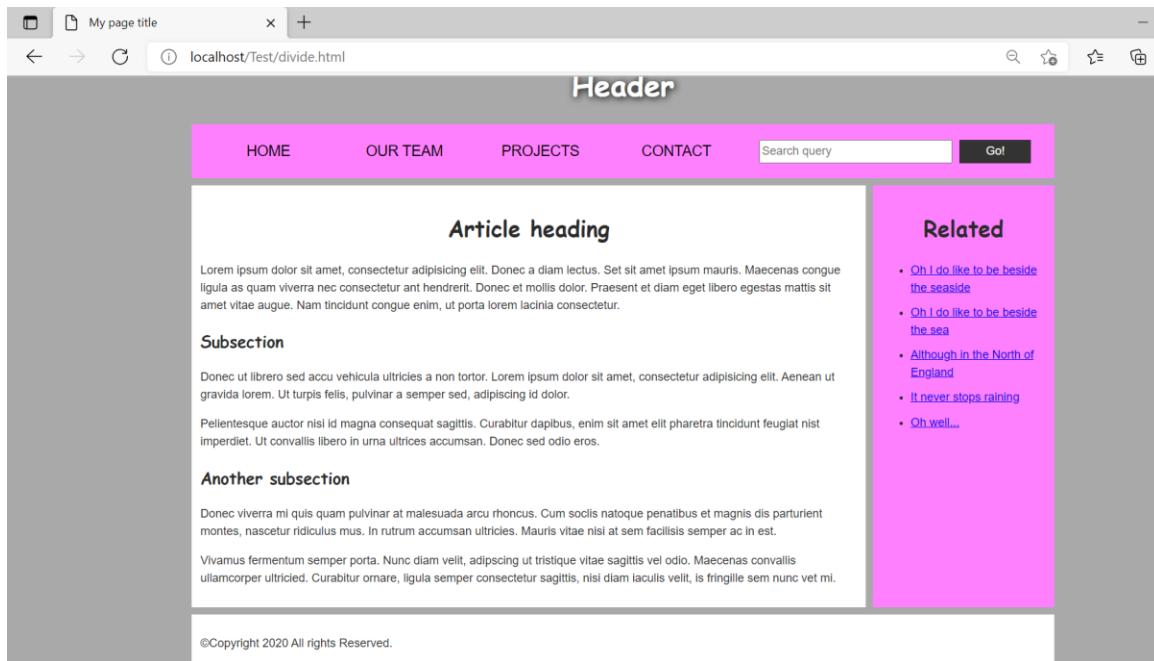
```
}
```

```
footer {
```

```
  margin-top: 10px;
```

{}

Output/Results snippet:



References:

- [https://developer.mozilla.org/enUS/Learn/HTML/Howto/Divide a webpageinto logical sections](https://developer.mozilla.org/enUS/Learn/HTML/Howto/Divide_a_webpageinto_logical_sections)

Activity 9

Aim: Display computer code with HTML

Learning outcome: HyperText MarkUp Language (HTML)

Duration: 1 Hr

List of Hardware/Software requirements:

1. Windows/Ubuntu OS.....
2. Text Editors- Notepad++, Sublime Text, etc.
3. Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

<title>Code in HTML</title>

<body>

<h2>Computer Code</h2>

<p style="font-weight: bolder;">Some programming code:</p>

<!--Computer Code Starts-->

<code>

x = 5;</br>

y = 6;</br>

z = x + y;

</code>

<!--Computer Code Ends-->

<p style="font-weight: bolder;">C programming code:</p>
```

<!--Computer Code Starts-->

<pre>

<code>

//C Programming Code

#include<stdio.h>

int main() {

 printf("Hello...");

}

</code>

</pre>

<!--Computer Code Ends-->

</body>

</html>

Output/Results snippet:



Computer Code

Some programming code:

```
x = 5;  
y = 6;  
z = x + y;
```

C programming code:

```
//C Programming Code  
#include  
int main() {  
    printf("Hello...");  
}
```

References:

-
- <https://www.geeksforgeeks.org/html-computer-code-elements/>

Activity 10

Aim: Annotation of images and graphics.

Learning outcome: HyperText MarkUp Language (HTML)

Duration: 2 Hrs

List of Hardware/Software requirements:

1. Windows/Ubuntu OS.....
2. Text Editors- Notepad++, Sublime Text, etc.
3. Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE HTML>

<html>

<style>

figure{border: 2px solid black; border-style:ridge; }

figcaption{font-family:Arial; padding:10px; background:#fa4b2a; color:#fff; }

</style>

<body>

<!--single Image-->

<figure>

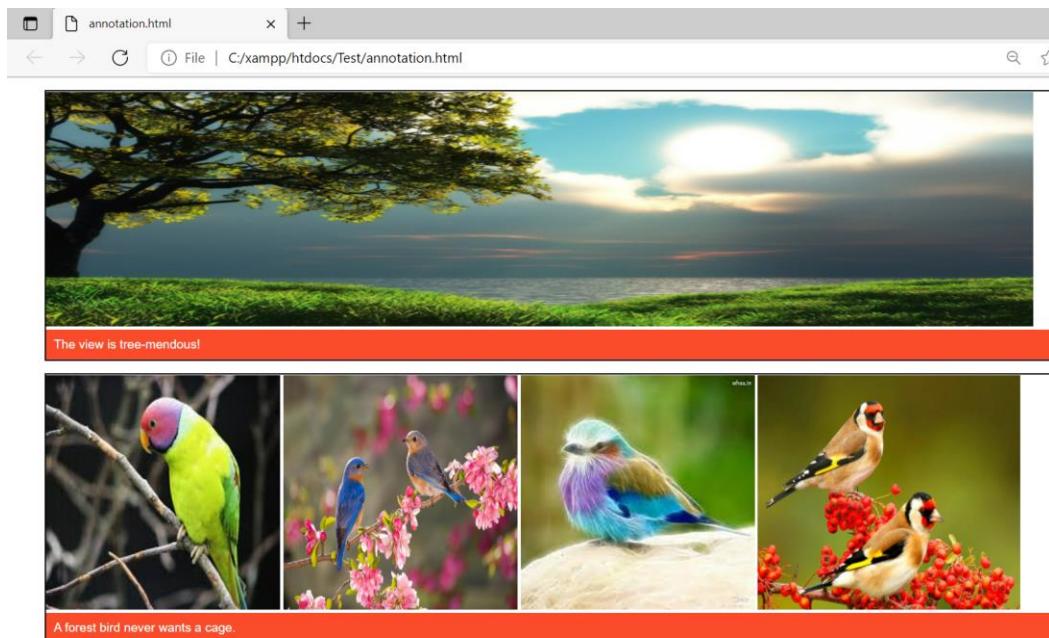
 <br>

<figcaption>

The view is tree-mendous!
```

```
</figcaption>  
</figure>  
<!--Multiple Images-->  
<figure>  
    
    
    
    
<figcaption>A forest bird never wants a cage.</figcaption>  
</figure>  
</body>  
</html>
```

Output/Results snippet:



References:

- https://developer.mozilla.org/enUS/docs/Learn/HTML/Multimedia_and_embedding/Images_in_HTML

Activity 11

Aim: Marking abbreviations

Learning outcome: HyperText MarkUp Language (HTML)

Duration: 1 Hr

List of Hardware/Software requirements:

1. Windows/Ubuntu OS.....
2. Text Editors- Notepad++, Sublime Text, etc.
3. Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

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

Output/Results snippet:



The WHO was founded in 1948.

References:

- https://www.w3schools.com/tags/tag_abbr.asp
- <https://developer.mozilla.org/en-US/docs/Web/HTML/Element/abbr>

Activity 12

Aim: Add quotations and citations to web pages

Learning outcome: HyperText MarkUp Language (HTML)

Duration: 2 Hrs

List of Hardware/Software requirements:

1. Windows/Ubuntu OS.....
2. Text Editors- Notepad++, Sublime Text, etc.
3. Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<body>

<p>Here is a quote from WWF's website:</p>

<blockquote cite="http://www.worldwildlife.org/who/index.html">

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>

</body>

</html>
```

Output/Results snippet:



Here is a quote from WWF's website:

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.

References:

- <https://www.geeksforgeeks.org/html-quotations/>
- https://www.w3schools.com/html/html_quotation_elements.asp

Activity 13

Aim: Embed a webpage within another webpage

Learning outcome: HyperText MarkUp Language (HTML)

Duration: 2 Hrs

List of Hardware/Software requirements:

1. Windows/Ubuntu OS.....
2. Text Editors- Notepad++, Sublime Text, etc.
3. Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<body>

<iframe src="https://en.wikipedia.org/wiki/HTML">

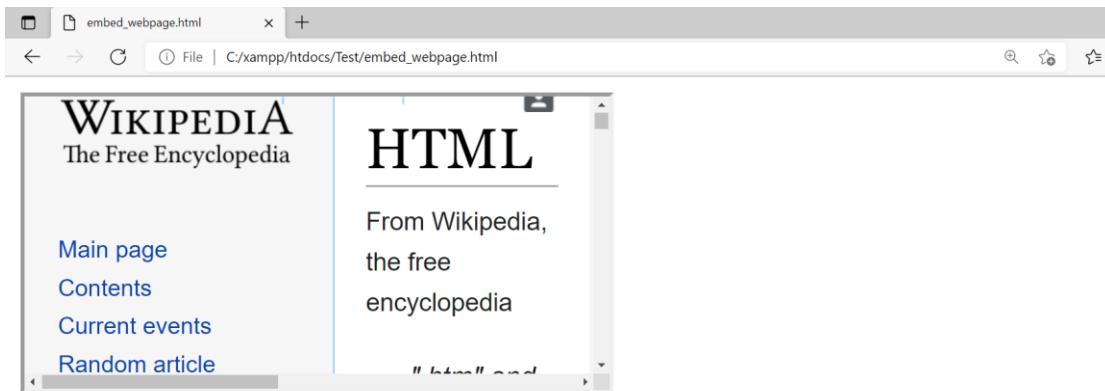
<p>Your browser does not support iframes.</p>

</iframe>

</body>

</html>
```

Output/Results snippet:



References:

- <https://atomisystems.com/html5-animation/embedding-html5-project-into-webpage/>
- <https://www.tutorialrepublic.com/html-tutorial/html-iframe.php>

Activity 14

Aim: Create a data spreadsheet (2 hr)

Learning outcome: Able to Structuring the web.

Duration: 2 hours

List of Hardware/Software requirements:

- i. Windows/Ubuntu OS
- ii. Text Editor- Sublime Text, Notepad++
- iii. Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<script type="text/javascript"> function createCSV() {

csvRows = [["label first","details of label 1"], ["label sec","details of label 2"], ["label 3","details of label 3"], ["label 4","details of label 4 and 3"], ["label 5","details of label 5"], ["label 6","details of label 6"], ["label 7","details of label 7"], ["label 8","details of label 8"], ["label 9","details of label 9"]];

var csvString = csvRows.join("%0A");

var a = document.createElement('a');

a.href = 'data:attachment/csv,' + csvString;

a.target = '_blank';

a.download = 'myFile.csv';

document.body.appendChild(a);

a.click();

}

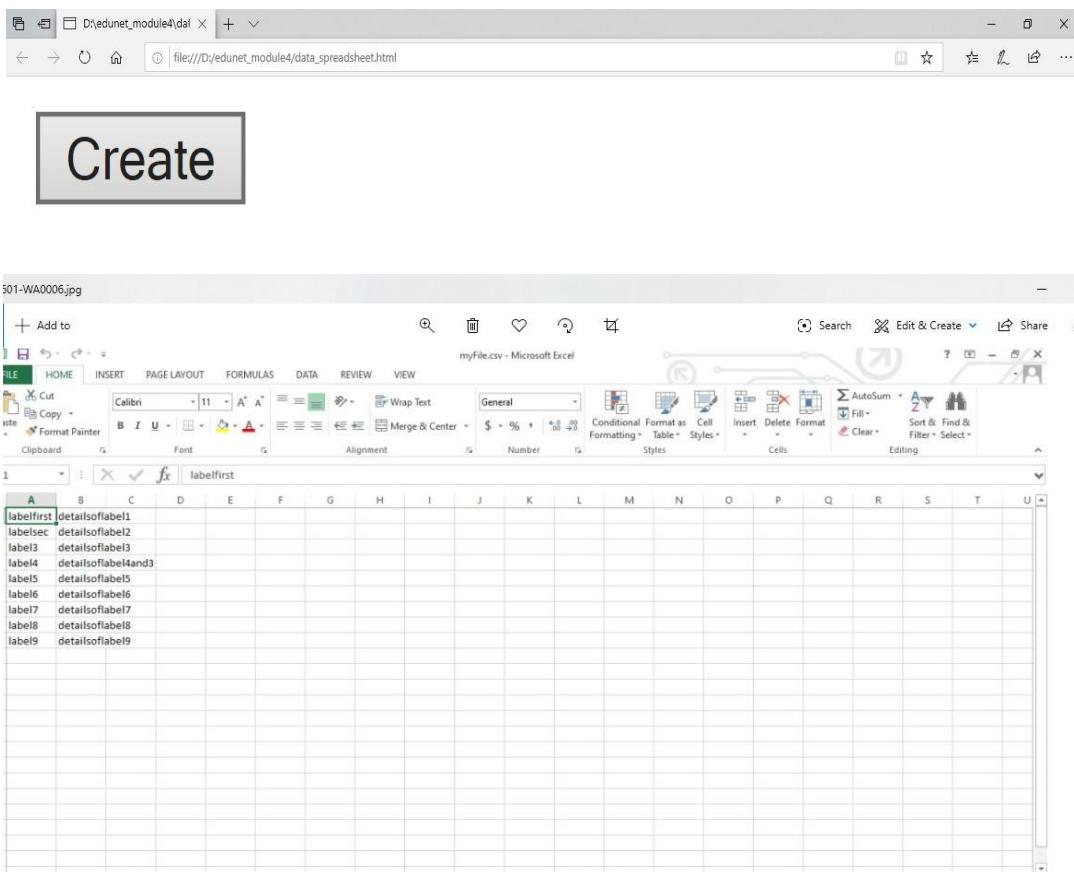
</script>

<body>

<form action="" method="post">
```

```
<input type="button" value="Create" >
</form>
</body>
</html>
```

Output/Results snippet:



The screenshot shows a browser window with the URL `file:///D:/edunet_module4/data_spreadsheet.html`. The page content includes a large 'Create' button and a link to a CSV file. Below the browser is a Microsoft Excel window titled 'myFile.csv - Microsoft Excel'. The spreadsheet contains two columns of data: 'label' and 'details'. The data is as follows:

label1	details of label1
label2	details of label2
label3	details of label3
label4	details of label4 and 3
label5	details of label5
label6	details of label6
label7	details of label7
label8	details of label8
label9	details of label9

References:

- <https://www.codeproject.com/Questions/1116401/Insert-data-into-CSV-file-using-javascript>
- <https://stackoverflow.com/questions/22550858/how-to-write-csv-file-using-javascript>

Activity 15

Aim: Optimize HTML table rendering (1Hr)

Learning outcome: Able to Structuring the web.

Duration: 1 hour

List of Hardware/Software requirements:

- i. Windows/Ubuntu OS
- ii. Text Editor- Sublime Text ,Notepad++
- iii. Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

<style> table, th, td {

border: 1px solid black;

}

</style>

</head>
```

```
<body>

<table>

<tr>

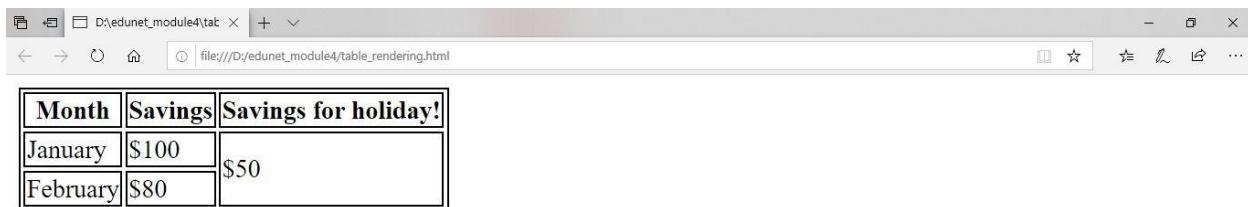
<th>Month</th>

<th>Savings</th>

<th>Savings for holiday!</th>
```

```
</tr>  
  
<tr>  
  
<td>January</td>  
  
<td>$100</td>  
  
<td rowspan="2" style="text-align: center;">$50</td>  
  
</tr>  
  
<tr>  
  
<td>February</td>  
  
<td>$80</td>  
  
</tr>  
  
</table>  
  
</body>  
  
</html>
```

Output/Results snippet:



Month	Savings	Savings for holiday!
January	\$100	\$50
February	\$80	

References:

- <https://stackoverflow.com/questions/21531269/optimizing-html-tables>
- <https://seymour.co.za/2017/07/03/html-table/>

Activity 16

Aim: Create collapsible content with HTML (1Hr)

Learning outcome: Able to Structuring the web.

Duration: 1 hour

List of Hardware/Software requirements:

- i. Windows/Ubuntu OS
- ii. Text Editor- Sublime Text, Notepad++
- iii. Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

<meta name="viewport" content="width=device-width, initial-scale=1">

<style>

.collapsible { background-color: #777; color: white;
cursor: pointer; padding: 18px; width: 100%;

border: none; text-align: left; outline: none; font-size: 15px;

}

.active, .collapsible:hover { background-color: #555;

}

.content { padding: 0 18px; display: none; overflow: hidden;

background-color: #f1f1f1;

}

</style>
```

```
</head>

<body>

<h2>Collapsibles</h2>

<p>A Collapsible:</p>

<button class="collapsible">Open Collapsible</button>

<div class="content">

<p>Data 1.</p>

</div>

<p>Collapsible Set:</p>

<button class="collapsible">Open Section 1</button>

<div class="content">

<p>Data 2.</p>

</div>

<button class="collapsible">Open Section 2</button>

<div class="content">

<p>Data 3.</p>

</div>

<button class="collapsible">Open Section 3</button>

<div class="content">

<p>Data 4.</p>

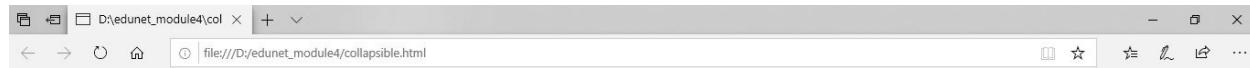
</div>

<script>

var coll = document.getElementsByClassName("collapsible"); var i;
```

```
for (i = 0; i < coll.length; i++) { coll[i].addEventListener("click", function() {  
    this.classList.toggle("active");  
  
    var content = this.nextElementSibling; if (content.style.display === "block") {  
        content.style.display = "none";  
    } else {  
        content.style.display = "block";  
    }  
});  
}  
  
</script>  
  
</body>  
  
</html>
```

Output/Results snippet:



Collapsibles

A Collapsible:



Open Collapsible

Collapsible Set:



Open Section 1

Open Section 2

Open Section 3

References:

- <https://www.w3schools.com/bootstrap/bootstrapCollapse.asp>
- https://www.w3schools.com/howto/howto_js_collapse.asp

Activity 17

Aim: Add context menus to a webpage (2Hr)

Learning outcome: Able to Structuring the web.

Duration: 2 hour

List of Hardware/Software requirements:

- i. Windows/Ubuntu OS
- ii. Text Editor- Sublime Text, Notepad++
- iii. Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

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

Output/Results snippet:



This example currently only works in Firefox!

References:

- <https://stackoverflow.com/questions/4909167/how-to-add-a-custom-right-click-menu-to-a-webpage>
- https://www.w3schools.com/jsref/event_oncontextmenu.asp

Activity 18

Aim: Create dialog boxes with HTML (2Hrs)

Learning outcome: Able to Structuring the web.

Duration: 2 hour

List of Hardware/Software requirements:

- i. Windows/Ubuntu OS
- ii. Text Editor- Sublime Text, Notepad++
- iii. Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

<meta name="viewport" content="width=device-width, initial-scale=1">

<style>

body {font-family: Arial, Helvetica, sans-serif;}

/* The Modal (background) */

.modal {

display: none; /* Hidden by default */
position: fixed; /* Stay in place */

z-index: 1; /* Sit on top */

padding-top: 100px; /* Location of the box */
left: 0;

top: 0;

width: 100%; /* Full width */
height: 100%; /* Full height */

overflow: auto; /* Enable scroll if needed */
background-color: rgb(0,0,0); /* Fallback color */

background-color: rgba(0,0,0,0.4); /* Black w/ opacity */
```

```
}
```

```
/* Modal Content */

.modal-content { background-color: #fefefe; margin: auto;
padding: 20px;
border: 1px solid #888; width: 80%;

}

/* The Close Button */

.close {
color: #aaaaaa; float: right; font-size: 28px;
font-weight: bold;
}

.close:hover,
.close:focus { color: #000;
text-decoration: none; cursor: pointer;
}

</style>

</head>

<body>

<h2>Modal Example</h2>

<!-- Trigger/Open The Modal -->

<button id="myBtn">Open Modal</button>

<!-- The Modal -->
```

```
<div id="myModal" class="modal">
  <!-- Modal content -->
  <div class="modal-content">
    <span class="close">&times;</span>
    <p>Some text in the Modal..</p>
  </div>
</div>
<script>
  // Get the modal
  var modal = document.getElementById('myModal');

  // Get the button that opens the modal
  var btn = document.getElementById("myBtn");

  // Get the <span> element that closes the modal
  var span = document.getElementsByClassName("close")[0];

  // When the user clicks the button, open the modal
  btn.onclick = function() {
    modal.style.display = "block";
  }

  // When the user clicks on <span> (x), close the modal
  span.onclick = function() {
    modal.style.display = "none";
  }

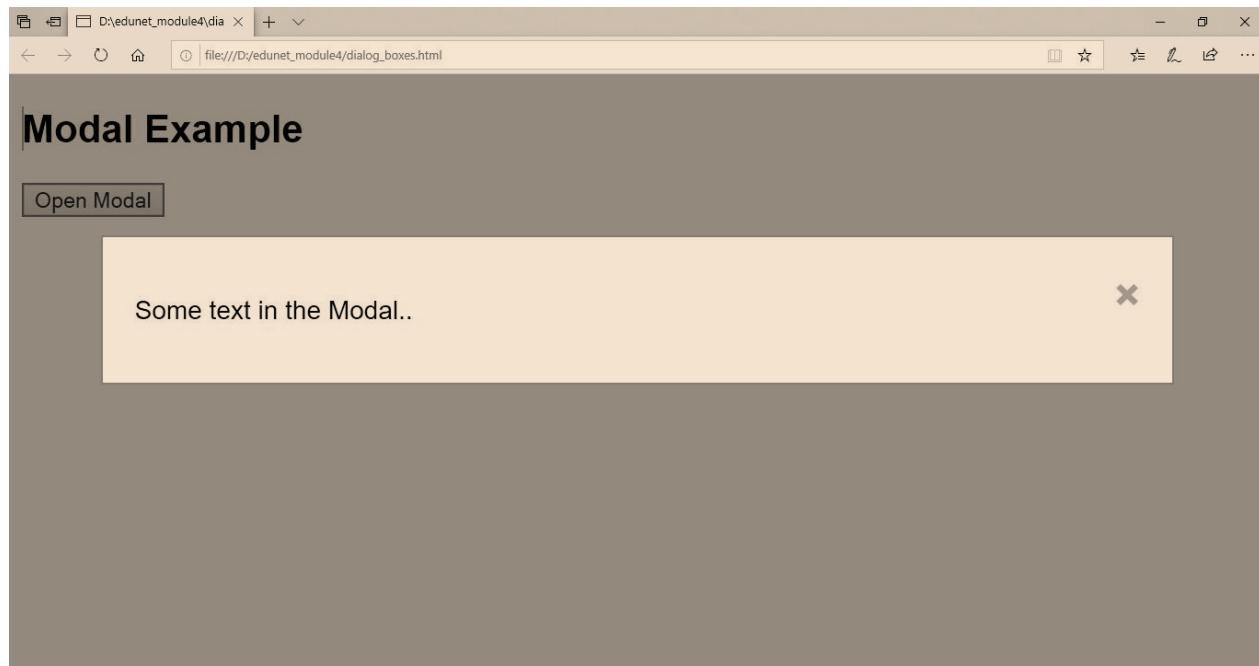
  // When the user clicks anywhere outside of the modal, close it
  window.onclick = function(event) {
    if (event.target == modal) {
      modal.style.display = "none";
    }
  }
}
```

```
</script>
```

```
</body>
```

```
</html>
```

Output/Results snippet:



References:

- <https://www.javatpoint.com/html-dialog-tag>
- https://www.w3schools.com/tags/tag_dialog.asp

Activity 19

Aim: Add multiple languages into a single webpage (2Hrs)

Learning outcome: Able to Structuring the web.

Duration: 2 hour

List of Hardware/Software requirements:

- i. Windows/Ubuntu OS
- ii. Text Editor- Sublime Text, Notepad+
- iii. Browser

Code/Program/Procedure (with comments):

```
<!doctype html>

<html lang="en">

<head>

<meta charset="utf-8">

<title>jQuery Language Switcher</title>

<link rel="stylesheet" href="languageswitcher.css">

</head>

<body>

<header>

<h1>jQuery Language Switcher</h1>

<div id="country-select">

<form action="server-side-script.php">

<select id="country-options" name="country-options">

<option selected="selected" title="http://www.yoursite.com" value="us">United States</option>
```

```
<option title="http://www.yoursite.co.uk" value="uk">United Kingdom</option>
<option title="http://www.yoursite.fr" value="fr">France</option>
<option title="http://www.yoursite.de" value="de">Germany</option>
<option title="http://www.yoursite.nl" value="nl">Netherlands</option>
</select>
<input value="Select" type="submit" />
</form>
</div>
</header>
<section>
<p>For more information, refer to the <a href="/website-language-dropdown-withjquery">original article</a> on graphicpush.</p>
</section>
<script src="https://ajax.googleapis.com/ajax/libs/jquery/1.5.0/jquery.min.js"></script>
<script src="languageswitcher.js"></script>
</body>
</html>
languageswitcher.css
* { margin: 0; padding: 0; } body {
background: #ccc;
}
header { display: block;
background: #777; height: 50px; position: relative; min-width: 600px;
```

```
}

header h1 {

font: bold 24px Arial, Helvetica, sans-serif; color: #fff;

position: absolute; left: 20px;

top: 8px;

}

#country-select { position: absolute;

top: 13px; right: 0; width: 180px;

}

/* rought form styles for when JS is disabled */ #country-select form {

width: 180px; padding: 0;

}

#country-select select, #country-select input { display: inline; padding: 0;

margin: 0;

}

/* JS-created definition list */

.dropdown dd { position: relative; }

.dropdown a {

text-decoration: none; outline: 0;

font: 12px Arial, Helvetica, sans-serif; display: block;

width: 130px; overflow: hidden;

}

.dropdown dt a { background: #c45618; border: 1px solid #964315; padding: 3px 10px 4px 10px;
```

```
-webkit-border-radius: 5px;  
-moz-border-radius: 5px; border-radius: 5px; color: #fff;  
}  
  
.dropdown dt a.active { background: #db5e18;  
-webkit-border-bottom-left-radius: 0;  
-webkit-border-bottom-right-radius: 0;  
-moz-border-radius-bottomleft: 0;  
-moz-border-radius-bottomright: 0;  
border-bottom-left-radius: 0;  
border-bottom-right-radius: 0; border-bottom: 1px dotted #676768;  
-moz-box-shadow: 0 3px 7px rgba(0,0,0,.5);  
-webkit-box-shadow: 0 3px 7px rgba(0,0,0,.5); box-shadow: 0 3px 7px rgba(0,0,0,.5);  
color: #fff;  
}  
  
.dropdown dd ul { background: #814f33; border: 1px solid #676768; color: #C5C0B0;  
display: none; position: absolute; z-index: 999;  
top: 0;  
  
left: 0;  
padding: 2px 0 5px 0; list-style: none; border-top: none; margin: 0;  
-webkit-border-bottom-right-radius: 5px;  
-webkit-border-bottom-left-radius: 5px;  
-moz-border-radius-bottomright: 5px;  
-moz-border-radius-bottomleft: 5px; border-bottom-right-radius: 5px;
```

```
border-bottom-left-radius: 5px;  
-moz-box-shadow: 0 3px 7px rgba(0,0,0,.5);  
-webkit-box-shadow: 0 3px 7px rgba(0,0,0,.5); box-shadow: 0 3px 7px rgba(0,0,0,.5);  
}  
  
.dropdown dd ul li a { padding: 2px 10px;  
}  
  
.dropdown dd ul li a span,  
.dropdown dt a span { float: left;  
width: 16px; height: 11px;  
margin: 2px 6px 0 0;  
background-image: url(flags.png); background-repeat: no-repeat; cursor: pointer;  
}  
  
.us a span { background-position: 0 0 }  
.uk a span { background-position: -16px 0 }  
  
.fr a span { background-position: -32px 0 }  
.de a span { background-position: -48px 0 }  
.nl a span { background-position: -64px 0 }  
  
.dropdown dd ul li a em,  
.dropdown dt a em { font-style: normal; float: left;  
width: 100px; cursor: pointer;  
}  
  
.dropdown dd ul li a em { color: #dbc3b5;  
}
```

```
.dropdown dd ul li a:hover { background-color: rgba(255,255,255,.1); }

.dropdown dd ul li a:hover em { color: #fff; } Languageswitcher.js

$(document).ready(function() {

// --- language dropdown --- //

// turn select into dl createDropDown();

var $dropTrigger = $(".dropdown dt a"); var $languageList = $(".dropdown dd ul");

// open and close list when button is clicked

$dropTrigger.toggle(function() {

$languageList.slideDown(200);

$dropTrigger.addClass("active");

}, function() {

$languageList.slideUp(200);

$(this).removeAttr("class");

});

// close list when anywhere else on the screen is clicked

$(document).bind('click', function(e) { var $clicked = $(e.target);

if (! $clicked.parents().hasClass("dropdown"))

$languageList.slideUp(200);

$dropTrigger.removeAttr("class");

});

// when a language is clicked, make the selection and then hide the list

$(".dropdown dd ul li a").click(function() {

var clickedValue = $(this).parent().attr("class"); var clickedTitle = $(this).find("em").html();
```

```
$( "#target dt" ).removeClass().addClass(clickedValue);
$( "#target dt em" ).html(clickedTitle);
$languageList.hide();
$dropTriggerremoveAttr("class");
});
});
// actual function to transform select to definition list function createDropDown(){
var $form = $("div#country-select form");
$form.hide();
var source = $("#country-options"); sourceremoveAttr("autocomplete");
var selected = source.find("option:selected"); var options = $("option", source);
$("#country-select").append('<dl id="target" class="dropdown"></dl>')
$("#target").append('<dt class=' + selected.val() + "'><a href="#"><span
class="flag"></span><em>' + selected.text() + '</em></a></dt>')
$("#target").append('<dd><ul></ul></dd>') options.each(function(){
$("#target dd ul").append('<li class=' + $(this).val() + "'><a href=\"" + $(this).attr("title") +
"><span class="flag"></span><em>' + $(this).text() + '</em></a></li>');
});
}
```

Output/Results snippet:



Image11: Add multiple languages into a single webpage

References:

- <https://stackoverflow.com/questions/46008760/how-to-build-multiple-language-website-using-pure-html-js-jquery>
- <https://forum.freecodecamp.org/t/what-is-the-best-way-to-create-a-multi-language-site/99449>

Activity 20

Aim: Controlling of HTML line breaking (1Hrs)

Learning outcome: Able to Structuring the web.

Duration: 1 hour

List of Hardware/Software requirements:

- Windows/Ubuntu OS
- Text Editor- Sublime Text, Notepad++
- Browser

Code/Program/Procedure (with comments):

<p> O'er all the hilltops
 Is quiet now,

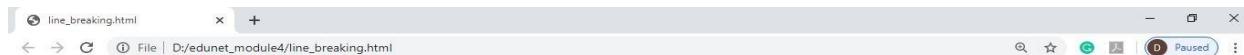
In all the treetops
 Hearest thou
 Hardly a breath;

The birds are asleep in the trees:
 Wait, soon like these

Thou too shalt rest.

</p>

Output/Results snippet:



O'er all the hilltops
Is quiet now,
In all the treetops
Hearrest thou
Hardly a breath;
The birds are asleep in the trees:
Wait, soon like these
Thou too shalt rest.

References:

- <https://www.informit.com/articles/article.aspx?p=131028&seqNum=7>
- <https://developer.mozilla.org/en-US/docs/Web/HTML/Element/br>

Activity 21

Aim: Mark changes (added and removed text) (2Hrs)

Learning outcome: Able to structure the web.

Duration: 2 hours

List of Hardware/Software requirements:

1. A computer with Windows/Linux/Mac operating system.
2. Any latest browser installed.
3. Any HTML editor (online/pre-installed).

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>  
<h2>HTML <mark>Marked</mark> Formatting</h2>  
<p>The ins element represent inserted (added) text.</p>  
<p>My favorite <ins>color</ins> is red.</p>  
<p>The del element represents deleted (removed) text.</p>  
<p>My favorite color is <del>blue</del> red.</p>  
</body>  
</html>
```

Output/Results snippet:

HTML Marked Formatting

The ins element represent inserted (added) text.

My favorite color is red.

The del element represents deleted (removed) text.

My favorite color is blue red.

References:

- https://www.w3schools.com/tags/tag_del.asp

Activity 22

Aim: Add responsive image to a webpage (3Hrs)

Learning outcome: Able to structure the web.

Duration: 3 hours

List of Hardware/Software requirements:

- i. A computer with Windows/Linux/Mac operating system.
- ii. Any latest browser installed.
- iii. Any HTML editor (online/pre-installed).

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

<meta name="viewport" content="width=device-width, initial-scale=1">

<style>

.responsive {           /*creating a class in css and setting rules */ width: 100%;  
max-width: 400px; height: auto;  
}

</style>

</head>

<body>

<h2>Responsive Images</h2>

<p>If you want the image to scale both up and down on responsiveness, set the CSS width  
property to 100% and height to auto.</p>
<p>Resize the browser window to see the effect.</p>


```

```
</body>           <!-- import the image and apply the css class effects -->  
</html>
```

Output/Results snippet:**Responsive Images**

If you want the image to scale both up and down on responsiveness, set the CSS width property to 100% and height to auto.

Resize the browser window to see the effect.

**References:**

- https://www.w3schools.com/howto/howto_css_image_responsive.asp

Activity 23

Aim: Add vector image to a webpage (3Hrs)

Learning outcome: Able to structure the web.

Duration: 3 hours

List of Hardware/Software requirements:

- i. A computer with Windows/Linux/Mac operating system.
- ii. Any latest browser installed.
- iii. Any HTML editor (online/pre-installed).

Code/Program/Procedure (with comments):

```
<html>
  <body>
    <svg width="100" height="100">    <!-- <svg> is a container for svg graphics -->
    <circle cx="50" cy="50" r="40" stroke="green" stroke-width="4" fill="yellow" /> Sorry, your
    browser does not support inline SVG.

    <!-- if circle is not displayed then this text will show -->
  </svg>
</body>
</html>
```

Output/Results snippet:



References:

- https://www.w3schools.com/html/html5_svg.asp

Activity 24

Aim: Add a hit map on top of an image (2Hrs)

Learning outcome: Able to structure the web.

Duration: 2 hours

List of Hardware/Software requirements:

- i. A computer with Windows/Linux/Mac operating system.
- ii. Any latest browser installed.
- iii. Any HTML editor (online/pre-installed).

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<body>

<p>Click on the sun or on one of the planets to watch it closer:</p>



<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>

</body>
</html>
```

Output/Results snippet:

Click on the sun or on one of the planets to watch it closer:



References:

- https://www.w3schools.com/tags/tag_map.asp

Activity 25

Aim: Animation (1 hr)

Duration: 1 hours

List of Hardware/Software requirements:

- i. A computer with Windows/Linux/Mac operating system.
- ii. Any latest browser installed.
- iii. Any HTML editor (online/pre-installed).

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

<style>

div {

width: 100px;

height: 100px;

background-color: red;

position: relative;

animation-name: example;

animation-duration: 4s;

}

@keyframes example {

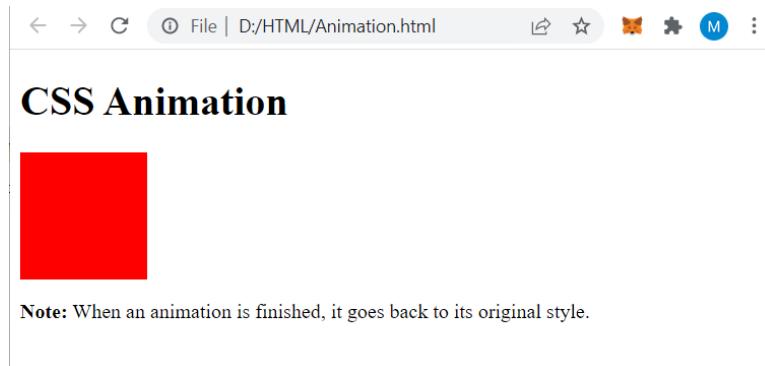
0% {background-color:red; left:0px; top:0px; }

25% {background-color:yellow; left:200px; top:0px; }

50% {background-color:blue; left:200px; top:200px; }
```

```
75% {background-color:green; left:0px; top:200px;}  
100% {background-color:red; left:0px; top:0px;}  
}  
</style>  
</head>  
<body>  
<h1>CSS Animation</h1>  
<div></div>  
<p><b>Note:</b> When an animation is finished, it goes back to its original style.</p>  
</body>  
</html>
```

Output/Results snippet:



Reference:

- https://www.w3schools.com/css/tryit.asp?filename=trycss3_animation3

Activity 26

Aim: Transition (1 hr)

Duration: 1 hours

List of Hardware/Software requirements:

- i. A computer with Windows/Linux/Mac operating system.
- ii. Any latest browser installed.
- iii. Any HTML editor (online/pre-installed).

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<style>
```

```
div {
```

```
    width: 100px;
```

```
    height: 100px;
```

```
    background: red;
```

```
    transition: width 2s;
```

```
}
```

```
div:hover {
```

```
    width: 300px;
```

```
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<h1>The transition Property</h1>
```

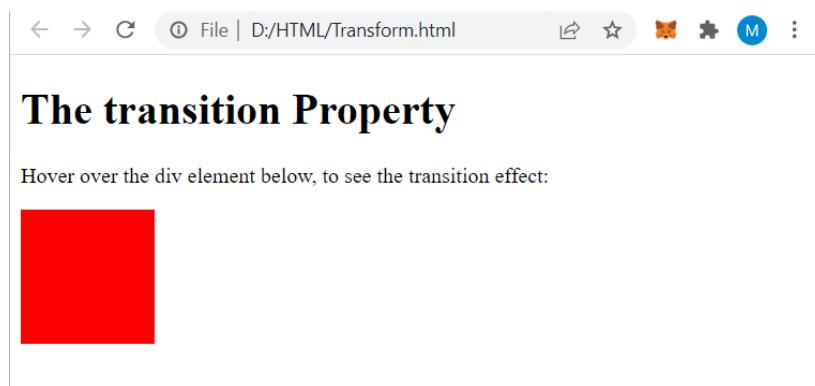
```
<p>Hover over the div element below, to see the transition effect:</p>
```

```
<div></div>
```

```
</body>
```

```
</html>
```

Output/Results snippet:



Reference:

- https://www.w3schools.com/css/tryit.asp?filename=trycss3_transition2

Learning Outcome - Able to understand Scripting and styling the web

After achieving this learning outcome, a student will be able to understand structuring the web.
In order to achieve this learning outcome, a student has to complete the following:

1. Apply CSS within a webpage (1Hrs)
2. Apply CSS to HTML (1Hrs)
3. Select elements via element name, class or ID (1 Hrs)
4. Select elements via attribute name and content (1 Hrs)
5. Apply pseudo-elements (1 Hrs)
6. Specify colors in CSS (1 Hrs)
7. Debug CSS in the browser (1 Hrs)
8. Style text and customize a list of elements (1 Hrs)
9. Add shadows to text (1 Hrs)
10. Size CSS boxes (1 Hrs)
11. Control overflowing content (1 Hr)
12. Control the part of a CSS box to draw the background (1 Hrs)
13. Create fancy boxes (also see the Styling boxes module, generally). (1 Hrs)
14. Use background-clip to control background image (1Hrs)
15. Change the box model completely using box- sizing (1Hrs)
16. Control backgrounds (1 Hrs)
17. Apply control borders(1 Hrs)
18. Style an HTML table (1 Hrs)
19. Add shadows to boxes (1 Hrs)
20. Calculate specificity of a CSS selector (1 Hrs)
21. Control inheritance in CSS (1 Hrs)
22. Apply filters in CSS (1 Hrs)
23. Apply blend modes in CSS (1 Hrs)
24. Apply CSS multi-column layouts (1 Hrs)
25. Apply CSS generated content (1 Hrs)
26. Create CSS document by using ID selector (1 Hrs)
27. Create CSS document by using Class selector, Universal selector Grouping selector (1 Hrs)

Activity 1

Aim: Apply CSS within a webpage (2Hrs)

Learning outcome: Able to script and style the web.

Duration: 1 hours

List of Hardware/Software requirements:

1. A computer with Windows/Linux/Mac operating system.
2. Any latest browser installed.
3. Visual studio code / Notepad++/ Sublime text

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

<style>

body {background-color: powderblue;}      /* setting background color for body element */

h1 {color: blue;}                      /* setting color for h1 element */

p {color: red;}                        /* setting color for paragraph element */

</style>

</head>
```

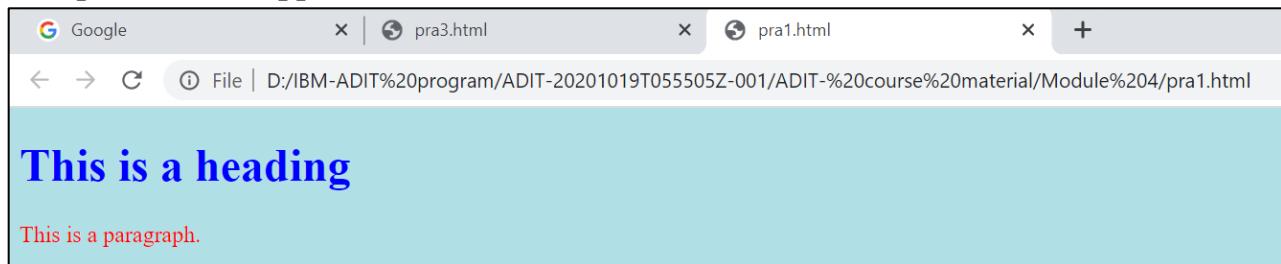
```
<body>
```

```
<h1>This is a heading</h1>
```

```
<p>This is a paragraph.</p>
```

```
</body>
```

```
</html>
```

Output/Results snippet:**References:**

- https://www.w3schools.com/html/html_css.asp

Activity 2

Aim: Apply CSS to HTML

Learning outcome: Able to script and style the web.

Duration: 1 hours

List of Hardware/Software requirements:

1. A computer with Windows/Linux/Mac operating system.
2. Any latest browser installed.
3. Visual studio code / Notepad++/ Sublime text

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

<link rel="stylesheet" href="style.css">      <!-- Linking the external .css file to this html doc-->

</head>

<body>

<h1>This is a heading</h1>

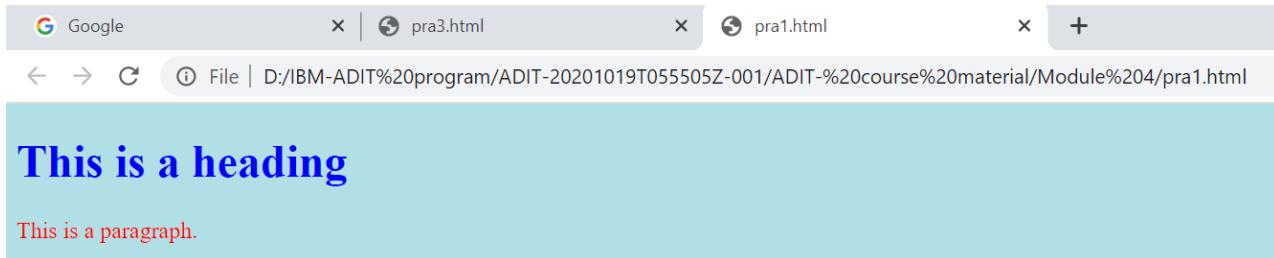
<p>This is a paragraph.</p>

</body>
</html>
```

style.css

/* here only the css rules are coded and this file need to be imported in html file for use */

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

Output/Results snippet:**References:**

- https://www.w3schools.com/html/html_css.asp

Activity 3

Aim: Select elements via element name, class or ID (2 Hrs)

Learning outcome: Able to script and style the web.

Duration: 1 hours

List of Hardware/Software requirements:

1. A computer with Windows/Linux/Mac operating system.
2. Any latest browser installed.
3. Visual studio code / Notepad++/ Sublime text

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

<style>

.center { /* setting the css rules for center class */

text-align: center;

color: red;

}

</style>
```

```
</head>

<body>

<h1 class="center">Red and center-aligned heading</h1> /*applying the effect of class center*/

<p class="center">Red and center-aligned paragraph.</p> /*applying the effect of class center*/

</body>

</html>
```

Output/Results snippet:**References:**

- https://www.w3schools.com/css/css_selectors.asp

Activity 4

Aim: Select elements via attribute name and content (1 Hrs)

Learning outcome: Able to script and style the web. Duration: 1 hours

List of Hardware/Software requirements:

1. A computer with Windows/Linux/Mac operating system.
2. Any latest browser installed.
3. Visual studio code / Notepad++/ Sublime text

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

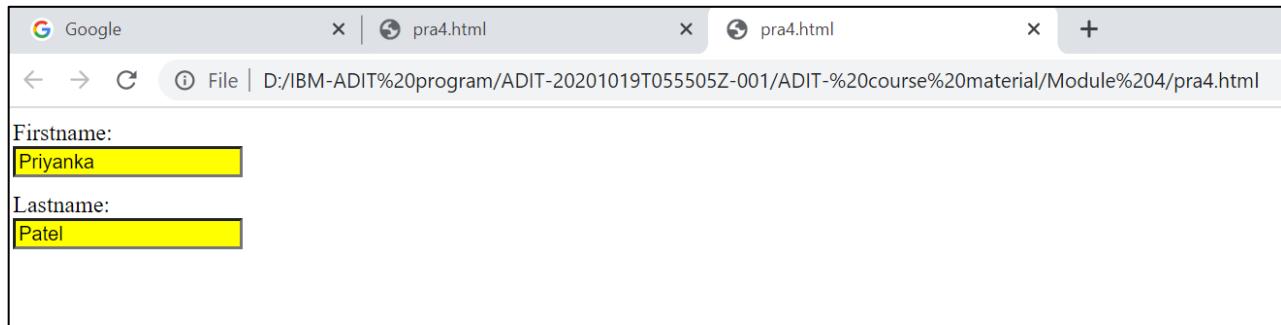
<style>

input[type="text"] {          /* sets the css rule for textbox element*/
    width: 150px;
    display: block;
    margin-bottom: 10px;
    background-color: yellow;
}


```

```
input[type="button"] {      /* sets the css rule for button element*/  
width: 120px;  
margin-left: 35px;  
display: block;  
}  
</style>  
</head>  
<body>  
<form name="input" action="" method="get">  
  Firstname:<input type="text" name="Name" value="Priyanka"  
  size="20"> Lastname:<input type="text" name="Name" value="Patel"  
  size="20">
```

Output/Results snippet:



References:

- https://www.w3schools.com/css/css_attribute_selectors.asp

Activity 5

Aim: Apply pseudo-elements (2 Hrs)

Learning outcome: Able to script and style the web.

Duration: 1 hours

List of Hardware/Software requirements:

1. A computer with Windows/Linux/Mac operating system.
2. Any latest browser installed.
3. Visual studio code / Notepad++/ Sublime text

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

<style>

p.intro::first-letter {          /* sets the css rule of intro class for its first-letter */

color: #ff0000;

font-size:200%;

}
```

```
</style>

</head>

<body>

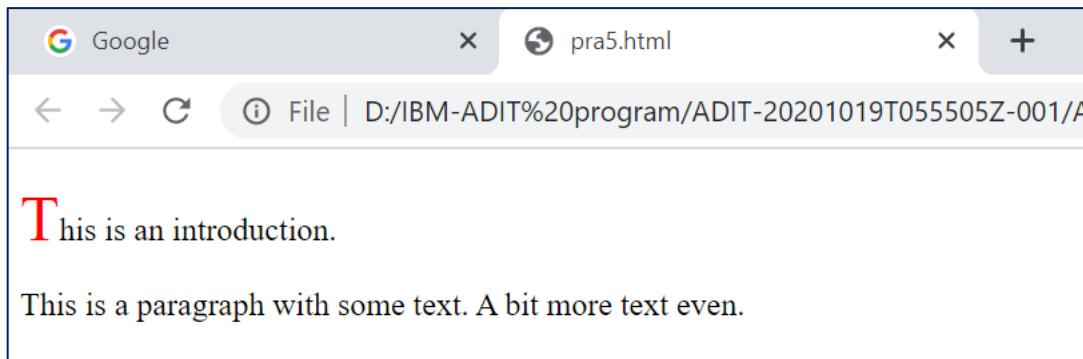
<p class="intro">This is an introduction.</p>      /*applying the effects of intro class*/

<p>This is a paragraph with some text. A bit more text even.</p>

</body>

</html>
```

Output/Results snippet:



References:

- https://www.w3schools.com/css/css_pseudo_elements.asp

Activity 6

Aim: Specify colors in CSS (5 Hrs)

Learning outcome: Specify colors in CSS. **Duration:** 1 hour

List of Hardware/Software requirements:

1. Visual studio code / Notepad++/ Sublime text
2. Any One web browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="utf-8">
    <title>CSS Color</title>
    <style>
        /* Using Color Name */
        #col {
            color: red;
        }
        /* Using Hexadecimal Color code */
        #hex {
            color: #00ff00;
        }
        /* Using RGB() */
        #rgb {
            color: rgb(255, 165, 0);
        }
        /* Using RGBA() */
        #rgba {
            color: rgba(255, 0, 0, 1);
        }
    </style>
</head>
<body>
    <h1>My First CSS Page</h1>
    <div id="col">Color Me Red</div>
    <div id="hex">Color Me Green</div>
    <div id="rgb">Color Me Orange</div>
    <div id="rgba">Color Me Black</div>
</body>
</html>
```

```
        }
        /* Using HSLA */
        #hsla {
            color: hsla(120, 100%, 25%, 0.3);
        }
    </style>
</head>
<body>
    <p id="col">Specify Colors in CSS using Color Names</h1>
    <p id="hex">Specify Colors in CSS using Hexadecimal Notation</p>
    <p id = "rgb">Specify Colors in CSS using RGB Values</h2>
    <p id="rgba">Specify Colors in CSS using rgba() Values</p>
    <p id="hsla">Specify Colors in CSS using HSLA() Values</p>
</body>
</html>
```

Output/Results snippet:



References:

- <https://developer.mozilla.org/en-US/docs/Web/CSS>

Activity 7

Aim: Debug CSS in the browser.

Learning outcome: Scripting and styling the web

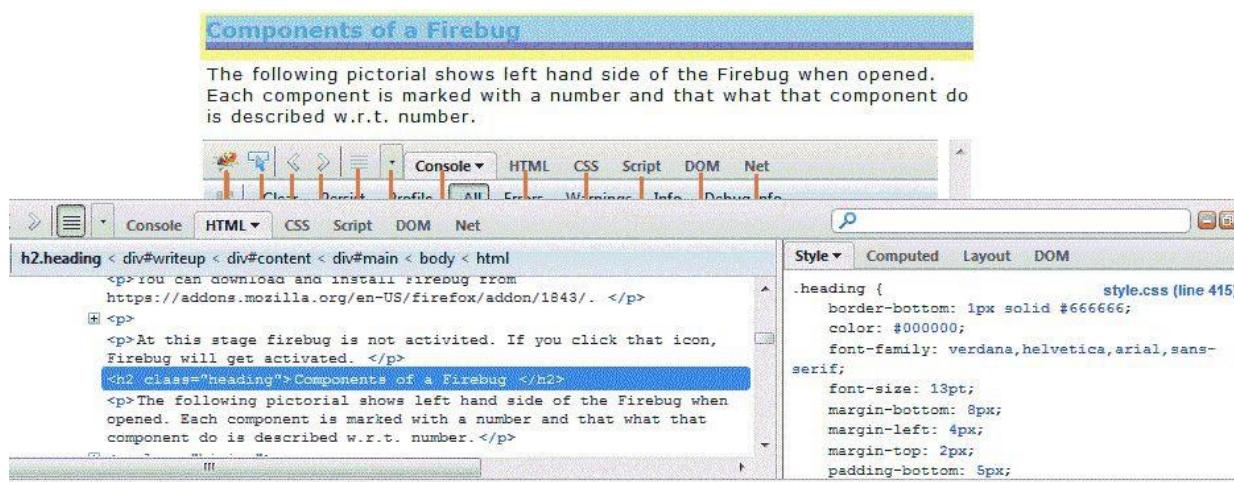
Duration: 1 hour

List of Hardware/Software requirements:

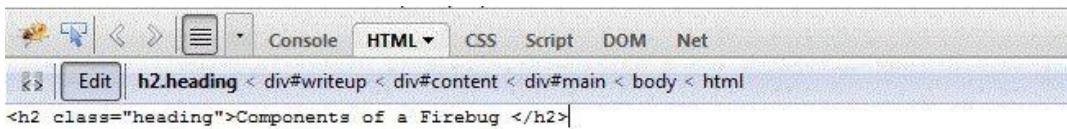
1. Visual studio code / Notepad++/ Sublime text.
2. Any One web browser, Mozilla Firefox recommended.

Code/Program/Procedure (with comments):

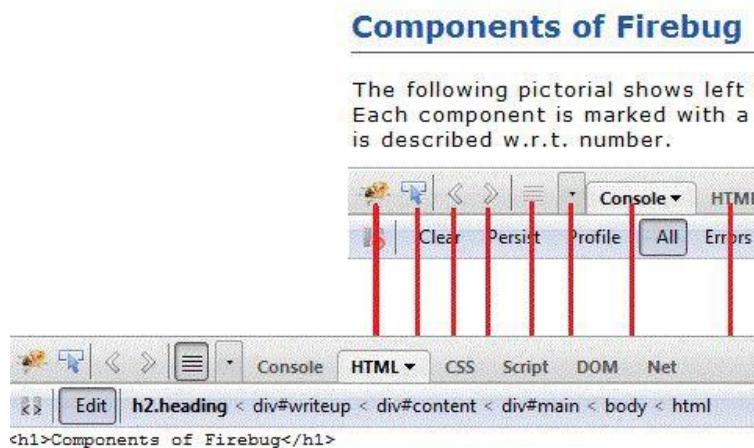
- Right click on the element which you want to inspect and click on the **Inspect Element**.



- Click on the **Edit** in the Firebug window now.



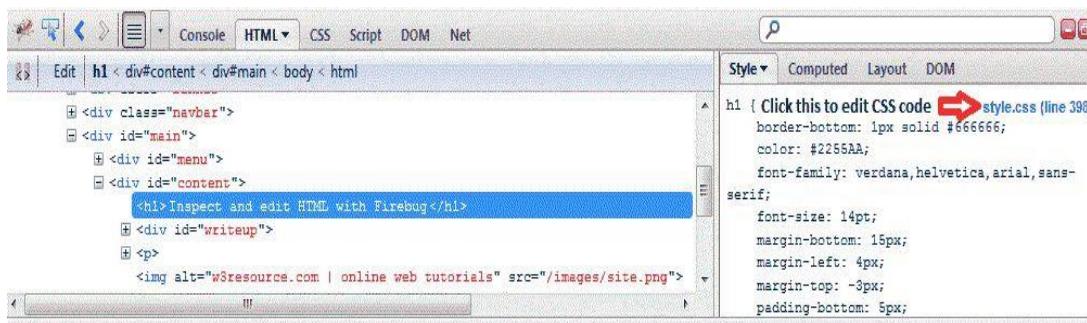
- Change the code to `<h1>Components of Firebug</h1>`.



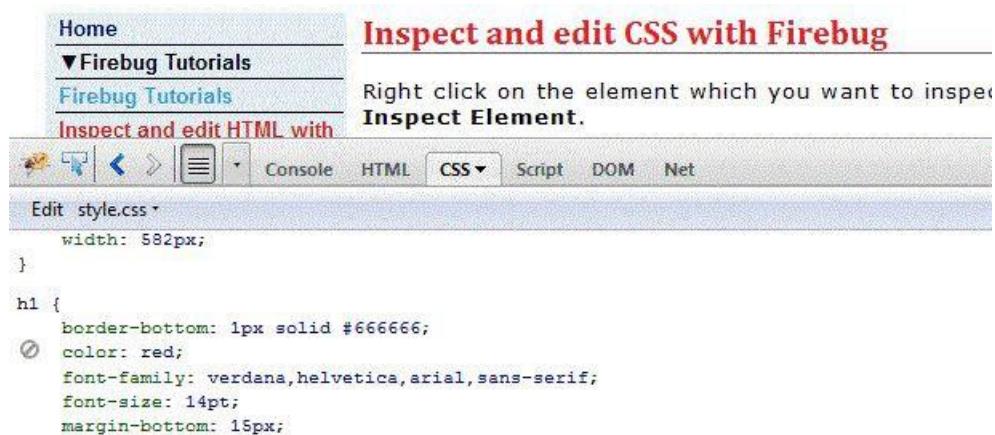
As soon as you change the code, you can see the effect live. You can copy the code and then simply paste it replacing the original code and save to make the effect permanent.

Inspect and edit CSS with Firebug

- Right click on the element which you want to inspect and click on the **Inspect Element**. A then click as shown (scroll the image to right) in the image to open corresponding CSS code.



- Change the color of the heading by changing the code to colour: red;
- You will see the effect live immediately. Now you can simple copy this and replace the original code and save to make the changes permanent



Output/Results snippet:

- Edit and save successfully.

References:

- <https://developer.mozilla.org/en-US/docs/Web/CSS>
- https://developer.mozilla.org/en-US/docs/Tools/Page_Inspector/How_to/Examine_and_edit_HTML

Activity 8

Aim: Style text and customize a list of elements.

Learning outcome: Scripting and styling the web (1 Hrs)

Duration: 1 hour

List of Hardware/Software requirements:

1. Visual studio code / Notepad++/ Sublime text
2. Any One web browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>
<html>

<head>
<title>CSS Text Color</title>
<style>
/* Text Properties */
#txt {
    text-align: justify;
    text-indent: 35px;
    text-transform: capitalize;
    letter-spacing: 5px; word-
    spacing: 25px; white-space:
    pre;

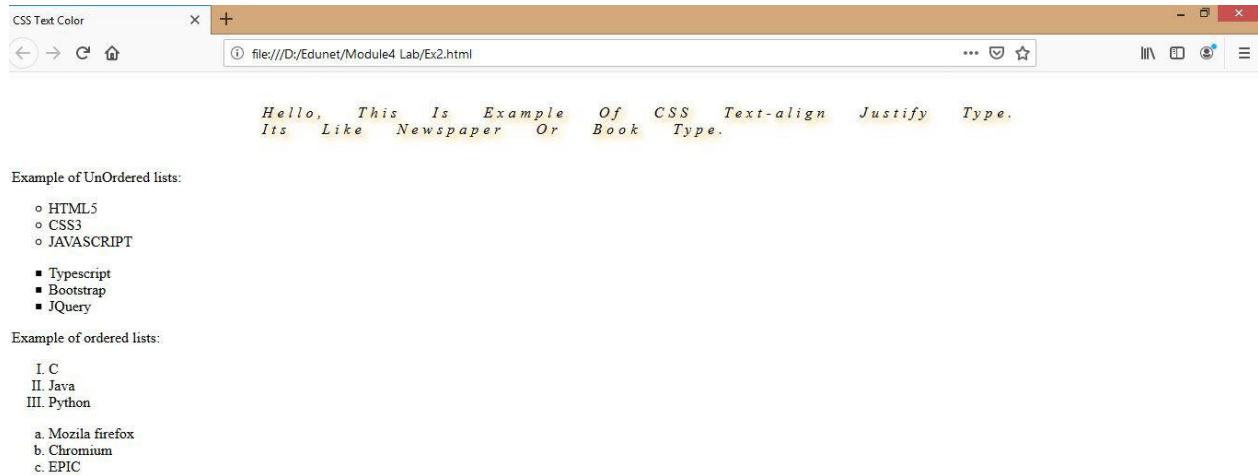
    text-shadow: 4px 4px 8px orange;
    font-style: italic;
}
/* Unorderd List */
ul.ulol1 {
    list-style-type: circle;
}
```

```
ul.unol2 {  
    list-style-type: square;  
}  
/* Orderd List */  
ol.ol1 {  
    list-style-type: upper-roman;  
}  
  
ol.ol2 {  
    list-style-type: lower-alpha;  
}  
</style>  
</head>  
  
<body>  
<p id="txt">  
    Hello, this is example of CSS text-align justify type. Its like newspaper or  
    book type.  
</p>  
<p>Example of UnOrdered lists:</p>  
<ul class="unol1">  
    <li>HTML5</li>  
    <li>CSS3</li>  
    <li>JAVASCRIPT</li>  
</ul>  
  
<ul class="unol2">  
    <li>Typescript</li>  
    <li>Bootstrap</li>  
    <li>JQuery</li>  
</ul>  
<p>Example of ordered lists:</p>  
<ol class="ol1">
```

```
<li>C</li>
<li>Java</li>
<li>Python</li>
</ol>
<ol class="ol2">
    <li>Mozilla firefox</li>
    <li>Chromium</li>
    <li>EPIC</li>
</ol>
</body>

</html>
```

Output/Results snippet:



References:

- <https://developer.mozilla.org/en-US/docs/Web/CSS>

Activity 9

Aim: Add shadows to text.

Learning outcome: Scripting and styling the web

Duration: 1 Hrs

List of Hardware/Software requirements:

1. Visual studio code / Notepad++/ Sublime text
2. Any One web browser

Code/Program/Procedure (with comments):

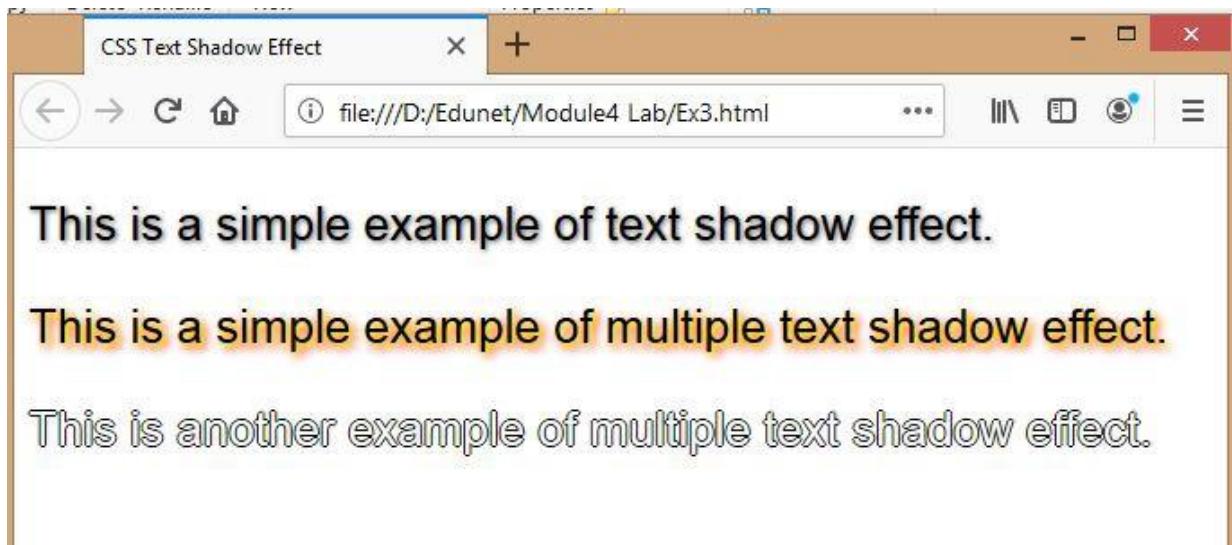
```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<title>CSS Text Shadow Effect</title>
<style>
/* CSS Text Shadow Effect */

p{
    font: 26px sans-serif;
}
p.shadow{
    text-shadow: 1px 1px 2px rgba(0, 0, 0, 0.6);
}
p.shadow-multiple{
    text-shadow: 2px 2px 3px yellow, 3px 3px 5px red;
}
p.shadow-outline{
    color: #fff;
    text-shadow: -1px 0 #000, 0 1px #000, 1px 0 #000, 0 -1px #000;
}
</style>
```

```
</head>
<body>
  <p class="shadow">This is a simple example of text shadow effect.<
/p>

  <p class="shadow-multiple">This is a simple example of multiple te
xt shadow effect.</p>
  <p class="shadow-outline">this is another example of multiple text shadow effect. </p>

</body>
</html>
```

Output/Results snippet:**References:**

- <https://developer.mozilla.org/en-US/docs/Web/CSS>

Activity 10

Aim: Size CSS Boxes

Learning outcome: Scripting and styling the web

Duration: 1 hour

List of Hardware/Software requirements:

1. Visual studio code / Notepad++/ Sublime text
2. Any One web browser

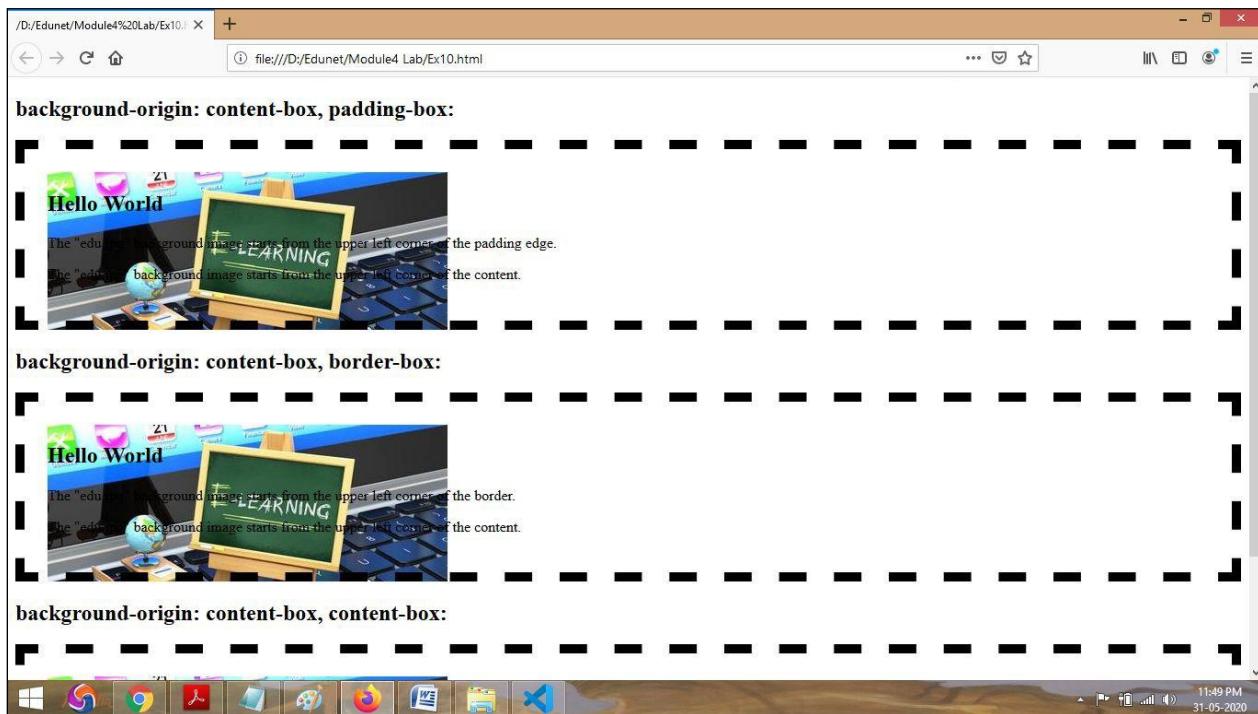
Code/Program/Procedure (with comments):

```
<!DOCTYPE html>
<html>
<head>
<style>
/* CSS Box Properties */
#example1 {
    border: 10px dashed black;
    padding: 25px;
    background: url(edu.jpg);
    background-repeat: no-repeat;
    background-origin: content-box, padding-box;
}
```

```
#example2 {
    border: 10px dashed black;
    padding: 25px;
    background: url(edu.jpg);
    background-repeat: no-repeat;
    background-origin: content-box, border-box;
}
```

```
#example3 {  
    border: 10px dashed black;  
    padding: 25px;  
    background: url(edu.jpg);  
    background-repeat: no-repeat;  
    background-origin: content-box, content-box;  
}  
</style>  
</head>  
<body>  
<h2>background-origin: content-box, padding-box:</h2>  
<div id="example1">  
    <h2>Hello World</h2>  
    <p>The "edu.jpg" background image starts from the upper left corner of the padding  
    edge.</p>  
    <p>The "edu.jpg" background image starts from the upper left corner of the content.</p>  
    </div>  
<h2>background-origin: content-box, border-box:</h2>  
<div id="example2">  
    <h2>Hello World</h2>  
    <p>The "edu.jpg" background image starts from the upper left corner of the border.</p>  
    <p>The "edu.jpg" background image starts from the upper left corner of the content.</p>  
    </div>  
<h2>background-origin: content-box, content-box:</h2>  
<div id="example3">  
    <h2>Hello World</h2>  
    <p>Both background images starts from the upper left corner of the content.</p>  
    </div>  
</body>  
</html>
```

Output/Results snippet:



References:

- <https://developer.mozilla.org/en-US/docs/Web/CSS>

Activity 11

Aim: Control overflowing content.

Learning outcome: Scripting and styling the web (1 Hrs)

Duration: 1 hour

List of Hardware/Software requirements:

1. Visual studio code / Notepad++/ Sublime text
2. Any One web browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>
<html>
<head>
    <style>
/* Overflow – Visible, Hidden, Scroll, Auto */
    #overflow-visible {
        background-color: #cccccc;
        width: 200px;
        height: 50px;
        border: 2px solid red;
        overflow: visible;
    }
    #overflow-hidden {
        background-color: #cccccc;
        width: 200px;
        height: 50px;
        border: 1px solid red;
        overflow: hidden;
    }

```

```
#overflow-scroll {
    background-color: #cccccc;
    width: 200px;
    height: 50px;
    border: 1px solid red;
    overflow: scroll;
}

#overflow-auto {
    background-color: #cccccc;
    width: 200px;
    height: 50px;
    border: 1px solid red;
    overflow: auto;
}

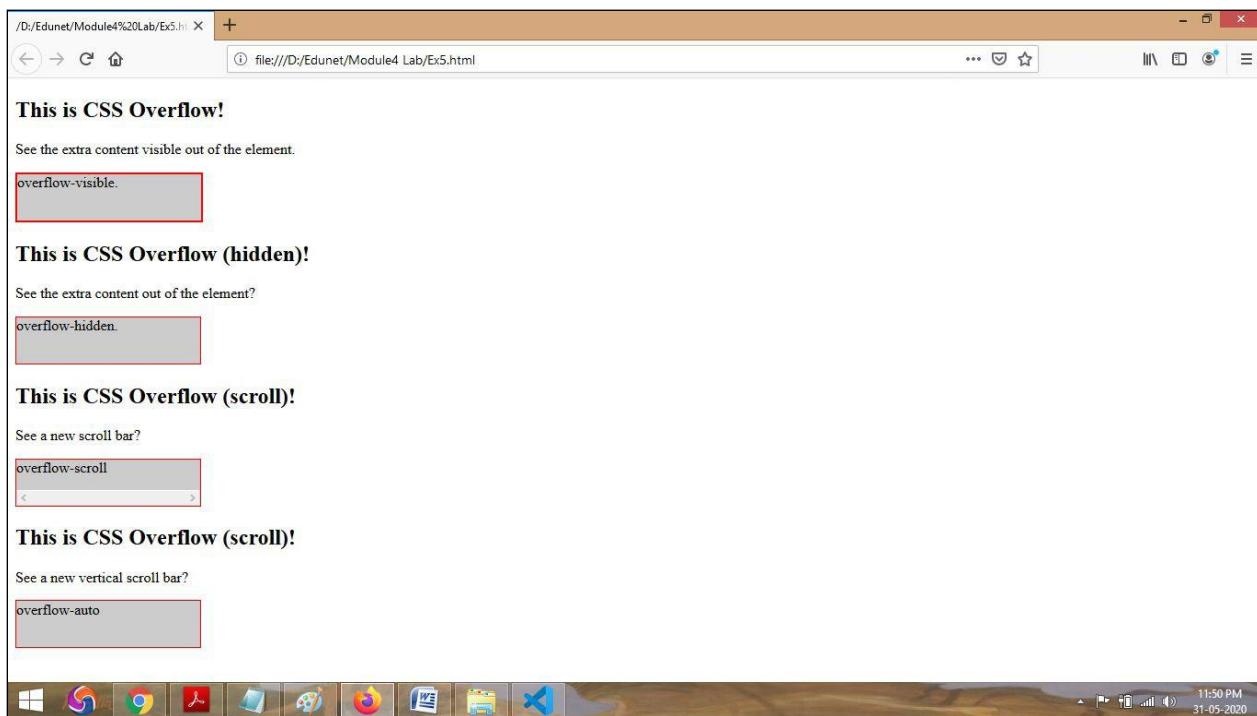
</style>
</head>

<body>

<h2>This is CSS Overflow!</h2>
<p>See the extra content visible out of the element.</p>
<div id="overflow-visible">overflow-visible.</div>
<h2>This is CSS Overflow (hidden)!</h2>
<p>See the extra content out of the element?</p>
<div id="overflow-hidden">overflow-hidden.</div>
<h2>This is CSS Overflow (scroll)!</h2>
<p>See a new scroll bar?</p>
<div id="overflow-scroll">overflow-scroll</div>
<h2>This is CSS Overflow (scroll)!</h2>
<p>See a new vertical scroll bar?</p>
<div id="overflow-auto">overflow-auto</div>

</body>
</html>
```

Output/Results snippet:



References:

- <https://developer.mozilla.org/en-US/docs/Web/CSS>

Activity 12

Aim: Control the part of a CSS box to draw the background.

Learning outcome: Scripting and styling the web

Duration: 1 hour

List of Hardware/Software requirements:

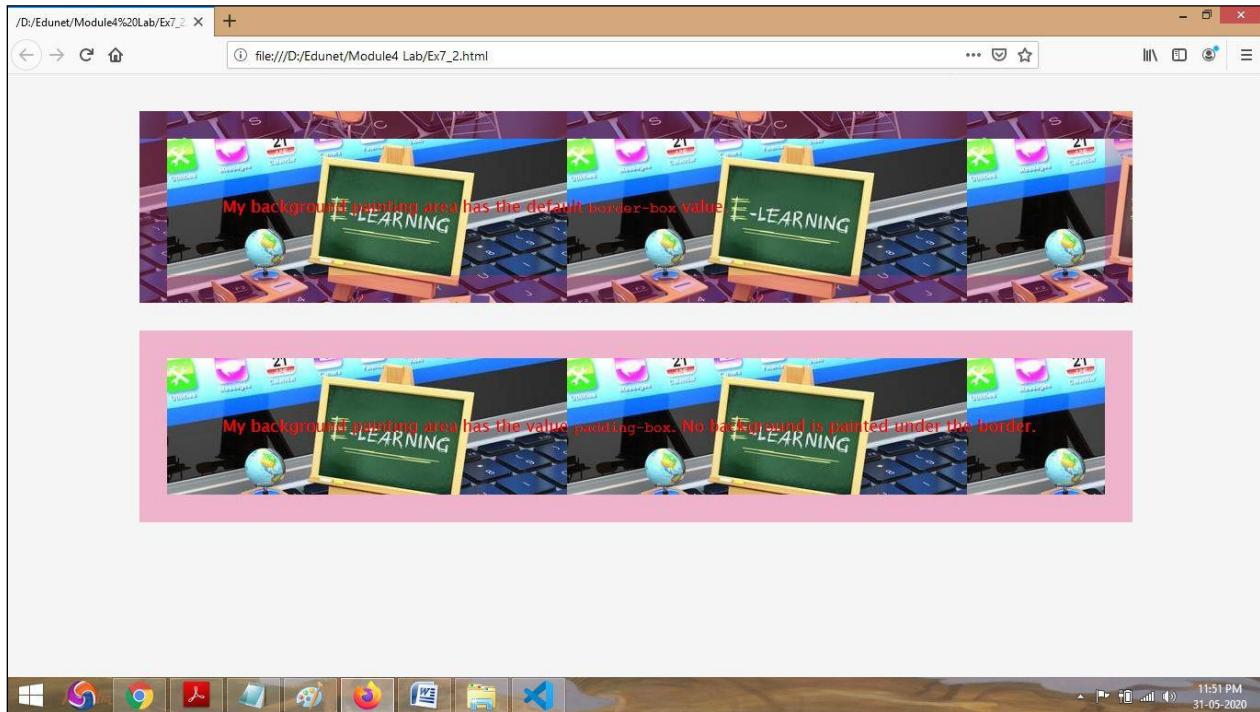
1. Visual studio code / Notepad++/ Sublime text
2. Any One web browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>
<html>
<head>
<style>
/* CSS Box to draw background */
body {
    background-color: #F5F5F5;
    color: #555;
    font-size: 1.1em;
    font-family: 'Helvetica Neue', Helvetica, Arial, sans-serif;
}
.container {
    margin: 40px auto;
    width: 80%;
}
.el {
    padding: 40px;
    margin-bottom: 30px; background-color: #0099cc; color: white;
```

```
border: 30px solid rgba(224, 30, 108, 0.3);
background-image: url(edu.jpg);
}
.el-2 {
    background-clip: padding-box;
}
.el p {
    padding: 20px;
    margin: 0;
    font-size: large;
    font-family: 'Lucida Sans', 'Lucida Sans Regular', 'Lucida Grande', 'Lucida Sans Unicode', Geneva, Verdana, sans-serif;
    color: red;
}
</style>
</head>
<body>
<div class="container">
    <div class="el el-1">
        <p>
            My background painting area has the default <code>bord er-box</code>
            value.
        </p>
    </div>
    <div class="el el-2">
        <p>
            My background painting area has the value <code>paddin g-box</code>.
            No background is painted under the
            border.
        </p>
    </div>
</div>
</body>
</html>
```

Output/Results snippet:



References:

- <https://developer.mozilla.org/en-US/docs/Web/CSS>

Activity 13

Aim: Create fancy boxes (also see the Styling boxes module, generally).

Learning outcome: Scripting and styling the web

Duration: 1 hour

List of Hardware/Software requirements:

- Visual studio code/ Notepad++/ Sublime
- Any One web browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>
<head>
    <title>Fancy Boxes</title>
    <style>
        /*fancy-box */
        .fancy-box { background:
            #666; color: #fff;
            text-align: center;
            border: 5px solid #444;
            border-radius: 30px 30px 30px 30px;
            padding: 10px;
            margin: 1em 0;
        }
        .fancy-box .fancy-heading {
            font-family: Arial;
            font-size: 32px;
        }
        .fancy-box .fancy-button {
            background: #fff; color: #666;
            padding: 1.5em;
        }
    </style>
</head>
<body>
    <div class="fancy-box">
        <h1>Hello World</h1>
        <button>Click Me</button>
    </div>
</body>

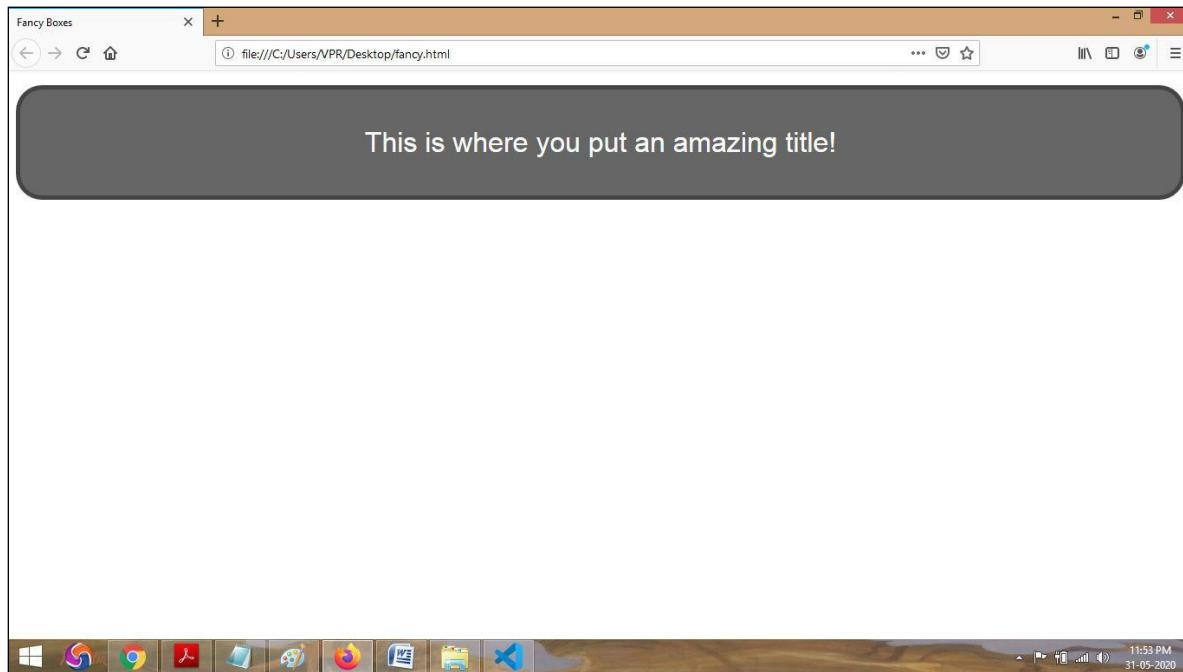
```

```
        }
    </style>

</head>
<body>

<div class="fancy-box">
    <p class="fancy-heading">This is where you put an amazing title!</p>
</div>
</body>
</html>
```

Output/Results snippet:



References:

- <https://developer.mozilla.org/en-US/docs/Web/CSS>

Activity 14

Aim: Use background-clip to control background image.

Learning outcome: Scripting and styling the web

Duration: 1 hour

List of Hardware/Software requirements:

- Visual studio code/notepad++/sublime
- Any One web browser

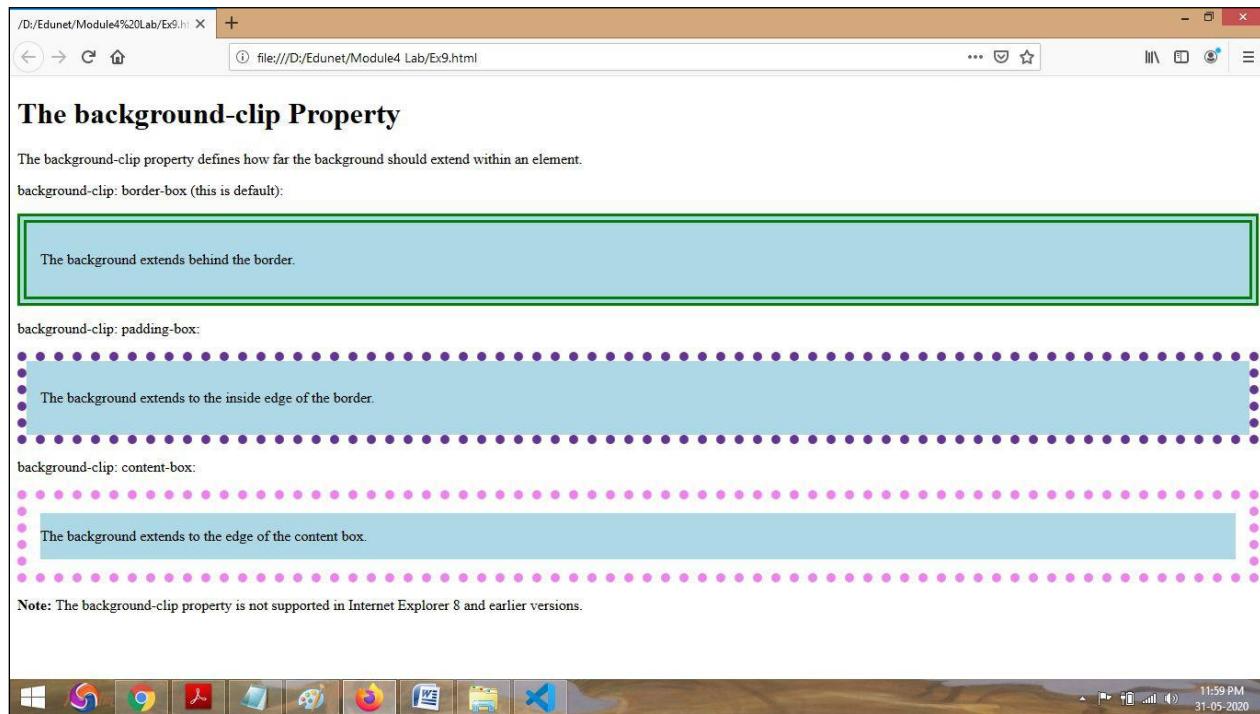
Code/Program/Procedure (with comments):

```
<!DOCTYPE html>
<html>
<head>
<style>
/* Background-Clip */
#example1 {
border: 10px double green;
padding: 15px; background: lightblue;
background-clip: border-box;
}

#example2 {
border: 10px dotted rebeccapurple;
padding: 15px; background: lightblue;
background-clip: padding-box;
}
```

```
#example3 {  
    border: 10px dotted violet;  
    padding: 15px; background: lightblue;  
    background-clip: content-box;  
}  
</style>  
</head>  
<body>  
  
<h1>The background-clip Property</h1>  
  
<p>The background-clip property defines how far the background should extend within an element.</p>  
  
<p>background-clip: border-box (this is default):</p>  
<div id="example1">  
    <p>The background extends behind the border.</p>  
</div>  
  
<p>background-clip: padding-box:</p>  
<div id="example2">  
    <p>The background extends to the inside edge of the border.</p>  
</div>  
  
<p>background-clip: content-box:</p>  
<div id="example3">  
    <p>The background extends to the edge of the content box.</p>  
</div>  
  
<p><strong>Note:</strong> The background-clip property is not supported in Internet Explorer 8 and earlier versions.</p>  
  
</body>  
</html>
```

Output/Results snippet:



The background-clip Property

The background-clip property defines how far the background should extend within an element.

background-clip: border-box (this is default):

The background extends behind the border.

background-clip: padding-box:

The background extends to the inside edge of the border.

background-clip: content-box:

The background extends to the edge of the content box.

Note: The background-clip property is not supported in Internet Explorer 8 and earlier versions.

References:

- <https://developer.mozilla.org/en-US/docs/Web/CSS>

Activity 15

Aim: Change the box model completely using box sizing

Learning outcome: Scripting and styling the web

Duration: 1 hour

List of Hardware/Software requirements:

- Visual studio code
- Any One web browser

Code/Program/Procedure (with comments):

```
<!doctype html public "-//w3c//dtd html 4.01//en">
<html>
  <head>
    <title>box model</title>
    <style type="text/css">
      /* examples of margins, padding, and borders */
      ul {
        background: yellow;
        margin: 12px 12px 12px 12px;
        padding: 3px 3px 3px 3px;
        /* no borders set */
      }
      li {
        color: white;
        /* text color is white */
        background: blue;
        /* content, padding will be blue */
        margin: 12px 12px 12px 12px;
        padding: 12px 0px 12px 12px;
        /* note 0px padding right */
```

```
list-style: none

/* no glyphs before a list item */
/* no borders set */

}

li.withborder {
    border-style: dashed;
    border-width: medium;
    /* sets border width on all sides */
    border-color: lime;
}

body {
    margin: 2em
}

/* all margins set to 2em */
body {
    margin: 1em 2em
}

/* top & bottom = 1em, right & left = 2em */
body {
    margin: 1em 2em 3em
}

</style>
</head>
<body>
    <ul>
        <li>first element of list
        <li class="withborder">second element of list is a bit longer to
            illustrate wrapping.
    </ul>
</body>
</html>
```

Output/Results snippet



References:

- <https://developer.mozilla.org/en-US/docs/Web/CSS>

Activity 16

Aim: Control backgrounds.

Learning outcome: Scripting and styling the web

Duration: 1 hours

List of Hardware/Software requirements:

- Visual studio code
- Any One web browser

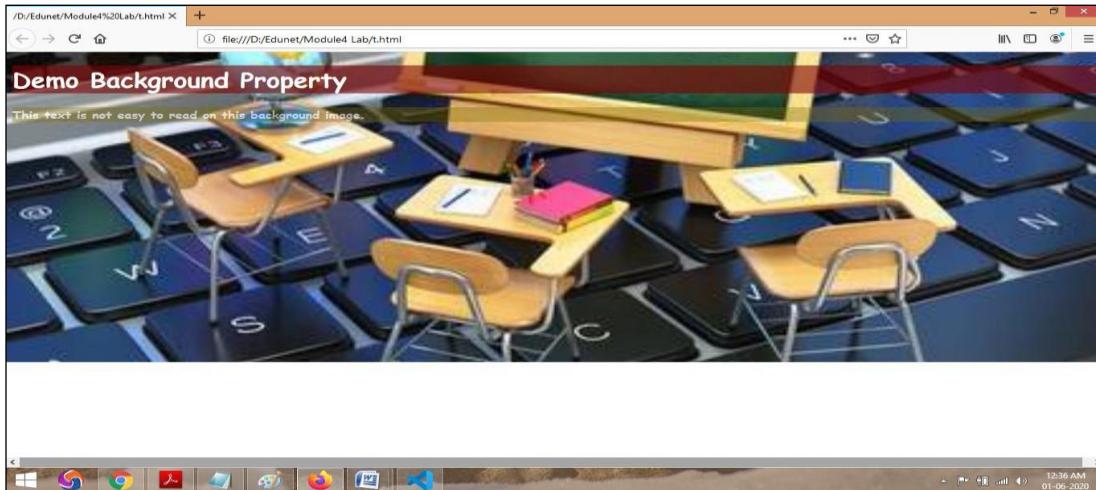
Code/Program/Procedure (with comments):

```
<!DOCTYPE html>
<html>
<head>
<style>
/* Control Backgrounds*/
body {
    background-image: url("edu.jpg");
    height: 100%;
    width: 100%;
    /* Center and scale the image nicely */

    background-position: center;
    background-repeat: no-repeat;
    background-size: cover;
}
h1, p {
    font-family: cursive; font-weight: bolder; color: white;
}
```

```
div.first {  
    background: rgba(128, 0, 0, 0.6);  
}  
div.second {  
    background: rgba(128, 109, 0, 0.6);  
    opacity: 0.6;  
}  
</style>  
</head>  
<body>  
    <div class="first">  
        <h1>Demo Background Property</h1>  
    </div>  
    <div class="second">  
        <p>This text is not easy to read on this background image.</p>  
    </div>  
</body>  
</html>
```

Output/Results snippet:



References:

- <https://developer.mozilla.org/en-US/docs/Web/CSS>

Activity 17

Aim: Apply control borders

Learning outcome: Able to understand how the web works.

Duration: 1 Hours

List of Hardware/Software requirements:

1. HTML Editor: Sublime Text Editor
2. Web Browser: Google Chrome/Mozilla Firefox

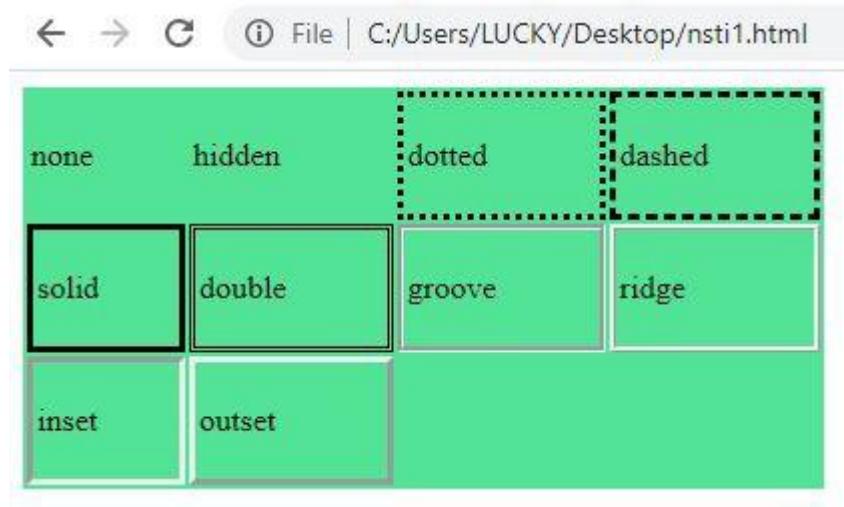
Code/Program/Procedure (with comments):

```
<html>
<head>
<style>
/* Define look of the table */
table {
border-width: 3px;
background-color: #52E396;
}
tr, td {
padding: 2px;
}
/* border-style example classes */
.b1 {border-style:none;}
.b2 {border-style:hidden;}
.b3 {border-style:dotted;}
.b4 {border-style:dashed;}
```

```
.b5 {border-style:solid;}  
.b6 {border-style:double;}  
.b7 {border-style:groove;}  
.b8 {border-style:ridge;}  
.b9 {border-style:inset;}  
.b10 {border-style:outset;}  
</style>  
</head>  
<body>  
<table>  
<tr>  
<td class="b1">none</td>  
<td class="b2">hidden</td>  
<td class="b3">dotted</td>  
<td class="b4">dashed</td>  
</tr>  
<tr>  
<td class="b5">solid</td>  
<td class="b6">double</td>  
<td class="b7">groove</td>  
<td class="b8">ridge</td>  
</tr>  
<tr>  
<td class="b9">inset</td>  
<td class="b10">outset</td>  
</tr>  
</table>  
</body>
```

</html>

Output/Results snippet:



References:

- https://www.w3schools.com/css/css_border.asp
- <https://www.html.am/html-codes/tables/table-border.cfm>
- https://www.w3schools.com/css/css_border.asp

Activity 18

Aim: Style an HTML table

Learning outcome: Able to understand how the web works.

Duration: 3 Hours

List of Hardware/Software requirements:

1. HTML Editor: Sublime Text Editor
2. Web Browser: Google Chrome/Mozilla Firefox

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

<style>

#customers {

font-family: "Trebuchet MS", Arial, Helvetica, sans-serif;

border-collapse: collapse;

width: 100%;

}

#customers td, #customers th {

border: 1px solid #ddd;

padding: 8px;

}

#customers tr:nth-child(even){background-color: #f2f2f2;}
```

```
#customers tr:hover {background-color: #ddd;}
```

```
#customers th {  
    padding-top: 12px;  
    padding-bottom: 12px;  
    text-align: left;  
    background-color: #4CAF50;  
    color: white;  
}  
</style>
```

```
</head>
```

```
<body>
```

```
<table id="customers">  
    <tr>  
        <th>Company</th>  
        <th>Contact</th>  
        <th>Country</th>  
    </tr>  
    <tr>  
        <td>Alfreds Futterkiste</td>  
        <td>Maria Anders</td>  
        <td>Germany</td>  
    </tr>  
    <tr>
```

```
<td>Berglunds snabbköp</td>
<td>Christina Berglund</td>
<td>Sweden</td>
</tr>

<tr>
<td>Centro comercial Moctezuma</td>
<td>Francisco Chang</td>
<td>Mexico</td>
</tr>

<tr>
<td>Ernst Handel</td>
<td>Roland Mendel</td>
<td>Austria</td>
</tr>

<tr>
<td>Island Trading</td>
<td>Helen Bennett</td>
<td>UK</td>
</tr>

<tr>
<td>Königlich Essen</td>
<td>Philip Cramer</td>
<td>Germany</td>
```

```
</tr>

<tr>

<td>Laughing Bacchus Winecellars</td>
<td>Yoshi Tannamuri</td>
<td>Canada</td>

</tr>

<tr>

<td>Magazzini Alimentari Riuniti</td>
<td>Giovanni Rovelli</td>
<td>Italy</td>

</tr>

<tr>

<td>North/South</td>
<td>Simon Crowther</td>
<td>UK</td>

</tr>

<tr>

<td>Paris spécialités</td>
<td>Marie Bertrand</td>
<td>France</td>

</tr>

</table>

</body>

</html>
```

Output/Results snippet:



Company	Contact	Country
Alfreds Futterkiste	Maria Anders	Germany
Berglunds snabbköp	Christina Berglund	Sweden
Centro comercial Moctezuma	Francisco Chang	Mexico
Ernst Handel	Roland Mendel	Austria
Island Trading	Helen Bennett	UK
Königlich Essen	Philip Cramer	Germany
Lauding Bacchus Winecellars	Yoshi Tannamuri	Canada
Magazzini Alimentari Riuniti	Giovanni Rovelli	Italy
North/South	Simon Crowther	UK
París specialités	Marie Bertrand	France

References:

- https://www.w3schools.com/css/css_table.asp

Activity 19

Aim: Add shadows to boxes

Learning outcome: Able to understand how the web works.

Duration: 2 Hours

List of Hardware/Software requirements:

1. HTML Editor: Sublime Text Editor
2. Web Browser: Google Chrome/Mozilla Firefox

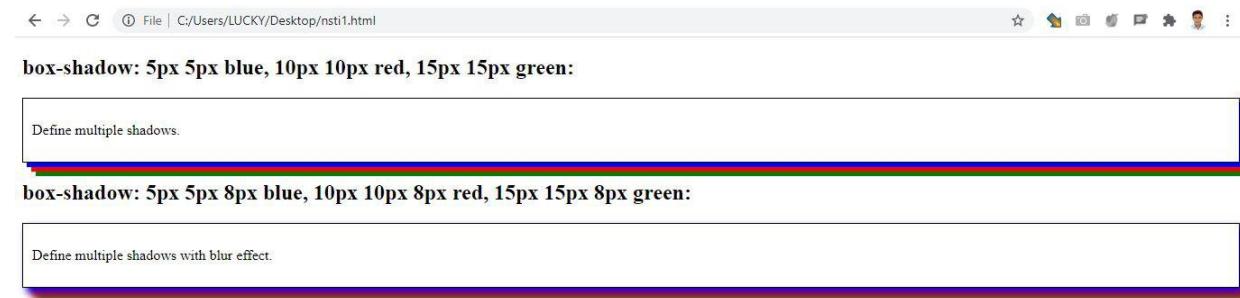
Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>
  <head>
    <style>
      #example1 {
        border: 1px solid;
        padding: 10px;
        box-shadow: 5px 5px blue, 10px 10px red, 15px 15px green;
      }
      #example2 {
        border: 1px solid;
```

```
padding: 10px;  
box-shadow: 5px 5px 8px blue, 10px 10px 8px red, 15px 15px 8px green;  
}  
</style>  
</head>  
<body>  
<h2>box-shadow: 5px 5px blue, 10px 10px red, 15px 15px green:</h2>  
<div id="example1">  
<p>Define multiple shadows.</p>  
</div>  
<h2>box-shadow: 5px 5px 8px blue, 10px 10px 8px red, 15px 15px 8px green:</h2>  
<div id="example2">  
<p>Define multiple shadows with blur effect.</p>  
</div>  
</body>  
</html>
```

Output/Results snippet:



References:

- https://www.w3schools.com/cssref/css3_pr_box-shadow.asp
- https://www.w3schools.com/css/css3_shadows.asp

Activity 20

Aim: Calculate specificity of a CSS selector

Learning outcome: Able to understand how the web works.

Duration: 3 Hours

List of Hardware/Software requirements:

1. HTML Editor: Sublime Text Editor
2. Web Browser: Google Chrome/Mozilla Firefox

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

<style>

/*Element Selector*/

h1

{background-color: yellow;

text-align: center;}

/*Class Selector*/

.center {

background-color: red;

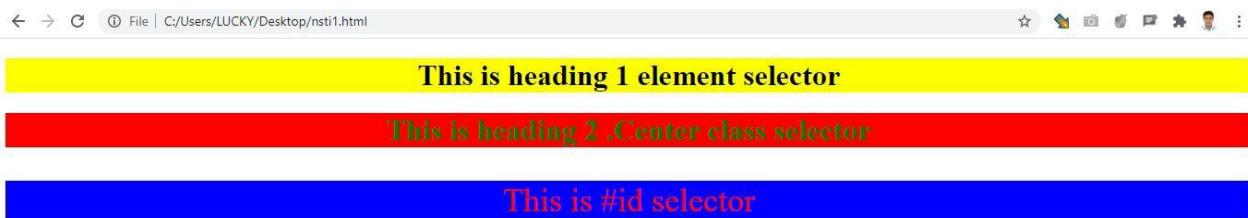
text-align: center;

color: green;

}
```

```
/*id selector*/  
  
#header{  
background-color: blue;  
text-align: center;  
color: red;  
font-size:36px;  
}  
  
</style>  
  
</head>  
  
<body>  
  
<h1>This is heading 1 element selector</h1>  
  
<h1 class="center">This is heading 2 .Center class selector</h1>  
  
<p id="header">This is #id selector</p>  
  
</body>  
  
</html>
```

Output/Results snippet:



References:

- https://www.w3schools.com/css/css_selectors.asp

Activity 21

Aim: Control Inheritance in CSS

Learning outcome: Able to understand how the web works.

Duration: 2 Hours

List of Hardware/Software requirements:

1. HTML Editor: Sublime Text Editor
2. Web Browser: Google Chrome/Mozilla Firefox

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>
<head>
<style>

span {
  color: blue;
  border: 1px solid black;
}

.extra span {
  color: inherit;
}

</style>
</head>
<body>
```

```
<div>
```

Here is a span element which is blue, as span elements are set to be.

```
</div>
```

```
<div class="extra" style="color:green">
```

Here is a span element which is green, because it inherits from its parent.

```
</div>
```

```
<div style="color:red">
```

Here is a span element which is blue, as span elements are set to be.

```
</div>
```

```
</body>
```

```
</html>
```

Output/Results snippet:



← → ⌂ ⌂ File | C:/Users/LUCKY/Desktop/nsti1.html

Here is a span element which is blue, as span elements are set to be.
Here is a span element which is green, because it inherits from its parent.
Here is a span element which is blue, as span elements are set to be.

References:

- <https://stackoverflow.com/questions/641217/css-control-inheritance-inheriting-other-control-styles>

Activity 22

Aim: Apply filters in CSS

Learning outcome: Able to understand how the web works.

Duration: 2 Hours

List of Hardware/Software requirements:

1. HTML Editor: Sublime Text Editor
2. Web Browser: Google Chrome/Mozilla Firefox

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>
  <head>
    <style>
      img {
        -webkit-filter: grayscale(100%); /* Safari 6.0 - 9.0 */
        filter: grayscale(100%);
      }
    </style>
  </head>
  <body>
    <h1>The filter Property</h1>
    <p>Convert the image to grayscale:</p>
    
  </body>
</html>
```

```
<p><strong>Note:</strong> The filter property is not supported in Internet Explorer, Edge  
12, or Safari 5.1 and earlier.</p>  
</body>  
</html>
```

Output/Results snippet:



References:

- https://www.w3schools.com/cssref/css3_pr_filter.asp

Activity 23

Aim: Apply blend modes in CSS

Learning outcome: Able to understand how the web works.

Duration: 2 Hours

List of Hardware/Software requirements:

1. HTML Editor: Sublime Text Editor
2. Web Browser: Google Chrome/Mozilla Firefox

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>
<head>
<style>
#myDIV {
    width: 400px;
    height: 400px;
    background-repeat: no-repeat, repeat;
    background-image: url("img_5terre.jpg"),url("download.png");
    background-blend-mode: lighten;
}
</style>
</head>
<body>
```

```
<h1>The background-blend-mode Property</h1>
<div id="myDIV"></div>
<p><b>Note:</b> Edge/Internet Explorer do not support the background-blend-mode
property.</p>
</body>
</html>
```

Output/Results snippet:



References:

- https://www.w3schools.com/cssref/pr_background-blend-mode.asp

Activity 24

Aim: Apply CSS multi-column layouts

Learning outcome: Able to understand how the web works.

Duration: 3 Hours

List of Hardware/Software requirements:

1. HTML Editor: Sublime Text Editor
2. Web Browser: Google Chrome/Mozilla Firefox

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

<style>

.newspaper {

-webkit-column-count: 3; /* Chrome, Safari, Opera */

-moz-column-count: 3; /* Firefox */

column-count: 3;

-webkit-column-gap: 40px; /* Chrome, Safari, Opera */

-moz-column-gap: 40px; /* Firefox */
```

```
column-gap: 40px;

-webkit-column-rule-style: solid; /* Chrome, Safari, Opera */

-moz-column-rule-style: solid; /* Firefox */

column-rule-style: solid;

}

</style>

</head>
```

```
<body>
```

```
<p><b>Note:</b> Internet Explorer 9, and earlier versions, does not support the
columnrule-style property.</p>
```

```
<div class="newspaper">
```

HyperText Markup Language (HTML) is a markup language[1] for creating a webpage. Webpages are usually viewed in a web browser. They can include writing, links, pictures, and even sound and video. HTML is used to mark and describe each of these kinds of content so the web browser can display them correctly. HTML can also be used to add meta information to a webpage. Meta information is usually not shown by web browsers and is data about the web page, e.g., the name of the person who created the page. Cascading Style Sheets (CSS) is used to style HTML elements while JavaScript is used to manipulate HTML elements and CSS styles.

```
</div>
```

```
</body>
```

```
</html>
```

Output/Results snippet:



Note: Internet Explorer 9, and earlier versions, does not support the columnrule-style property.

HyperText Markup Language (HTML) is a markup language[1] for creating a webpage. Webpages are usually viewed in a web browser. They can include writing, links, pictures, and even sound and video. HTML is used to mark and describe each of

these kinds of content so the web browser can display them correctly. HTML can also be used to add meta information to a webpage. Meta information is usually not shown by web browsers and is data about the web page, e.g., the name of the

person who created the page. Cascading Style Sheets (CSS) is used to style HTML elements while JavaScript is used to manipulate HTML elements and CSS styles.

References:

- https://www.w3schools.com/css/css3_multiple_columns.asp

Activity 25

Aim: Apply CSS generated Content

Learning outcome: Able to understand how the web works.

Duration: 2 Hours

List of Hardware/Software requirements:

1. HTML Editor: Sublime Text Editor
2. Web Browser: Google Chrome/Mozilla Firefox

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

<head>

<style>

ul {

list-style: none; /* Remove HTML bullets */

padding:

0; margin:

0; } li {

padding-left: 16px; }

li::before {
```

```
content: "•"; /* Insert content that looks like bullets */
```

```
padding-right: 8px;
```

```
color: blue; /* Or a color you prefer */ }
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<h1>The content Property</h1>
```

```
<ul>
```

```
<li>Coffee</li>
```

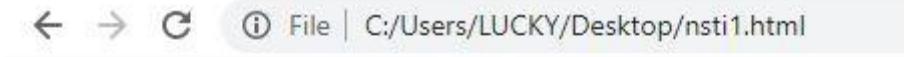
```
<li>Tea</li>
```

```
<li>Coca Cola</li>
```

```
</ul>
```

```
</body>
```

```
</html>
```

Output/Results snippet:

← → C ⓘ File | C:/Users/LUCKY/Desktop/nsti1.html

The content Property

- Coffee
- Tea
- Coca Cola

References:

- https://www.w3schools.com/cssref/pr_gen_content.asp

Activity 26

Aim: Create CSS document by using ID selector

Learning outcome: Able to create Styles of web pages using CSS.

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Linux OS - Ubuntu 18.04 LTS
2. Editor (Default GEDIT) and a Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>
    <head>          <!-- Document Head Starts -->
        <title> ID Selector </title>

        <style>
            /* Style the element with the id "myHeader" */

            #myHeader {
                background-color: lightblue;
                color: black;
                padding: 40px;
                text-align: center; }

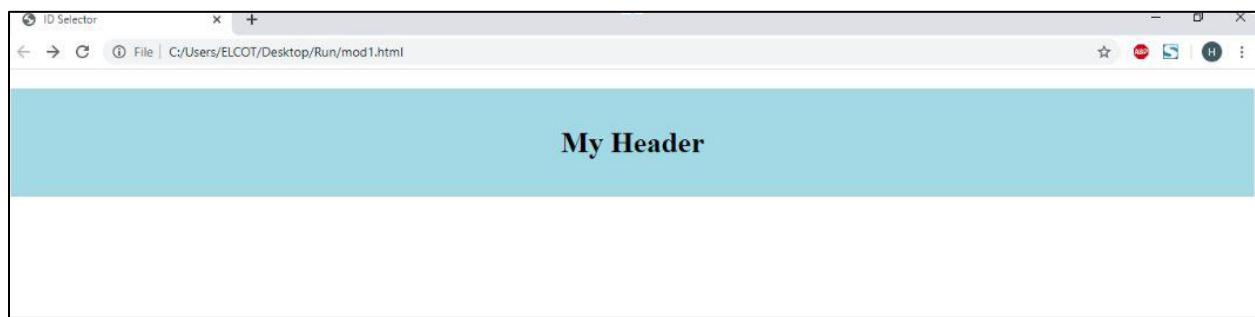
        </style>
    </head>          <!-- Document Head Ends -->

    <body>          <!-- Document Body Starts -->
        <!--This is Heading Tag with id myHeader-->
```

```
<h1 id="myHeader">My Header</h1>
</body>      <!-- Document Body Ends -->
</html>
```

Output/Results snippet:

A simple HTML webpage with the body CSS id Selector.



References:

- HTML Introduction - https://www.w3schools.com/html/html_intro.asp

Activity 27

Aim: Create CSS document by using Class selector, Universal selector Grouping selector

Learning outcome: Able to create Styles of web pages using CSS.

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Linux OS - Ubuntu 18.04 LTS
2. Editor (Default GEDIT) and a Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

    <head>          <!-- Document Head Starts -->

        <title> Selectors </title>

        <style>

            /* Style the element with the id "myHeader" */

            #myHeader {

                background-color: lightblue;

                color: black;

                padding: 40px;

                text-align: center;

            }

            /* Style all elements with the class name "city" */

            .city {

                background-color: tomato;

            }

        </style>

    </head>

    <body>

        <h1>My First CSS Document</h1>

        <div id="myHeader">This is a header</div>

        <ul class="city">
            <li>London</li>
            <li>Paris</li>
            <li>Berlin</li>
            <li>Rome</li>
        </ul>

    </body>

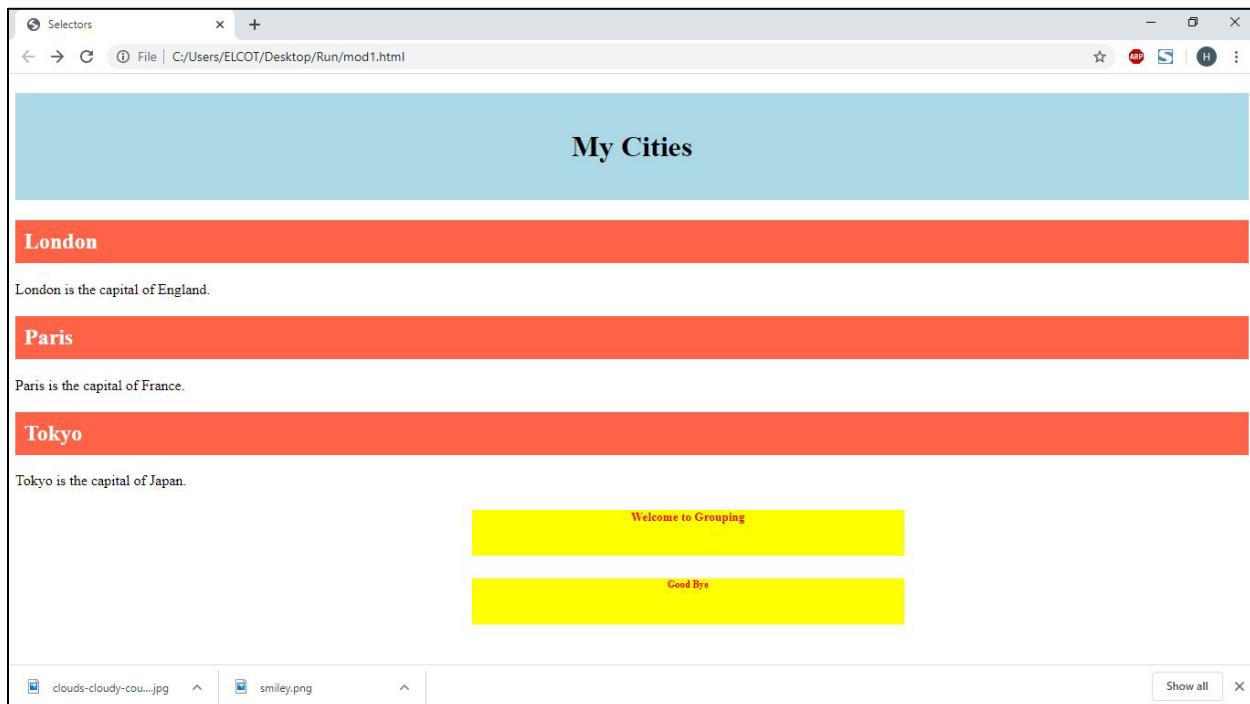
</html>
```

```
color: white;  
padding: 10px;  
}  
/* Style all elements with the Group name "h5,h6" */  
  
h5,h6{  
margin-left: 500px;  
color: red;  
background-color: yellow;  
width: 35%;  
height: 50px;  
text-align: center;  
}  
</style>  
</head>      <!-- Document Head Ends -->  
<body>        <!-- Document Body Starts -->  
    <!-- A unique element -->  
    <h1 id="myHeader">My Cities</h1>  
    <!-- Multiple similar elements -->  
    <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>
<h5>Welcome to Grouping</h5>
<h6>Good Bye</h6>
</body>      <!-- Document Body Ends -->
</html>
```

Output/Results snippet:

A simple HTML webpage with the body CSS Selectors.



References:

- HTML Introduction - https://www.w3schools.com/html/html_intro.asp

Activity 28

Aim: Create CSS document with fonts: Bold, Italics, oblique

Learning outcome: Able to create Styles of web pages using CSS.

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Linux OS - Ubuntu 18.04 LTS
2. Editor (Default GEDIT) and a Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

    <head>          <!-- Document Head Starts -->

        <title> Fonts</title>

        <style>

            /* Style all elements with the paragraph class name "p.a,p.b,p.c" */

            p.a { font-style: bolder; }

            p.b { font-style: italic; }

            p.c { font-style: oblique; }

        </style>

    </head>          <!-- Document Head Ends -->

    <body>          <!-- Document Body Starts -->

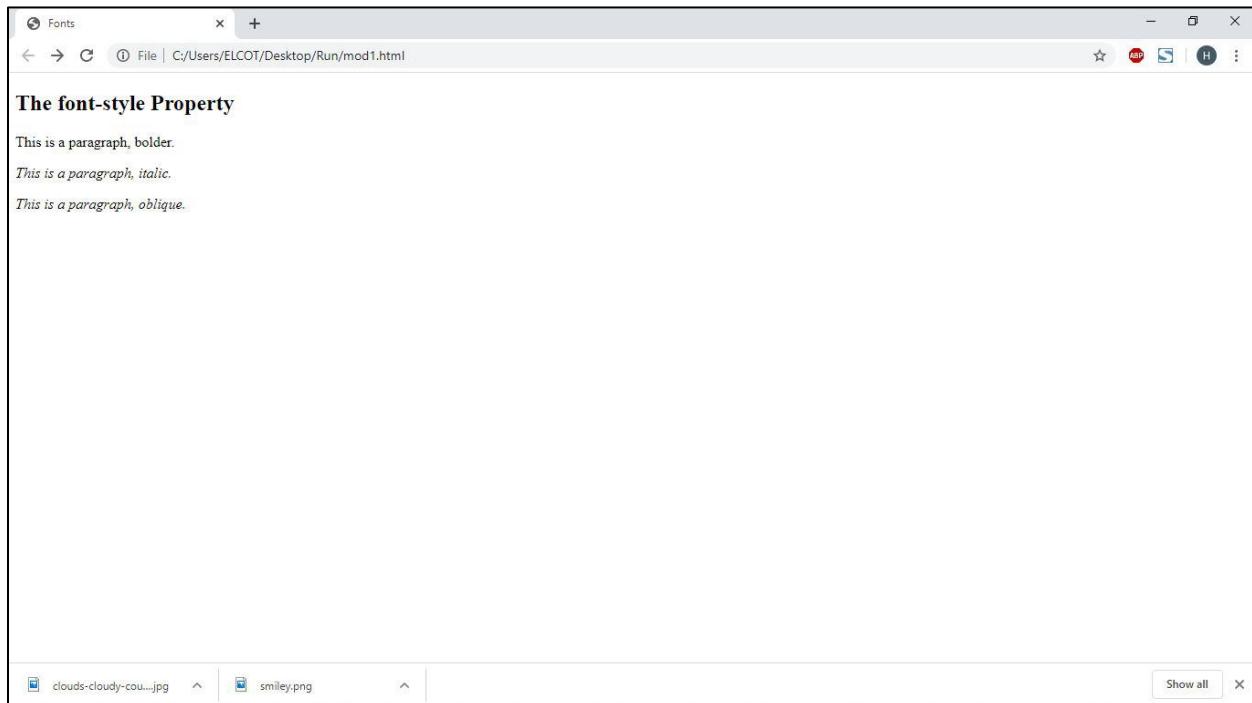
        <h2>The font-style Property</h2>  <!--This is Heading-->

        <p class="a">This is a paragraph, bolder.</p>      <!--Paragraph
Element with bolder-->
```

```
<p class="b">This is a paragraph, italic.</p>           <!--Paragraph  
Element with Italic-->  
  
<p class="c">This is a paragraph, oblique.</p>          <!--Paragraph  
Element with oblique -->  
  
</body>      <!-- Document Body Ends -->  
  
</html>
```

Output/Results snippet:

A simple HTML webpage with the body CSS Fonts.



References:

- HTML Introduction - https://www.w3schools.com/html/html_intro.asp

Activity 29

Aim: Design Style sheet document with text transformation: Uppercase, Lowercase and capitalize

Learning outcome: Able to create style of web pages using CSS.

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Linux OS - Ubuntu 18.04 LTS
2. Editor (Default Gedit or any other) and a Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

  <head>

    <style>

      /* Style the element with the class "a" */

      div.a {

        text-transform: uppercase;

      }

      /* Style the element with the class "b" */

      div.b {

        text-transform: lowercase;

      }

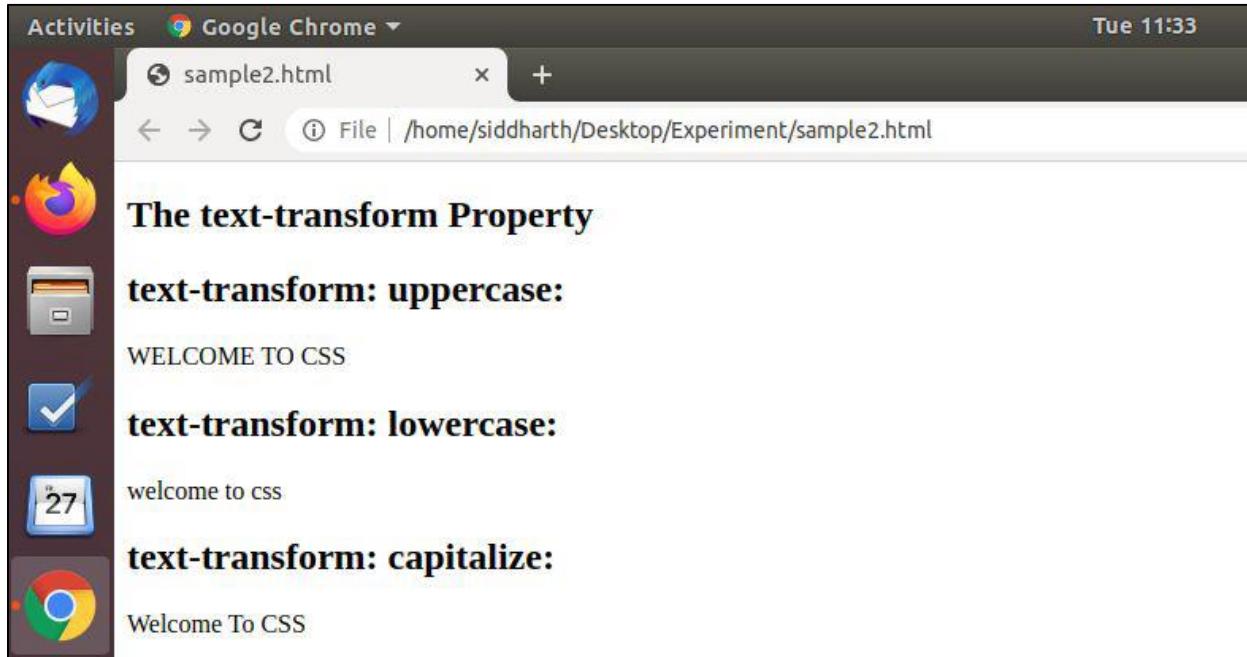
      /* Style the element with the class "c" */

      div.c {
```

```
text-transform: capitalize;  
}  
  
</style>  
</head>  
<body>  
  <h2>The text-transform Property</h2>  
  <h2>text-transform: uppercase;</h2>  
  <div class="a">Welcome to CSS</div>  
  <h2>text-transform: lowercase;</h2>  
  <div class="b">Welcome to CSS</div>  
  <h2>text-transform: capitalize;</h2>  
  <div class="c">Welcome to CSS</div>  
</body>  
</html>
```

Output/Results snippet:

A Page with all the div has applied CSS

**References:**

- https://www.w3schools.com/html/html_intro.asp
- <https://www.tutorialspoint.com/css/index.htm>
- <https://www.javatpoint.com/css-tutorial>

Activity 30

Aim: Create CSS document with font size in different pixels

Learning outcome: Able to create style of web pages using CSS.

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Linux OS - Ubuntu 18.04 LTS
2. Editor (Default Gedit) and a Browser

Code/Program/Procedure (with comments):

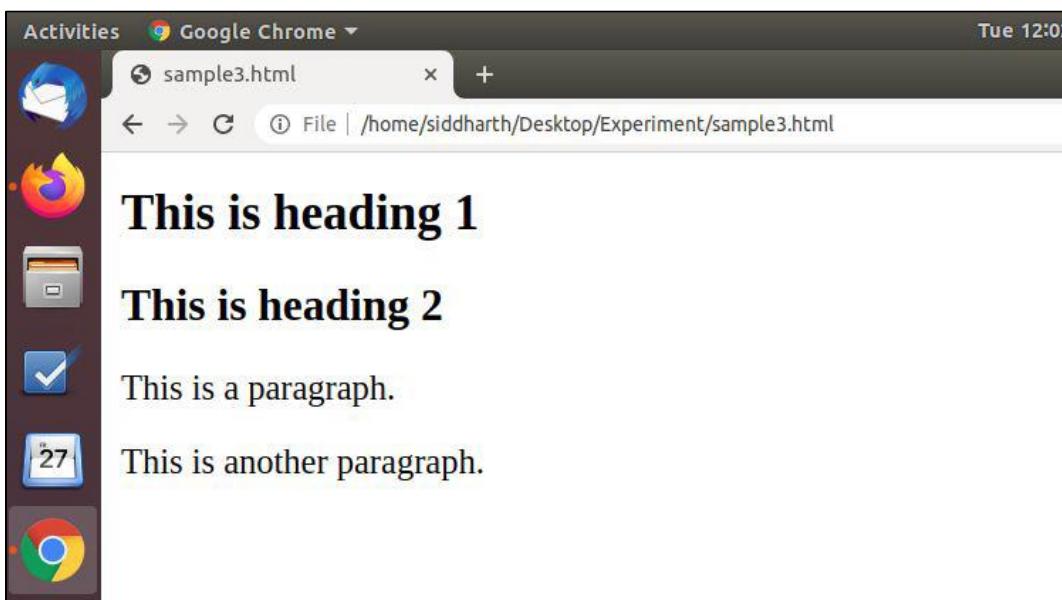
```
<!DOCTYPE html>

<html>
  <head>
    <style>
      /*setting the font size of the heading tag h1*/
      h1 {
        font-size: 20px;
      }
      /*setting the font size of the heading tag h2*/
      h2 {
        font-size: 18px;
      }
      /*setting the font size of the paragraph*/
      p {
        font-size: 14px;
      }
    </style>
  </head>
  <body>
    <h1>Hello World</h1>
    <h2>This is a heading</h2>
    <p>This is a paragraph</p>
  </body>
</html>
```

```
        }  
  
</style>  
  
</head>  
  
<body>  
  
    <h1>This is heading 1</h1>  
  
    <h2>This is heading 2</h2>  
  
    <p>This is a paragraph.</p>  
  
    <p>This is another paragraph.</p>  
  
</body>  
  
</html>
```

Output/Results snippet

Applied CSS on heading and paragraph.



References:

- https://www.w3schools.com/html/html_intro.asp
- <https://www.tutorialspoint.com/css/index.htm>
- <https://www.javatpoint.com/css-tutorial>

Activity 31

Aim: Create CSS document with font weight thinner, thicker, bold

Learning outcome: Able to create style of web pages using CSS.

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Linux OS - Ubuntu 18.04 LTS
2. Editor (Default GEDIT) and a Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

  <head>

    <style>

      /*setting the font weight of the paragraph of class ".normal"*/
      p.normal {
        font-weight: normal;
      }

      /*setting the font weight of the paragraph of class ".light"*/
      p.light {
        font-weight: lighter;
      }

      /*setting the font weight of the paragraph of class ".thick"*/
      p.thick {
        font-weight: bold;
      }

    </style>
  </head>
  <body>
    <p class="normal">Normal Text</p>
    <p class="light">Light Text</p>
    <p class="thick">Thick Text</p>
  </body>
</html>
```

```
/*setting the font weight of the paragraph of class ".thicker"*/
p.thicker {
    font-weight: 900; }

</style>

</head>

<body>

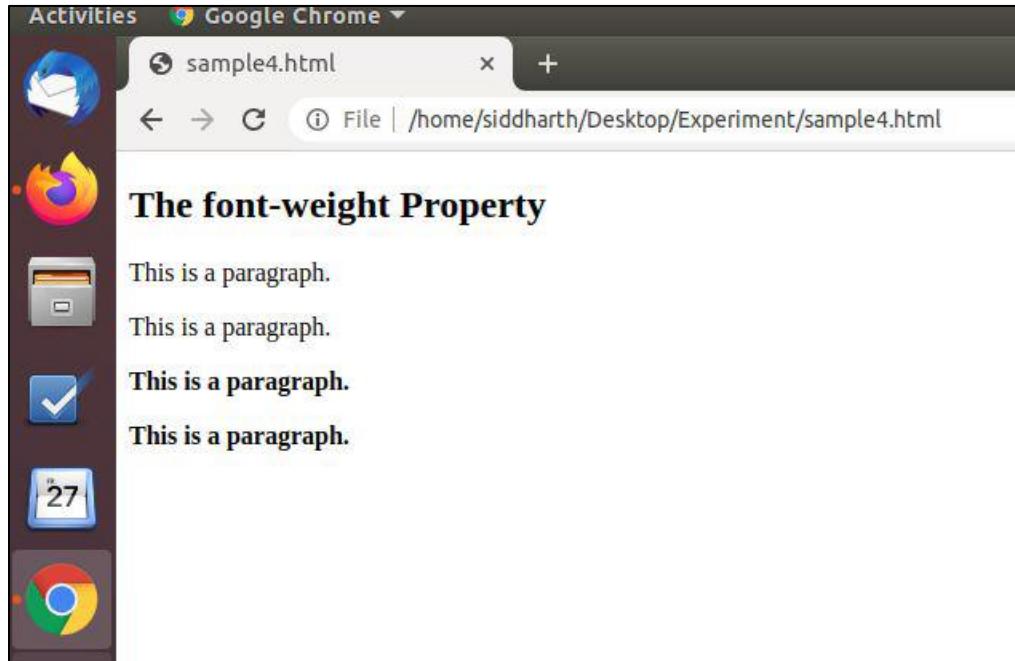
<h2>The font-weight Property</h2>

<p class="normal">This is a paragraph.</p>
<p class="light">This is a paragraph.</p>
<p class="thick">This is a paragraph.</p>
<p class="thicker">This is a paragraph.</p>

</body>

</html>
```

Output/Results snippet



References:

- https://www.w3schools.com/html/html_intro.asp
- <https://www.tutorialspoint.com/css/index.htm>
- <https://www.javatpoint.com/css-tutorial>

Activity 32

Aim: Create CSS document with alignment center, right and left

Learning outcome: Able to create style of web pages using CSS.

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Linux OS - Ubuntu 18.04 LTS
2. Editor (default Gedit) and a Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>
  <head>
    <style>
      /*setting the alignment of the div of class ".a"*/
      div.a {
        text-align: center;
      }
      /*setting the alignment of the div of class ".b"*/
      div.b {
        text-align: left;
      }
      /*setting the alignment of the div of class ".c"*/
      div.c {
        text-align: right;
      }
    </style>
  </head>
  <body>
    <div class="a">center</div>
    <div class="b">left</div>
    <div class="c">right</div>
  </body>
</html>
```

```
}

/*setting the alignment of the div of class ".d"*/

div.d {

    text-align: justify;

}

</style>

</head>

<body>

<h2>The text-align Property</h2>

<div class="a">

    <h2>text-align: center;</h2>

    <p>Welcome to alignment Welcome to alignment Welcome to
    alignment Welcome to alignment</p>

</div>

<div class="b">

    <h2>text-align: left;</h2>

    <p>Welcome to alignment Welcome to alignment Welcome to
    alignment Welcome to alignment</p>

</div>

<div class="c">

    <h2>text-align: right;</h2>

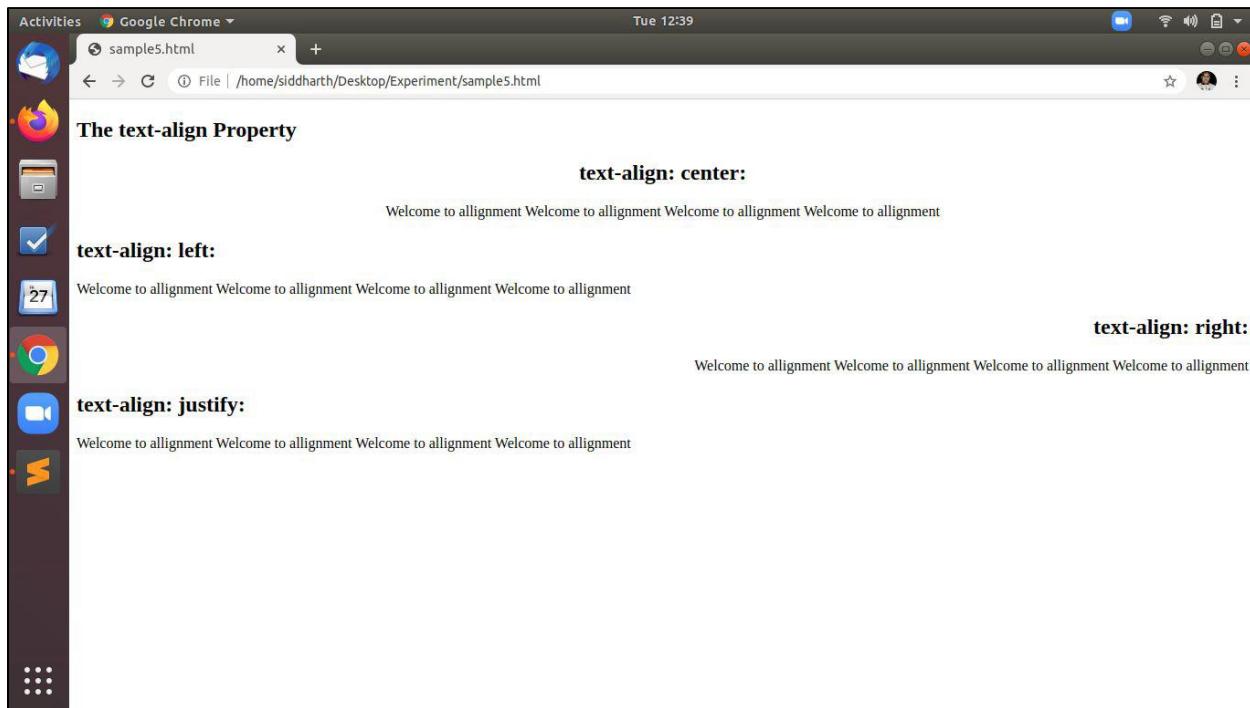
    <p>Welcome to alignment Welcome to alignment Welcome to
    alignment Welcome to alignment</p>

</div>
```

```
<div class="d">  
  <h2>text-align: justify;</h2>  
  
  <p>Welcome to alignment Welcome to alignment Welcome to  
  alignment Welcome to alignment</p>  
  </div>  
  
</body>  
  
</html>
```

Output/Results snippet

Alignment of the divisions with text-align property.



References:

- https://www.w3schools.com/html/html_intro.asp
- <https://www.tutorialspoint.com/css/index.htm>
- <https://www.javatpoint.com/css-tutorial>

Activity 33

Aim: Create CSS document with background colors and font colors

Learning outcome: Able to create style of web pages using CSS.

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Linux OS - Ubuntu 18.04 LTS
2. Editor (Default GEDIT) with a Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>
  <head>
    <style>
      /*setting the background color of body */
      body {
        background-color: #fefbd8; }

      /*setting the background color of heading and also change its color */
      h1 {
        background-color: #80ced6;
        color: #006699; }

      /*changing the background color of division with its color */
      div {
        background-color: #d5f4e6;
```

```
        color: #4CAF50; }

/*setting the background color of span tag */

span {

    background-color: #f18973; }

</style>

</head>

<body>

<h1>Background Color</h1>

<div>Set a background color for a div element.</div>

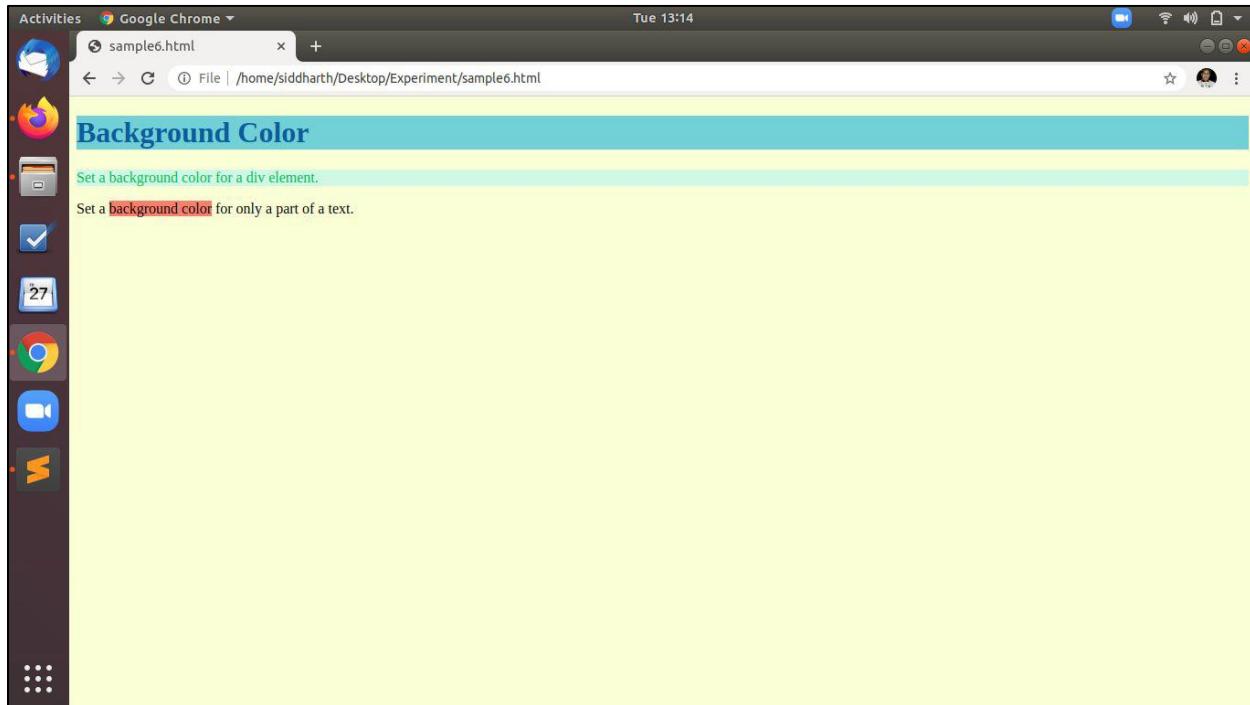
<p>Set a <span>background color</span> for only a part of a text.</p>

</body>

</html>
```

Output/Results snippet

Background color changes for heading, div and span.



References:

- https://www.w3schools.com/html/html_intro.asp
- <https://www.tutorialspoint.com/css/index.htm>
- <https://www.javatpoint.com/css-tutorial>

Activity 34

Aim: Create CSS document with text hovering

Learning outcome: Able to create style of web pages using CSS.

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Linux OS - Ubuntu 18.04 LTS
2. Editor (Default GEDIT) with a Browser

Code/Program/Procedure (with comments):

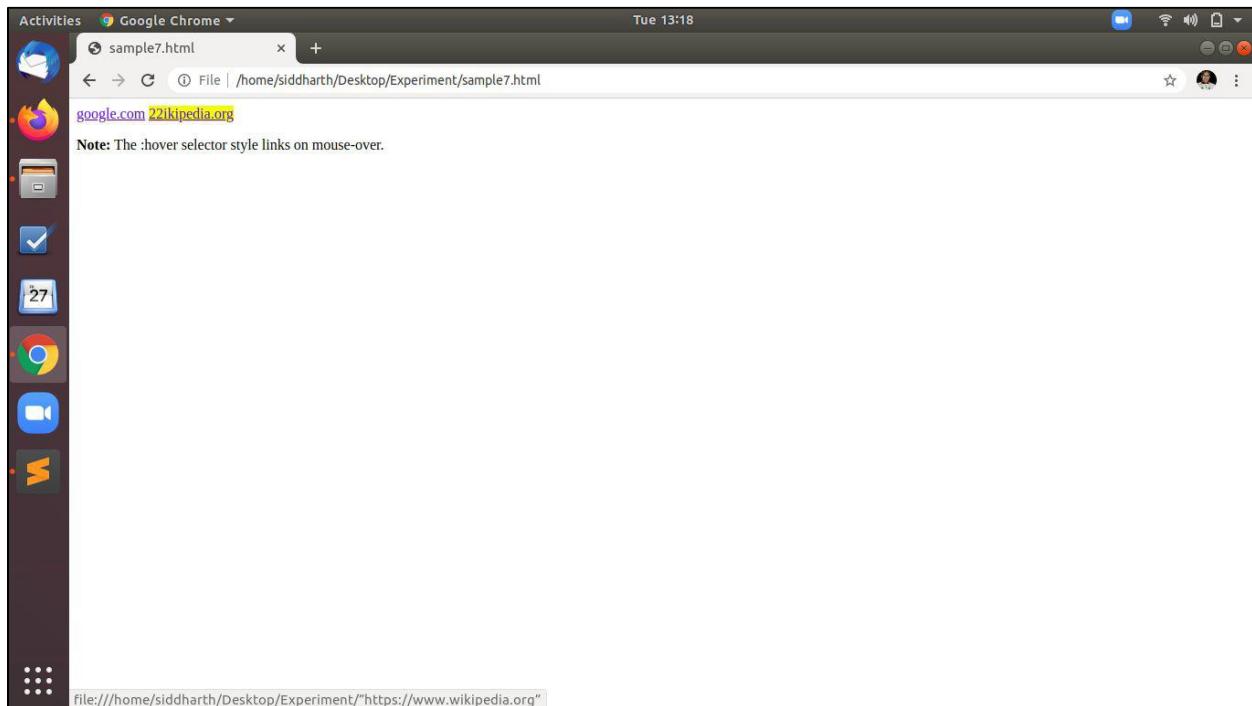
```
<!DOCTYPE html>

<html>

  <head>
    <style>
      /*setting the background color on hover of the mouse */
      a:hover {
        background-color: yellow;
      }
    </style>
  </head>
  <body>
    <a href="https://www.google.com">google.com</a>
    <a href="https://www.wikipedia.org">22ikipedia.org</a>
    <p><b>Note:</b> The :hover selector style links on mouse-over.</p>
  </body>
</html>
```

Output/Results snippet

A mouse occurs when a mouse pointer is above link.



References:

- https://www.w3schools.com/html/html_intro.asp
- <https://www.tutorialspoint.com/css/index.htm>
- <https://www.javatpoint.com/css-tutorial>

Activity 35

Aim: Create CSS document with text decoration

Learning outcome: Able to create style of web pages using CSS.

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Linux OS - Ubuntu 18.04 LTS
2. Editor (default gedit) with Browser

Code/Program/Procedure (with comments):

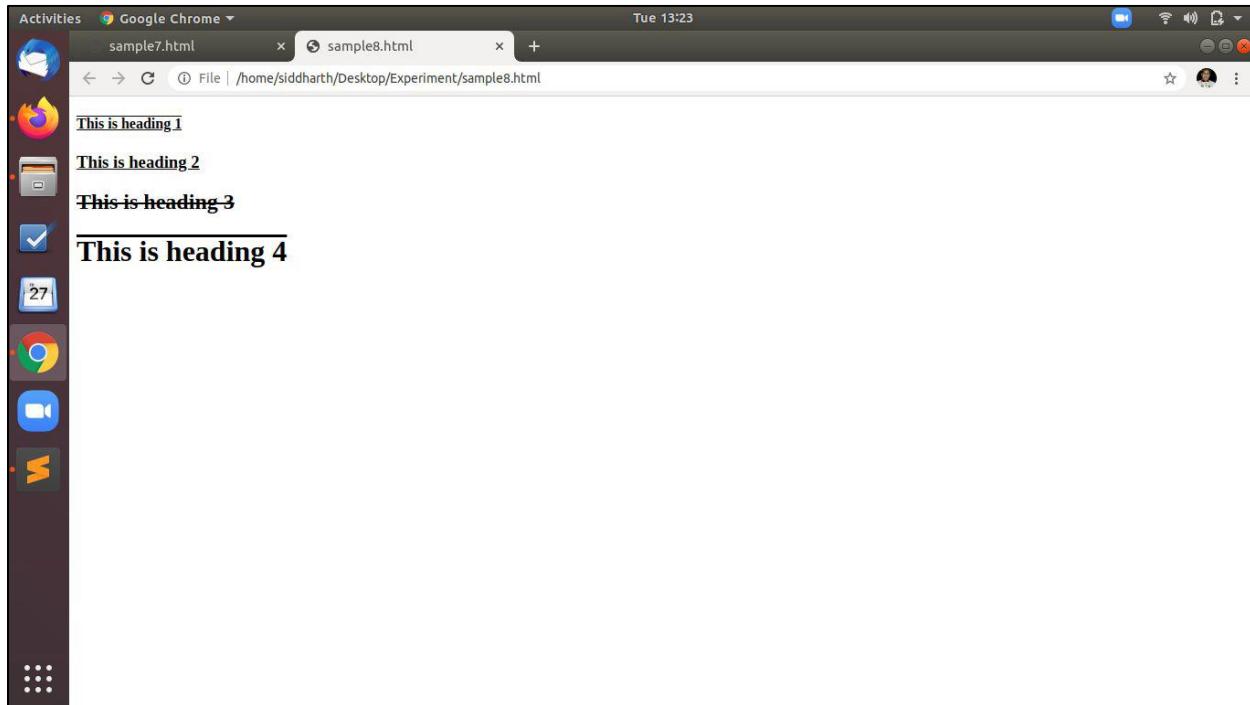
```
<!DOCTYPE html>

<html>
  <head>
    <style>
      /*setting the text decoration with overline property on h1 tag */
      h1 {
        text-decoration: overline;
      }
      /*setting the text decoration with line-through property on h2 tag */
      h2 {
        text-decoration: line-through;
      }
      /*setting the text decoration with underline property on h3 tag */
      h3 {
        text-decoration: underline;
      }
    </style>
  </head>
  <body>
    <h1>Hello</h1>
    <h2>World</h2>
    <h3>Ubuntu</h3>
  </body>
</html>
```

```
/*setting the text decoration with overline & underline property on h4 tag */  
h4 {  
    text-decoration: underline overline; }  
</style>  
</head>  
<body>  
    <h4>This is heading 1</h4>  
    <h3>This is heading 2</h3>  
    <h2>This is heading 3</h2>  
    <h1>This is heading 4</h1>  
</body>  
</html>
```

Output/Results snippet

Decorate heading with line-through property.



References:

- https://www.w3schools.com/html/html_intro.asp
- <https://www.tutorialspoint.com/css/index.htm>
- <https://www.javatpoint.com/css-tutorial>

Activity 36

Aim: Create CSS document with block elements and objects

Learning outcome: Able to create style of web pages using CSS.

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Linux OS - Ubuntu 18.04 LTS
2. Editor (Default Gedit or any other) and a Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

  <body>

    <div>Hello</div>

    <div>World</div>

    <p>The DIV element is a block element, and will start on a new line.</p>

    <span>Hello</span>

    <span>World</span>

    <p>The SPAN element is an inline element, and will not start on a new
line.</p>

    <!-- setting the style i.e background color , color , padding with inline css
-->

    <div style="background-color: black; color: white; padding:20px;">

      <h2>London</h2>
```

```
<p>London is the capital city of England. It is the most populous city in the United Kingdom, with a metropolitan area of over 13 million inhabitants.</p>
```

```
<p>Standing on the River Thames, London has been a major settlement for two millennia.</p>
```

```
</div>
```

```
<!-- setting the style i.e color with inline css -->
```

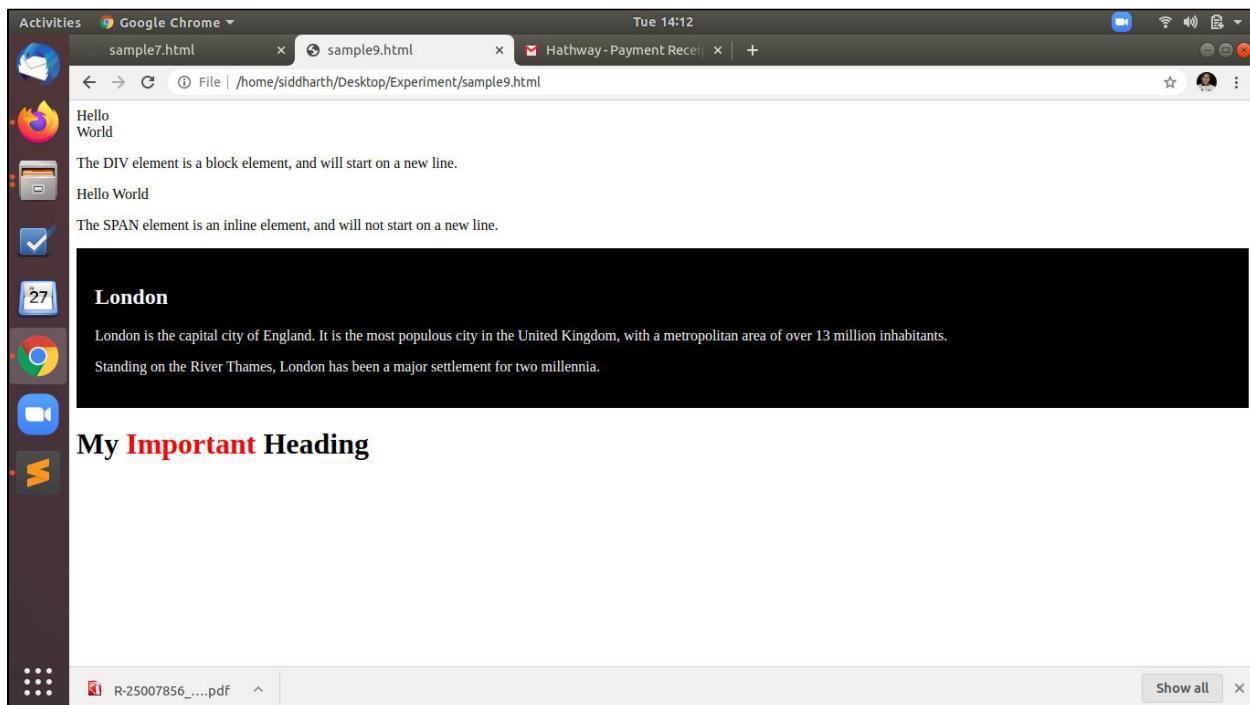
```
<h1>My <span style="color:red">Important</span> Heading</h1>
```

```
</body>
```

```
</html>
```

Output/Results snippet

Design of a web page using div , span and CSS.



References:

- https://www.w3schools.com/html/html_intro.asp
- <https://www.tutorialspoint.com/css/index.htm>
- <https://www.javatpoint.com/css-tutorial>

Activity 37

Aim: Create Lists and Tables

Learning outcome: Able to create style of web pages using CSS.

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Linux OS - Ubuntu 18.04 LTS
2. Editor (Default Gedit or any other) and a Browser

Code/Program/Procedure (with comments):

```
<html>
  <head>
    <style>
      /*setting the list style type of class a */
      ul.a {
        list-style-type: circle;
      }
      /*setting the list style type of class b */
      ul.b {
        list-style-type: square;
      }
      /*setting the list style type of class c */
      ol.c {
        list-style-type: upper-roman;
      }
    </style>
  </head>
  <body>
    <ul class="a">
      <li>List Item 1</li>
      <li>List Item 2</li>
    </ul>
    <ul class="b">
      <li>List Item 1</li>
      <li>List Item 2</li>
    </ul>
    <ol class="c">
      <li>List Item 1</li>
      <li>List Item 2</li>
    </ol>
  </body>
</html>
```

```
/*setting the list style type of class d */
ol.d {
    list-style-type: lower-alpha;
}

/*setting the border collapse and width of table */
table {
    border-collapse: collapse;
    width: 100%;
}

/*setting alignment and padding of table heading and table data */
th, td {
    text-align: left;
    padding: 8px;
}

/*setting the background color property of table row */
tr:nth-child(even) {background-color: #f2f2f2; }

</style>
</head>
<body>
    <p>Example of unordered lists:</p>
    <ul class="a">
        <li>Coffee</li>
        <li>Tea</li>
    
```

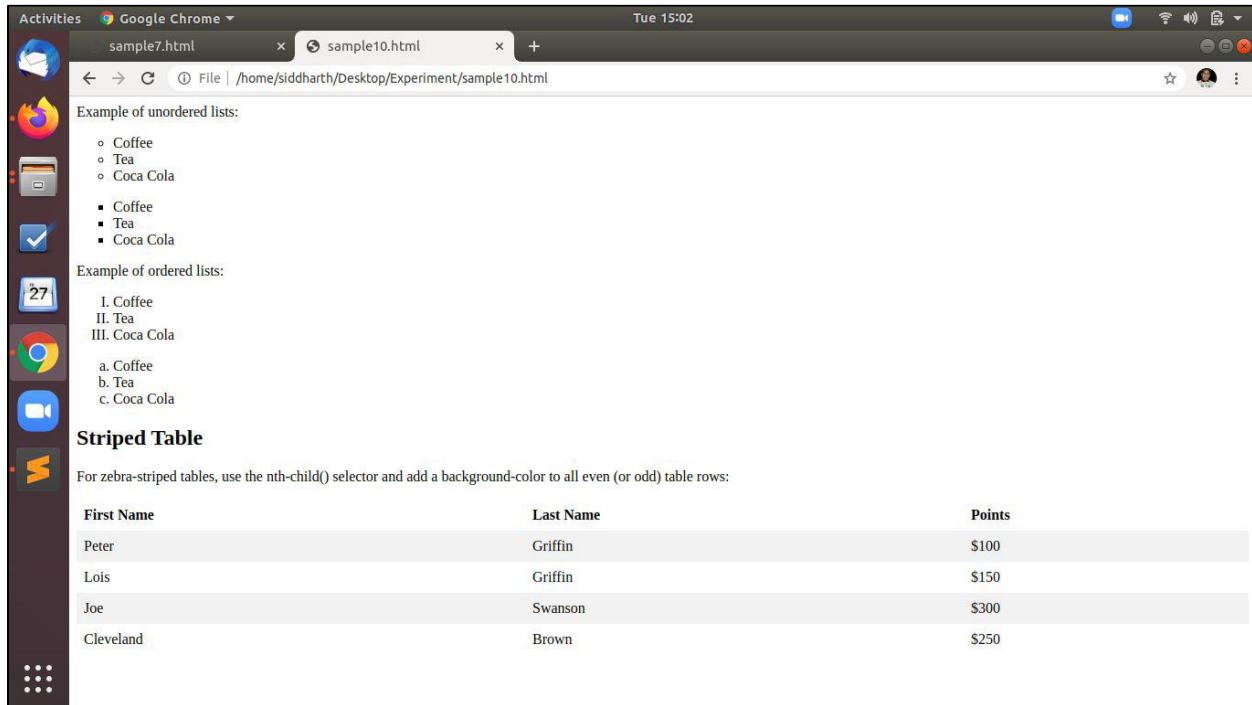
```
<li>Coca Cola</li>
</ul>
<ul class="b">
    <li>Coffee</li>
    <li>Tea</li>
    <li>Coca Cola</li>
</ul>
<p>Example of ordered lists:</p>
<ol class="c">
    <li>Coffee</li>
    <li>Tea</li>
    <li>Coca Cola</li>
</ol>
<ol class="d">
    <li>Coffee</li>
    <li>Tea</li>
    <li>Coca Cola</li>
</ol>
<h2>Striped Table</h2>
<p>For zebra-striped tables, use the nth-child() selector and add a background-color to all even (or odd) table rows:</p>
<table>
    <tr>
        <th>First Name</th>
```

Last Name	Points
Peter	Griffin
Lois	Griffin
Joe	Swanson
Cleveland	Brown

```
</table>  
</body>  
</html>
```

Output/Results snippet

Designing of List and Tables using CSS.



References:

- https://www.w3schools.com/html/html_intro.asp
- <https://www.tutorialspoint.com/css/index.htm>
- <https://www.javatpoint.com/css-tutorial>

Activity 38

Aim: Create Box Model by using borders, Padding and Margin

Learning outcome: Able to create style of web pages using CSS.

Duration: 1 hour

List of Hardware/Software requirements:

3. Laptop/Computer with Linux OS - Ubuntu 18.04 LTS
4. Editor (Default Gedit or any other) and a Browser

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html>

  <head>

    <style>

      /*setting border padding and margin property */

      div {

        background-color: lightgrey;

        width: 300px;

        border: 25px solid green;

        padding: 25px;

        margin: 25px; }

    </style>

  </head>

  <body>

    <h2>Demonstrating the Box Model</h2>
```

```
<p>The CSS box model is essentially a box that wraps around every
HTML element. It consists of: borders, padding, margins, and the actual
content. </p>

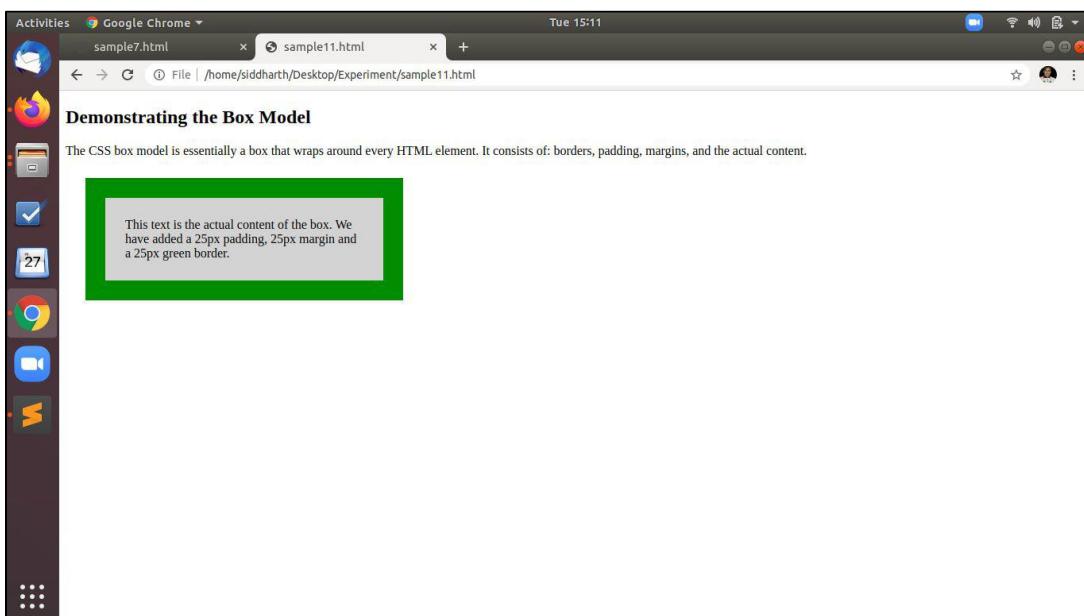
<div>This text is the actual content of the box. We have added a 25px
padding, 25px margin and a 25px green border. </div>

</body>

</html>
```

Output/Results snippet

Created a Box with border and color.



References:

- https://www.w3schools.com/html/html_intro.asp
- <https://www.tutorialspoint.com/css/index.htm>
- <https://www.javatpoint.com/css-tutorial>

Learning Outcome - After completing this module, the student should be able to understand JavaScript

To meet the learning outcome, a student has to complete the following activities

1. Write a JavaScript function that reverse a number. (30 mins)
2. Write a JavaScript function that returns a passed string with letters in alphabetical order. (30 mins)
3. Write a JavaScript function that accepts a string as a parameter and counts the number of vowels within the string. (1 hr)
4. Write a JavaScript function that accepts a string as a parameter and converts the first letter of each word of the string in upper case. (1 hr)
5. Write a JavaScript program to calculate number of days left until next Christmas. (1 hr)
6. Write a JavaScript conditional statement to find the sign of product of three numbers. Display an alert box with the specified sign.
Sample numbers : 3, -7, 2
Output : The sign is - (1 hr)
7. Write a simple JavaScript program to join all elements of the following array into a string.
Expected Output : "Red,Green,White,Black"
"Red,Green,White,Black"
"Red+Green+White+Black" (1 hr)
8. Write a JavaScript function to check whether an `input` is an array or not.(1 hr)
9. Write a JavaScript function to clone an array.
Test Data : [1, 2, 4, 0]
[1, 2, [4, 0]] (1 hr)
10. Write a JavaScript program to sort the items of an array.
Sample array : var arr1 = [3, 8, 7, 6, 5, -4, 3, 2, 1];

Sample Output : -4,-3,1,2,3,5,6,7,8 (1 hr)

11. Write a JavaScript program to display the colors in the following way :

Here is the sample array:

```
color = ["Blue ", "Green", "Red", "Orange", "Violet", "Indigo", "Yellow "];  
o = ["th", "st", "nd", "rd"]
```

Output : "1st choice is Blue ."

 "2nd choice is Green."

 "3rd choice is Red." (2 hr)

12. Create the following four functions in a separate JavaScript file. Also create a separate HTML file to test the functions.

- Create a function that uses an alert to display the hostname of the current URL when the button is clicked.
- Create a function to display a confirmation box with the message "Are you human?", and output what the user clicked
- Display a prompt box which asks the user for her/his name, store the user's response in person, and output a message; "Hello " + person + "! How are you today?
- Use the switch statement together with prompt () to execute a block of code based on user input. Click the button to display a dialog box which will ask for the user's favourite drink. (3 Hrs)

13. Write a JavaScript function to remove specified number of characters from a string.

(1 Hr)

14. Develop and demonstrate a HTML5 file that includes JavaScript script that uses functions for the following problems:

a. Parameter: A string

Output: The position in the string of the left-most vowel

b. Parameter: A number

Output: The number with its digits in the reverse order (2 Hrs)

15. Write a JavaScript code that displays text "TEXT-GROWING" with increasing font size in the interval of 100ms in RED COLOR, when the font size reaches 50pt it displays "TEXT-SHRINKING" in BLUE color. Then the font size decreases to 5pt. (3 Hrs)

16. Create a Tip Calculator as a single page web application (SPA). Design an interface that allows you to enter the amount of the tip. The percentage you would like to tip, and the

number of people to split the tip with. Do not use 3 text input elements! Calculate and dynamically display the tip. (3 Hrs)

17. Write a JavaScript function to validate whether a given value is object or not. (1 Hr)
18. Write a JavaScript function to validate whether a given value type is pure json object or not. (1 Hr)
19. Write a JavaScript program to count number of words in string.
Note :
Remove white-space from start and end position.
Convert 2 or more spaces to 1.
Exclude newline with a start spacing. (3 Hrs)
20. Write a JavaScript function to check a given value contains alpha, dash and underscore. (1 Hr)
21. Write a JavaScript function to check whether a given value represents a domain or not.
Write a JavaScript function to check whether a given value is html or not. (1 Hr)

Activity 1

Aim: Write a JavaScript function that reverse a number.

Learning outcome: Able to understand JavaScript

Duration: 30 min

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta http-equiv="X-UA-Compatible" content="IE=edge">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Program 1</title>

</head>

<body>

<input type="number" id="input_number" placeholder="Enter the number">

<input type="button" value="Find" id="input_button" >

<script>
```

```
//with build in function

function findReverse(){

    let number = Number(document.getElementById("input_number").value);

    let reverse = Number(String(number).split("").reverse().join(""));

    alert("Reverse : "+reverse);

}

let button=document.getElementById("input_button");

button.onclick=findReverse;

//without build in funtion

let rev = 0;

let num = 123456;

let lastDigit;

while(num != 0){
```

```
lastDigit = num % 10;  
  
rev = rev * 10 + lastDigit;  
  
num = Math.floor(num/10);  
  
}  
  
  
console.log("Reverse number : "+rev);  
  
</script>  
  
</body>  
  
</html>
```

Output:

Reverse number : 654321

Activity 2

Aim: Write a JavaScript function that returns a passed string with letters in alphabetical order.

Learning outcome: Able to understand JavaScript

Duration: 30 min

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <meta http-equiv="X-UA-Compatible" content="IE=edge">

  <meta name="viewport" content="width=device-width, initial-scale=1.0">

  <title>Program 2</title>

</head>

<body>

  <script>

    function alpha(str) {

      var arr = str.split(""); // splits the string
```

```
res = arr.sort().join(""); // sort the array and joins to form a string

return res; // returns the result

}

console.log("taking geeksforgeeks as a string");

console.log(alpha("geeksforgeeks"));

</script>

</body>

</html>
```

Output:

taking geeksforgeeks as a string

eeeefggkkorss

taking geeksforgeeks as a string

eeeefggkkorss

Activity 3

Aim: Write a JavaScript function that accepts a string as a parameter and counts the number of vowels within the string.

Learning outcome: Able to understand JavaScript

Duration: 1 Hr

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta http-equiv="X-UA-Compatible" content="IE=edge">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Program 1</title>

</head>

<body>

    <script>

        function vowel_count(str1)

    {
```

```
var vowel_list = 'aeiouAEIOU';

var vcount = 0;

for(var x = 0; x < str1.length ; x++)

{

if (vowel_list.indexOf(str1[x]) !== -1)

{

vcount += 1;

}

}

return vcount;

}

console.log(vowel_count("The quick brown fox"));

</script>

</body>

</html>
```

Output:

Activity 4

Aim: Write a JavaScript function that accepts a string as a parameter and converts the first letter of each word of the string in upper case.

Learning outcome: Able to understand JavaScript

Duration: 1 Hrs

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta http-equiv="X-UA-Compatible" content="IE=edge">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Program 1</title>

</head>

<body>

<script>
```

```
function uppercase(str){  
    var array1 = str.split(' ');\n    var newarray1 = [];\n    for(var x = 0; x < array1.length; x++){\n        newarray1.push(array1[x].charAt(0).toUpperCase()+array1[x].slice(1));\n    }\n    return newarray1.join(' ');\n}  
console.log(uppercase("the quick brown fox"));  
</script>  
</body>  
</html>
```

Output

The Quick Brown Fox

Activity 5

Aim: Write a JavaScript program to calculate number of days left until next Christmas.

Learning outcome: Able to understand JavaScript

Duration: 1 Hr

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta http-equiv="X-UA-Compatible" content="IE=edge">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Program 1</title>

</head>

<body>

    <script>

        today=new Date();

    </script>

</body>

</html>
```

```
var cmas=new Date(today.getFullYear(), 11, 25);

if (today.getMonth()==11 && today.getDate()>25)

{

cmas.setFullYear(cmas.getFullYear()+1);

}

var one_day=1000*60*60*24;

console.log(Math.ceil((cmas.getTime()-today.getTime())/(one_day))+

" days left until Christmas!");

</script>

</body>

</html>
```

Output

294 days left until Christmas!

Activity 6

Aim: Write a JavaScript conditional statement to find the sign of product of three numbers. Display an alert box with the specified sign. Sample numbers: 3, -7, 2 Output: The sign is –

Learning outcome: Able to understand JavaScript

Duration: 1 hr

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta http-equiv="X-UA-Compatible" content="IE=edge">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Program 1</title>

</head>

<body>

<script>
```

```
var x=3;  
  
var y=-7;  
  
var z=2;  
  
if (x>0 && y>0 && z>0)  
  
{  
  
    alert("The sign is +");  
  
}  
  
else if (x<0 && y<0 && z<0)  
  
{  
  
    console.log("The sign is -");  
  
}  
  
else if (x>0 && y<0 && z<0)  
  
{  
  
    console.log("The sign is +");  
  
}  
  
else if (x<0 && y>0 && z<0)  
  
{  
  
    console.log("The sign is +");  
  
}  
  
else
```

```
{  
  console.log("The sign is -");  
}  
</script>  
</body>  
</html>
```

Output

The sign is –

Activity 7

Aim: Write a simple JavaScript program to join all elements of the following array into a string.

Expected Output : "Red,Green,White,Black" "Red,Green,White,Black"
"Red+Green+White+Black"

Learning outcome: Able to understand JavaScript

Duration: 1 hr

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta http-equiv="X-UA-Compatible" content="IE=edge">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Program 1</title>

</head>

<body>

<script>
```

```
myColor = ["Red", "Green", "White", "Black"];  
  
console.log(myColor.toString());  
  
console.log(myColor.join());  
  
console.log(myColor.join('+'));  
  
</script>  
  
</body>  
  
</html>
```

Output

Red,Green,White,Black
Red,Green,White,Black
Red+Green+White+Black

Activity 8

Aim: Write a JavaScript function to check whether an `input` is an array or not.

Learning outcome: Able to understand JavaScript

Duration: 1 Hrs

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta http-equiv="X-UA-Compatible" content="IE=edge">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Program 1</title>

</head>

<body>

<script>

var is_array = function(input) {

if (toString.call(input) === "[object Array]")

```

```
return true;

return false;

};

console.log(is_array('w3resource'));

console.log(is_array([1, 2, 4, 0]));

</script>

</body>

</html>
```

Output

False

True

Activity 9

Aim: Write a JavaScript function to clone an array. Test Data : [1, 2, 4, 0] [1, 2, [4, 0]]

Learning outcome: Able to understand JavaScript

Duration: 1 Hrs

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta http-equiv="X-UA-Compatible" content="IE=edge">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Program 1</title>

</head>

<body>

    <script>

        var array_Clone = function(arr1) {
```

```
return arra1.slice(0);

};

console.log(array_Clone([1, 2, 4, 0]));

console.log(array_Clone([1, 2, [4, 0]]));

</script>

</body>

</html>
```

Output

[1,2,4,0]

[1,2,[4,0]]

Activity 10

Aim: Write a JavaScript program to sort the items of an array. Sample array : var arr1 = [3, 8, 7, 6, 5, -4, 3, 2, 1]; Sample Output : -4,-3,1,2,3,5,6,7,8

Learning outcome: Able to understand JavaScript

Duration: 1 Hrs

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <meta http-equiv="X-UA-Compatible" content="IE=edge">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Program 1</title>

</head>

<body>

    <script>

        var arr1=[-3,8,7,6,5,-4,3,2,1];

    </script>

</body>

</html>
```

```
var arr2=[];

var min=arr1[0];

var pos;

var max=arr1[0];

for (i=0; i<arr1.length; i++)

{

    if (max<arr1[i]) max=arr1[i];

}

for (var i=0;i<arr1.length;i++)

{

    for (var j=0;j<arr1.length;j++)

    {

        if (arr1[j]!="x")

        {

            if (min>arr1[j])

            {

                min=arr1[j];

                pos=j;

            }

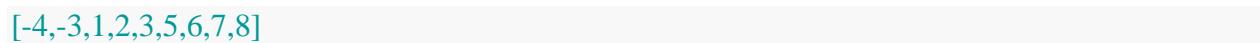
        }

    }

}
```

```
        }  
        }  
        arr2[i]=min;  
        arr1[pos]="x";  
        min=max;  
    }  
    console.log(arr2);  
    </script>  
</body>  
</html>
```

Output

 [-4,-3,1,2,3,5,6,7,8] 

Activity 11

Aim: Write a JavaScript program to display the colors in the following way : Here is the sample array: color = ["Blue ", "Green", "Red", "Orange", "Violet", "Indigo", "Yellow "]; = ["th","st","nd","rd"] Output "1st choice is Blue ." "2nd choice is Green." "3rd choice is Red."

Learning outcome: Able to understand JavaScript

Duration: 2 hr

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Code/Program/Procedure (with comments):

```
<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta http-equiv="X-UA-Compatible" content="IE=edge">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Program 1</title>

</head>

<body>

<script>

var color = ["Blue ", "Green", "Red", "Orange", "Violet", "Indigo", "Yellow "];
```

```
function Ordinal(n)

{
  var o = ["th", "st", "nd", "rd"],

  x = n%100;

  return x+(o[(x-20)%10]||o[x]||o[0]);
}

for(n = 0; n < color.length; n++){

  var ordinal = n + 1;

  var output = (Ordinal(ordinal) + " choice is " + color[n] + ".");

  console.log(output);
}

</script>

</body>

</html>
```

Output

1st choice is Blue .

2nd choice is Green.

3rd choice is Red.

4th choice is Orange.

5th choice is Violet.

6th choice is Indigo.

7th choice is Yellow .

Activity 12

Aim: Create the following four functions in a separate JavaScript file. Also create a separate HTML file to test the functions.

- a) Create a function that uses an alert to display the hostname of the current URL when the button is clicked.
- b) Create a function to display a confirmation box with the message "Are you human?", and output what the user clicked
- c) Display a prompt box which asks the user for her/his name, store the user's response in person, and output a message; "Hello " + person + "! How are you today?
- d) Use the switch statement together with prompt () to execute a block of code based on user input. Click the button to display a dialog box which will ask for the user's favourite drink.

Learning outcome: Able to understand JavaScript

Duration: 3 Hours

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Program:

```
<!DOCTYPE html>

<html lang="en">

<head>                                <! -- Document Head Starts -->

    <meta charset="UTF-8">

    <meta http-equiv="X-UA-Compatible" content="IE=edge">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>JS_Alert</title>

</head>                                <! -- Document Head Ends -->
```

```
<body>                                <! -- Document Body Starts -->

    <h1>The Window Object</h1>

    <h2>The alert() Method</h2>

    <p>Click the button to alert the hostname of the current URL.</p>    <!--Paragraph Element-->

        <button id="inp" style="color:red;font-weight: bold; border:2px solid blue;">Location</button>

        <script>                                //Javascript Starts

            function disp()  {

                window.alert(location.hostname);

                window.alert(location.pathname));

            }

            let button=document.getElementById("inp");

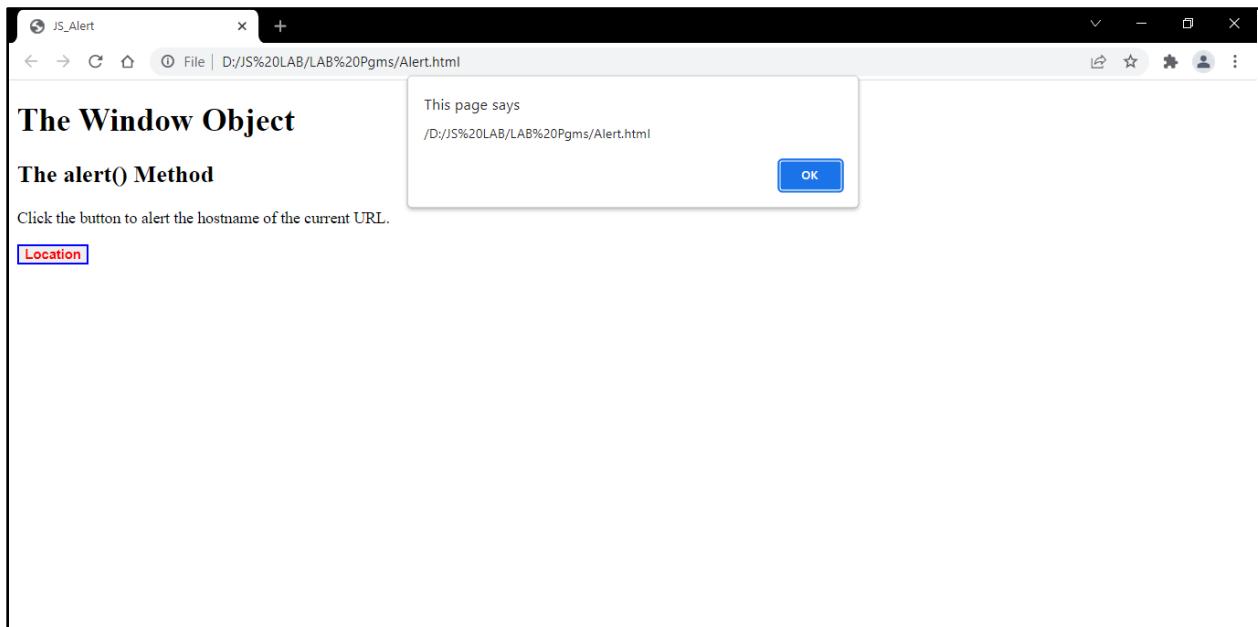
            button.onclick=disp;

        </script>                                //Javascript Ends

    </body>                                <! -- Document Body Ends -->

</html>
```

Output:



Program:

```
<!DOCTYPE html>

<html lang="en">

<head>                                <! -- Document Head Starts -->

    <meta charset="UTF-8">

    <meta http-equiv="X-UA-Compatible" content="IE=edge">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>JS_Confirm</title>

</head>                                <! -- Document Head Ends -->
```

```

<body>                                <! -- Document Body Starts -->

    <h1>The Window Object</h1>

    <h2>The confirm() Method</h2>

    <p>Click the button to display a confirm box</p> > <!--Paragraph Element-->

    <button id="inp" style="color:red;font-weight: bold;border:2px solid
blue;">Confirm</button>

    <p id="demo" style="background-color:yellow;color:red;display:inline;"></p>

    <script>                                //Javascript Starts

        function result()

        {

        let text;

        if (confirm("Press a button!")) == true) {

            text = "Are you Human?";

        } else

        {

            text = "You canceled!";

        }

        document.getElementById("demo").innerHTML = text;

    }

    let button=document.getElementById("inp");

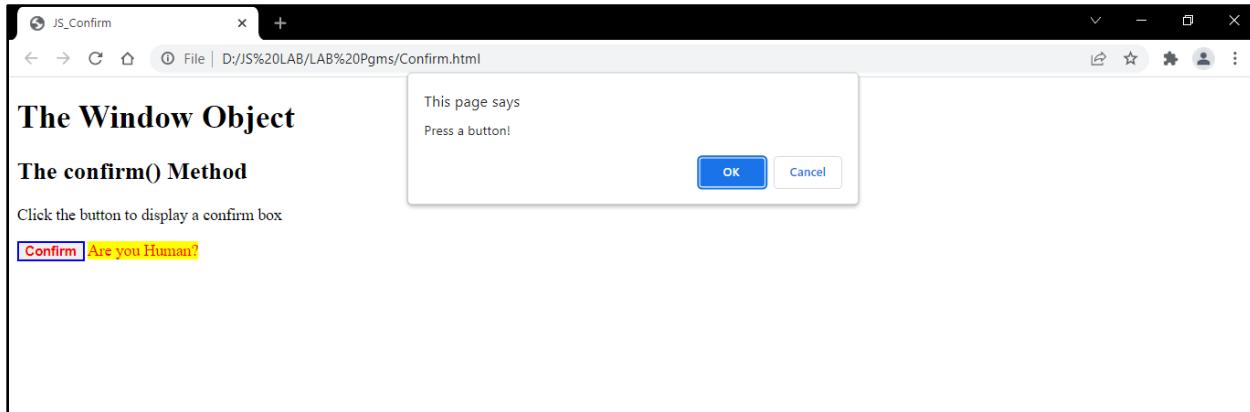
    button.onclick=result;

    </script>                                //Javascript Ends

</body>                                <! -- Document Body Ends -->

</html>

```

Output:**Program:**

```
<!DOCTYPE html>

<html lang="en">

<head>                                <!-- Document Head Starts -->

    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>JS_Prompt</title>

</head>                                <!-- Document Head Ends -->

<body>                                    <!-- Document Body Starts -->

    <h1>The Window Object</h1>
    <h2>The prompt() Method</h2>
    <p>Click the button to demonstrate the prompt box.</p>>  <!--Paragraph Element-->
```

```
<button id="inp" style="color:red;font-weight: bold; border:2px solid blue;">Click</button>

<p id="demo" style="background-color:yellow; color: red; display: inline;"></p>

<script>                                //Javascript Starts

function dispname()

{

let person = prompt("Please enter your name", "Harry");

if (person != null) {

    document.getElementById("demo").innerHTML = "Hello " + person + "! How are you today?";

}

}

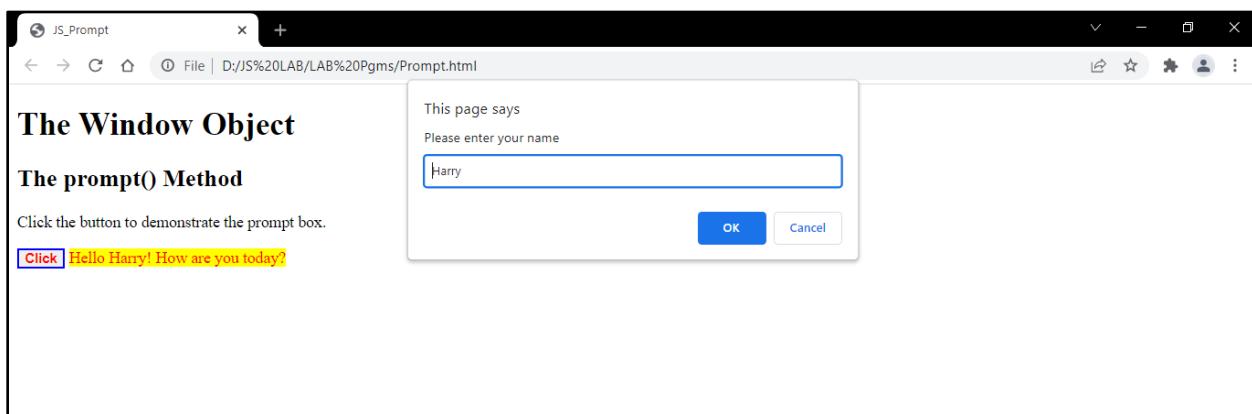
let button=document.getElementById("inp");

button.onclick=dispname;

</script>                                //Javascript Ends

</body>                                <! -- Document Body Ends -->

</html>
```

Output:

Program:

```
<!DOCTYPE html>

<html lang="en">

<head>                                <!-- Document Head Starts -->

    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>JS_SwitchPrompt</title>

</head>                                <!-- Document Head Ends -->

<body>                                <!-- Document Body Starts -->

    <h1>The Window Object</h1>
    <h2>The prompt() Method</h2>
    <p>Click the button to ask for your favorite drink</p>>  <!--Paragraph Element-->

    <button id="inp" style="color:red;font-weight: bold; border:2px solid blue;">Fav
Drink</button>

    <p id="demo" style="background-color:yellow; color:red; display:inline;"></p>

    <script>                                //JavaScript Starts

        function favdrink()
        {
            let text;
        }
    
```

```
let favDrink = prompt("What's your favorite drink?", "Coca-Cola");

switch(favDrink) {

    case "Coca-Cola":
        text = "Excellent choice. Coca-Cola is good for your soul.";
        break;

    case "7up":
        text = "7up is my favorite too!";
        break;

    case "Sprite":
        text = "Really? Are you sure the Sprite is your favorite?";
        break;

    default:
        text = "I have never heard of that one..";

}

document.getElementById("demo").innerHTML = text;

}

let button=document.getElementById("inp");

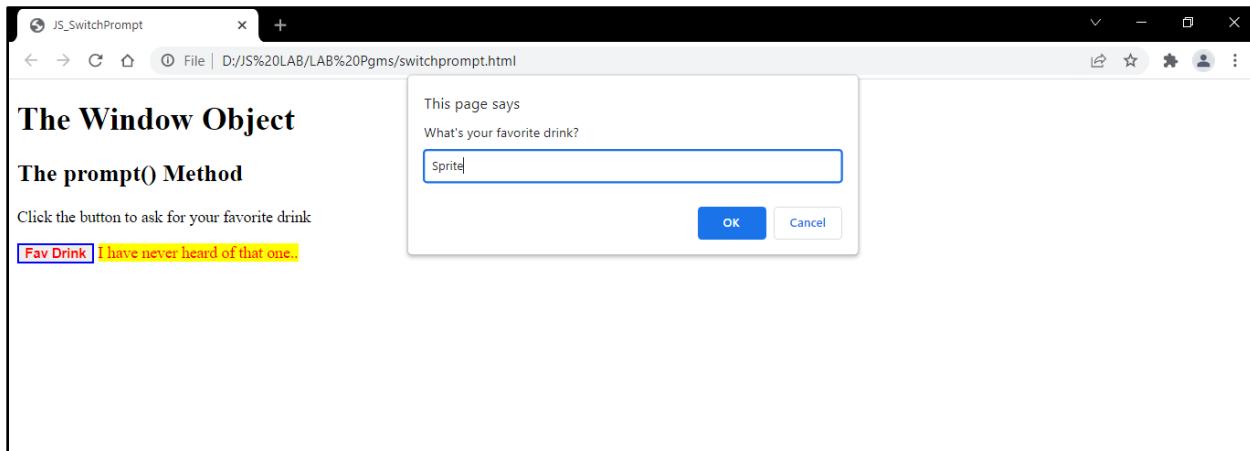
button.onclick=favdrink;

</script>                                //Javascript Ends

</body>                                     <! -- Document Body Ends -->

</html>
```

Output:



References:

- https://www.w3schools.com/jsref/met_win_alert.asp
- https://www.w3schools.com/jsref/met_win_prompt.asp

Activity 13

Aim: Write a JavaScript function to remove specified number of characters from a string.

Learning outcome: Able to understand JavaScript

Duration: 1 Hour

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Program:

```
<!DOCTYPE html>

<html lang="en">

<head>                                         <! -- Document Head Starts -->

    <meta charset="UTF-8">

    <meta http-equiv="X-UA-Compatible" content="IE=edge">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Remove Characters</title>

</head>                                         <! -- Document Head Ends -->

<body>                                         <! -- Document Body Starts -->

    <p>JavaScript function to remove specified number of characters from a string</p>>

    <!--Paragraph Element-->

<script>                                         //Javascript Starts

truncate_string = function (str1, length) {
```

```
if ((str1.constructor === String) && (length>0)) {  
    return str1.slice(0, length);  
}  
};  
  
var nofcar=4;  
  
document.write(truncate_string("Programming",nofcar));  
  
</script> //Javascript Ends  
  
</body> <!-- Document Body Ends -->  
  
</html>
```

Output:



References:

- <https://www.w3resource.com/javascript-exercises/javascript-string-exercise-4.php>

Activity 14

Aim: Develop and demonstrate a HTML5 file that includes JavaScript script that uses functions for the following problems:

- a. Parameter: A string

Output: The position in the string of the left-most vowel

- b. Parameter: A number

Output: The number with its digits in the reverse order

Learning outcome: Able to understand JavaScript

Duration: 2 Hours

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Program:

```
<!DOCTYPE html>

<html lang="en">

<head>                                <! -- Document Head Starts -->

    <meta charset="UTF-8">

    <meta http-equiv="X-UA-Compatible" content="IE=edge">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Demons-Number & String</title>

</head>                                <! -- Document Head Ends -->

<body>                                    <! -- Document Body Starts -->
```

<p style="color:blue;">Develop and demonstrate a HTML5 file that includes JavaScript script that uses functions for the following problems:

a. Parameter: A string

Output: The position in the string of the left-most vowel

b. Parameter: A number

</p>

```
<script>                                //Javascript Starts

var str = prompt("Enter the Input", "");

if(!(isNaN(str)))

{
    var num,rev=0,remainder;

    num = parseInt(str);

    while(num!=0) {

        remainder = num%10;

        num = parseInt(num/10);

        rev = rev * 10 + remainder;

    }

    alert("Reverse of "+str+" is "+rev);

}

else

{
    for(var i = 0; i<str.length; i++)

        if (str.charAt(i) =='a' || str.charAt(i) == 'e' || str.charAt(i) =='i'
```

```
|| str.charAt(i) == 'o' || str.charAt(i) == 'u' || str.charAt(i) == 'A' ||
str.charAt(i) == 'E' || str.charAt(i) == 'I' || str.charAt(i) == 'O' || str.charAt(i) == 'U')
{
    document.write("The entered string is:" +str+ "<br/>");

    document.write("The leftmost vowel is :" +str.charAt(i)+ "<br/>");

    var pos = i+1;

    document.write("The position of the leftmost vowel " +str.charAt(i)+ " is:" +pos+"\n");

    exit;
}

document.write("The entered string is:" + str + "<br/>");

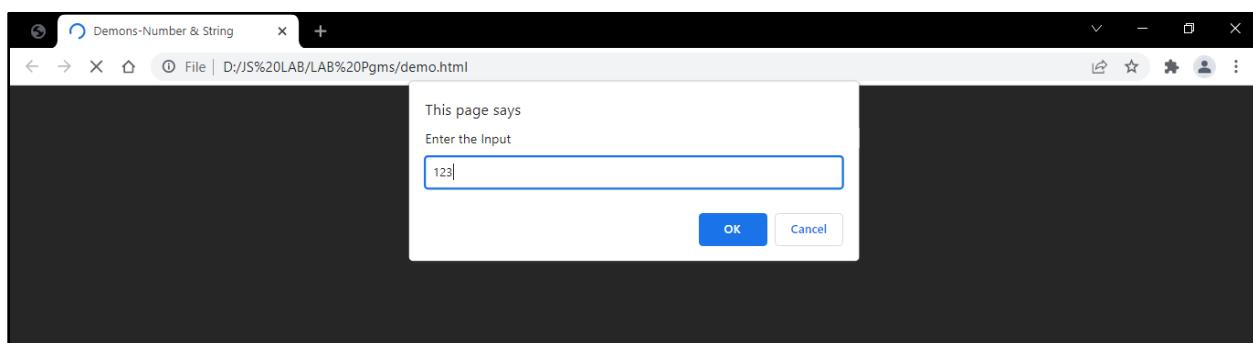
document.write("The entered string has no vowels");

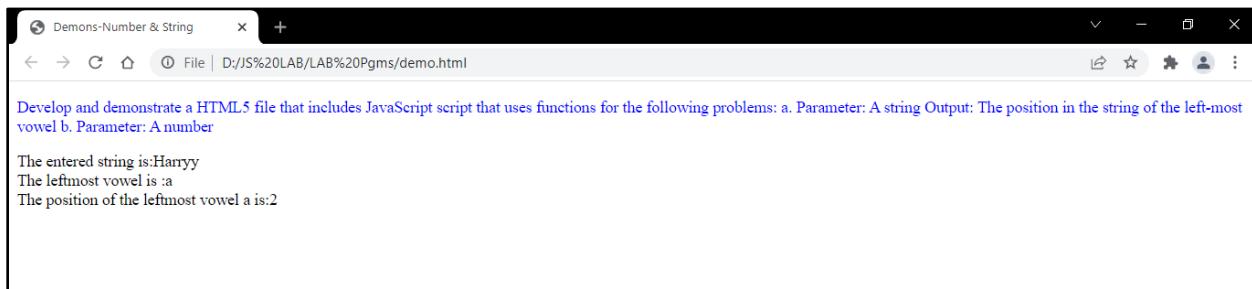
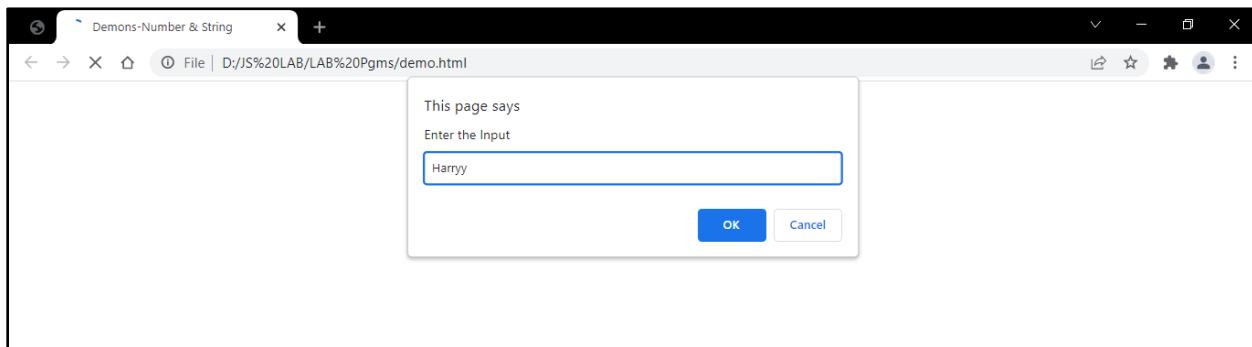
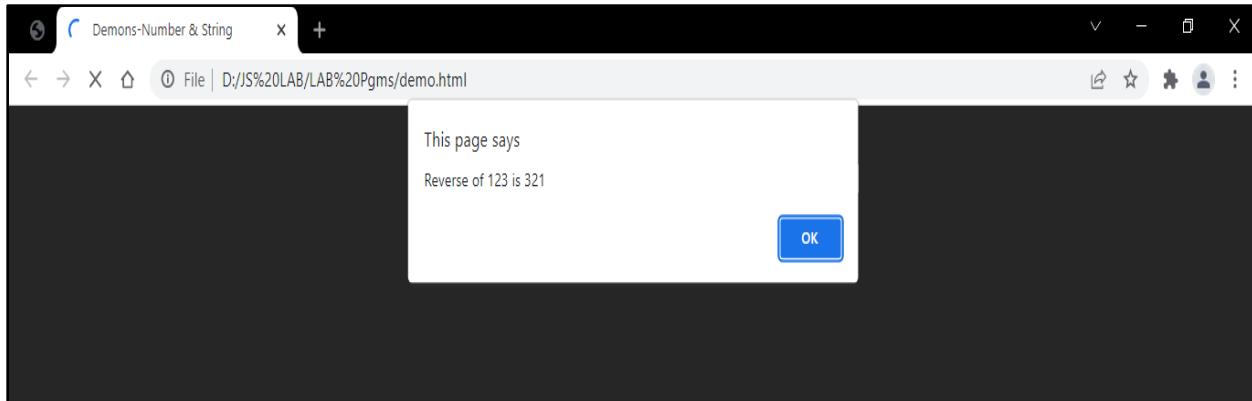
}

</script> //Javascript Ends

</body> <!-- Document Body Ends -->

</html>
```

Output:



References:

- <https://vtucselabs.blogspot.com/2019/08/wt4.html>

Activity 15

Aim: Write a JavaScript code that displays text “TEXT-GROWING” with increasing font size in the interval of 100ms in RED COLOR, when the font size reaches 50pt it displays “TEXT-SHRINKING” in BLUE color. Then the font size decreases to 5pt.

Learning outcome: Able to understand JavaScript

Duration: 3 Hours

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Program:

```
<!DOCTYPE html>

<html lang="en">

<head>                                         <!-- Document Head Starts -->

    <meta charset="UTF-8">

    <meta http-equiv="X-UA-Compatible" content="IE=edge">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>Text- Grow & Shrink</title>

    <style>

        p {

            position: absolute;

            top: 50%;

            left: 50%;

            transform: translate(-50%, -50%);

        }

    </style>
```

```
</style>

</head>                                <! -- Document Head Ends -->

<body>                                <! -- Document Body Starts -->

<h1>Text -Growing & Shrinking</h1>

<p id="demo"></p>

<script>                                //Javascript Starts

var var1 = setInterval(inTimer, 3000);

var fs = 5;

var ids = document.getElementById("demo");

function inTimer() {

ids.innerHTML = 'JS Program';

ids.setAttribute('style', "font-size: " + fs + "px; color: red"); fs += 5;

if(fs >= 50 ){

clearInterval(var1);

var2 = setInterval(deTimer, 2000);

}

}

function deTimer() {

fs -= 5;

ids.innerHTML = 'JS Program';

ids.setAttribute('style', "font-size: " + fs + "px; color: blue"); if(fs === 5 ){

clearInterval(var2);

}

}
```

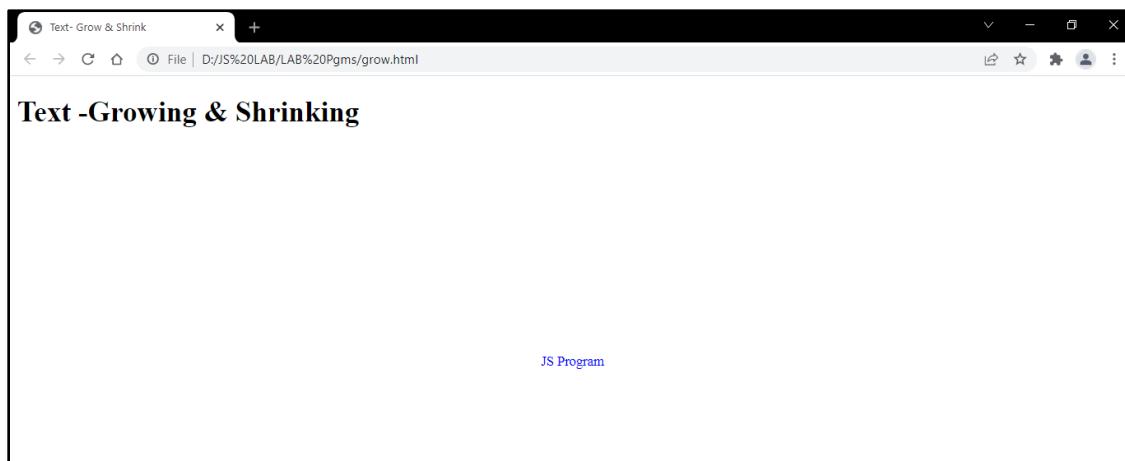
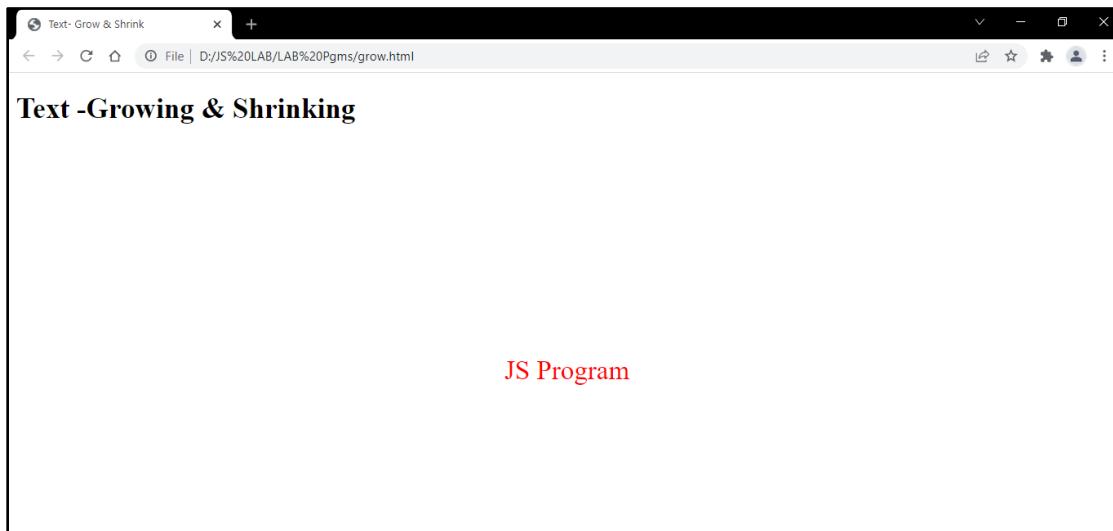
```
}

</script>          //Javascript Ends

</body>          <! -- Document Body Ends -->

</html>
```

Output:



References:

- <https://vtucselabs.blogspot.com/2019/08/wt3.html>

Activity 16

Aim: Create a Tip Calculator as a single page web application (SPA). Design an interface that allows you to enter the amount of the tip. The percentage you would like to tip, and the number of people to split the tip with. Do not use 3 text input elements! Calculate and dynamically display the tip.

Learning outcome: Able to understand JavaScript

Duration: 3 Hours

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Program:

```
<!DOCTYPE html>

<html lang="en">

<head>                                <! -- Document Head Starts -->

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<meta http-equiv="X-UA-Compatible" content="ie=edge">

<title>Document</title>

<style media="screen">

*,
*:before,
```

`*:after {`

`margin: 0;`

`padding: 0;`

```
box-sizing: border-box;  
}  
  
html {  
font-size: 100%;  
}  
  
body {  
width: 100%;  
height: 100vh;  
overflow: hidden;  
display: grid;  
place-items: center;  
background: rgb(12, 141, 195);  
font-family: "Lato", sans-serif;  
font-weight: 400;  
line-height: 1.75;  
}  
  
p {  
margin-bottom: 1rem;  
}  
  
h1{  
background: rgb(11, 108, 161);  
color: white;  
font-size: 27px;
```

```
text-align: center;  
margin-top: -17px;  
margin-left: -17px;  
margin-right: -17px;  
}  
  
.h3 {  
margin: 1.38rem 0;  
font-size: 1.424rem;  
}  
  
#tip-calculator {  
width: 80%;  
max-width: 350px;  
padding: 1rem;  
background: white;  
border-radius: 0.3rem;  
}  
  
#output {  
text-align: center;  
box-shadow: 0 0 20px rgba(0,139,253,0.25);  
padding: 10px;  
color: rgb(9, 73, 171);  
}  
  
form {
```

```
border-top: 1px solid hsl(149, 31%, 25%);  
}  
  
label {  
display: block;  
}  
  
  
input[type="number"] {  
width: 100%;  
max-width: 4em;  
background: none;  
border: none;  
font-size: 20px;  
color: rgb(26, 64, 237);  
border-bottom: 1px dashed black;  
  
/* Hide spinners and steppers - Firefox */  
-moz-appearance: textfield;  
}  
  
  
/* Hide spinners and steppers - Chrome, Safari, Edge, Opera */  
input[type="number"]::-webkit-outer-spin-button,  
input[type="number"]::-webkit-inner-spin-button {  
-webkit-appearance: none;
```

```
margin: 0;  
}  
  
#people {  
max-width: 3em;  
}  
  
#percentage {  
-webkit-appearance: none;  
width: 100%;  
margin: 2rem 0;  
height: 10px;  
background: hsl(193, 94%, 34%);  
border-radius: 3px;  
}  
  
  
#percentage::-webkit-slider-thumb {  
-webkit-appearance: none;  
appearance: none;  
width: 30px;  
height: 30px;  
border-radius: 50%;  
border: 2px solid rgb(5, 47, 156);  
background: hsl(255, 14%, 66%);  
cursor: pointer;
```

```
}
```

```
#percentage::-moz-range-thumb {  
width: 20px;  
height: 20px;  
background: hsl(149, 31%, 98%);  
border-radius: 50%;  
cursor: pointer;  
}
```

```
</style>  
</head>          <! -- Document Head Ends -->
```

```
<body>          <! -- Document Body Starts -->
```

```
<div id="tip-calculator">  
  <h1>Tip Calculator</h1>  
  
  <form id="form">  
    <label for="bill" class="h3">  
      Bill: $  
      <input type="number" min="0" step="0.01" value="50" name="bill"  
      id="bill" />  
    </label>  
    <label for="people" class="h3">  
      People:
```

```

<input type="number" min="1" step="1" value="1" name="people"
id="people" />

</label>

<label for="percentage" class="h3">
    Tip Percentage:
    <span id="percentage-output"></span>
    <input type="range" min="0" max="100" step="1" value="20"
name="percentage" id="percentage" />
</label>

</form>

<div id="output" class="h3"></div>

</div>

<script type="text/javascript">

// cached elements

const form = document.getElementById("form");

const totalBill = document.getElementById("bill");

const totalPeople = document.getElementById("people");

const tipPercentage = document.getElementById("percentage");

const percentageOutput = document.getElementById("percentage-output");

const output = document.getElementById("output");

// event listeners

form.addEventListener("change", calculateTip);

```

```
tipPercentage.oninput = calculateTip;

// event handlers

function calculateTip() {

    const dollarsPerPerson = (
        (totalBill.value * (tipPercentage.value / 100)) /
        totalPeople.value
    ).toFixed(2);

    displayTip(` ${dollarsPerPerson}`);
    displayPercentage();
}

// helper functions

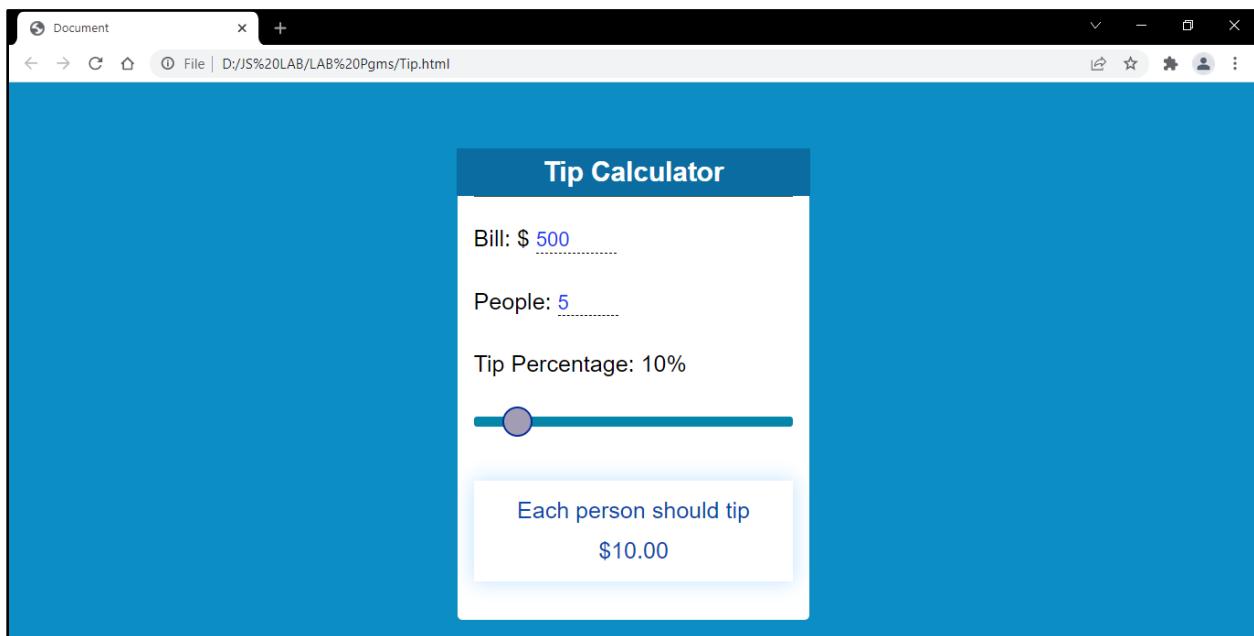
function displayTip(totalPerPerson) {

    output.innerText =
        totalPeople.value > 1
            ? `Each person should tip ${totalPerPerson}`
            : `You should tip ${totalPerPerson}`;
}

function displayPercentage() {

    percentageOutput.innerText = `${tipPercentage.value}%`;
}
```

```
// on load  
  
calculateTip();  
  
</script>                                //Javascript Ends  
</body>                                     <! -- Document Body Ends -->  
</html>
```

Output:**References:**

- <https://www.freecodecamp.org/news/how-to-build-a-tip-calculator-with-html-css-and-javascript/>

Activity 17

Aim: Write a JavaScript function to validate whether a given value is object or not.

Learning outcome: Able to understand JavaScript

Duration: 1 Hour

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Program:

```
<!DOCTYPE html>

<html lang="en">
  <head>          <!-- Document Head Starts -->

    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>JS_Object</title>

  </head>          <!-- Document Head Ends -->

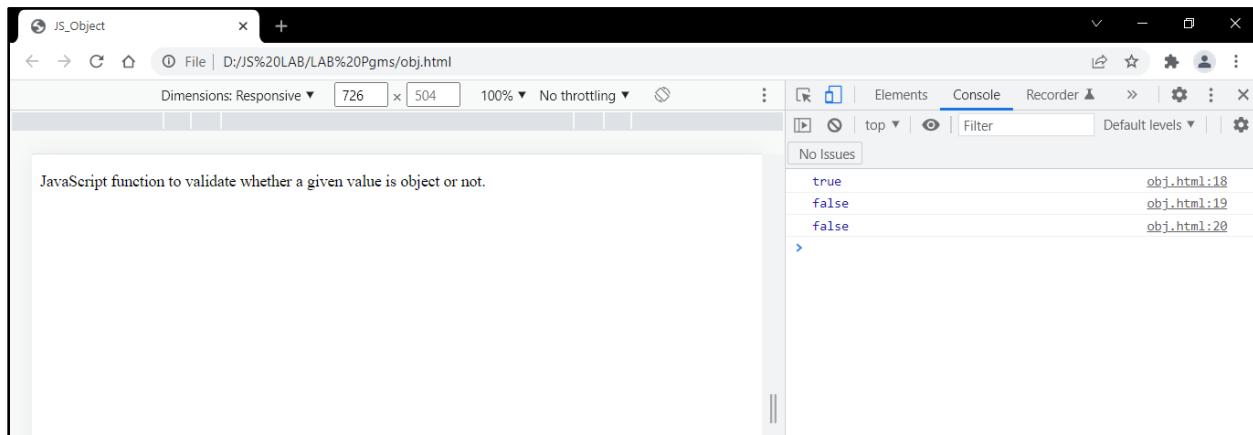
<body>          <!-- Document Body Starts -->

  <p>JavaScript function to validate whether a given value is object or not.</p>
  <script>          //Javascript Starts

    function is_object(value)
    {
```

```
var datatype = typeof value;  
return datatype === 'function' || datatype === 'object' && !!value;  
}  
  
console.log(is_object({name: 'Robert'}));  
  
console.log(is_object('bar'));  
  
console.log(is_object(72));  
  
</script> //Javascript Ends  
  
</body> <! -- Document Body Ends -->  
  
</html>
```

Output:



References:

- <https://www.w3resource.com/javascript-exercises/validation/javascript-validation-exercise-6.php>

Activity 18

Aim: Write a JavaScript function to validate whether a given value type is pure json object or not

Learning outcome: Able to understand JavaScript

Duration: 1 Hour

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Program:

```
<!DOCTYPE html>

<html lang="en">

<head>                                <! -- Document Head Starts -->

    <meta charset="UTF-8">

    <meta http-equiv="X-UA-Compatible" content="IE=edge">

    <meta name="viewport" content="width=device-width, initial-scale=1.0">

    <title>JS_Json Object</title>

</head>                                <! -- Document Head Ends -->

<body>                                <! -- Document Body Starts -->

    <p>JavaScript function to validate whether a given value type is pure json object or not</p>

    <script>                                //Javascript Starts

        function is_json(value)

        {

            return toString.call(value) === '[object Object]';

        }

    </script>
```

```
}

console.log(is_json({name: 'Robert'}));

console.log(is_json('bar'));

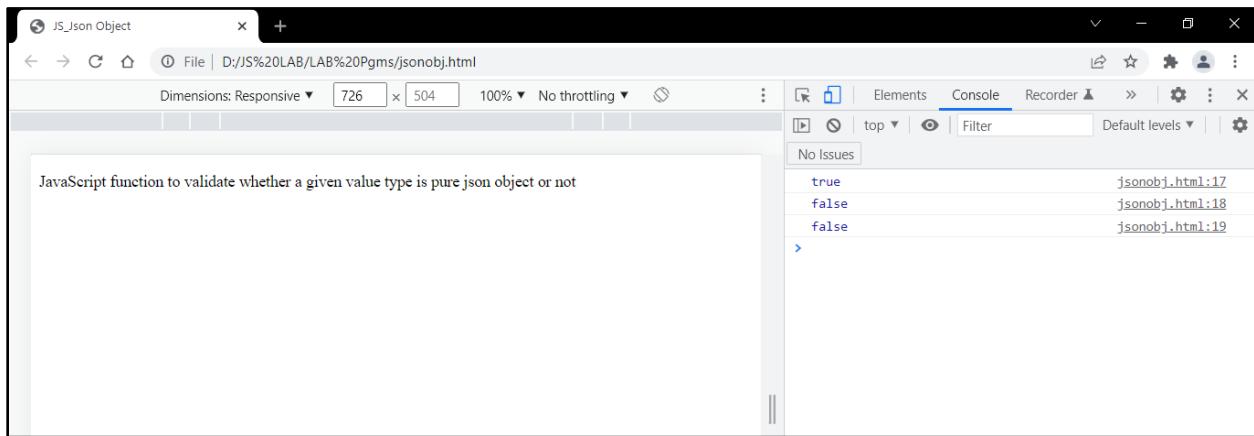
console.log(is_json(72));

</script>                                //Javascript Ends

</body>                                <! -- Document Body Ends -->

</html>
```

Output:



References:

- <https://www.w3resource.com/javascript-exercises/validation/javascript-validation-exercise-7.php>

Activity 19

Aim: Write a JavaScript program to count number of words in string.

Note:

- Remove white-space from start and end position.
- Convert 2 or more spaces to 1.
- Exclude newline with a start spacing.

Learning outcome: Able to understand JavaScript

Duration: 3 Hours

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Program:

```
<!DOCTYPE html>

<html lang="en">

<head>                                         <! -- Document Head Starts -->

    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>No of Words</title>
    <style type="text/css">
        body {margin-top: 40px;}
    </style>
```

```

</head>                                <! -- Document Head Ends -->

<body>                                <! -- Document Body Starts -->

<p>Count number of words in a string</p>

<textarea id="InputText" cols="30" rows="4">India is our Country</textarea>

</br>

<input type="button" name="Convert" value="No. of Words" onClick="count_words();">

<input id = "noofwords" type="text" value="" size="6">

<script>                                //Javascript Starts

function count_words()

{
    str1= document.getElementById("InputText").value;

    //exclude start and end white-space

    str1 = str1.replace(/(^|\s*)|(\s*$)/gi,"");

    //convert 2 or more spaces to 1

    str1 = str1.replace(/\s{2,}/gi," ");

    // exclude newline with a start spacing

    str1 = str1.replace(/\n /,"\n");

    document.getElementById("noofwords").value = str1.split(' ').length;
}

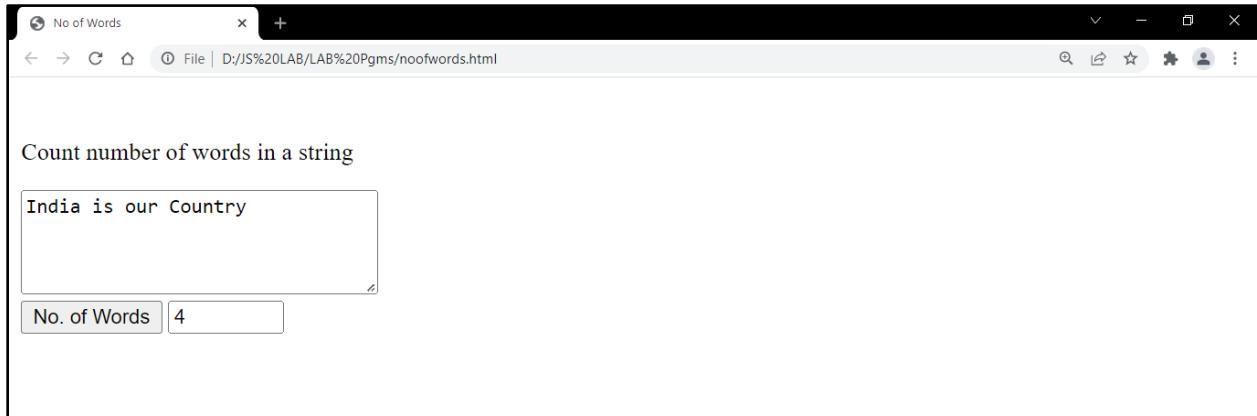
</script>                                //Javascript Ends

</body>                                <! -- Document Body Ends -->

</html>

```

Output:



References:

- <https://www.w3resource.com/javascript-exercises/javascript-regexp-exercise-6.php>

Activity 20

Aim: Write a JavaScript function to check a given value contains alpha, dash and underscore.

Learning outcome: Able to understand JavaScript

Duration: 1 Hour

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Program:

```
<!DOCTYPE html>

<html lang="en">

<head>                                <! -- Document Head Starts -->

    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Special Character</title>

</head>                                <! -- Document Head Ends -->

<body>                                <! -- Document Body Starts -->

    <p>JavaScript function to check a given value contains alpha, dash and underscore</p>

    <script>                                //Javascript Starts

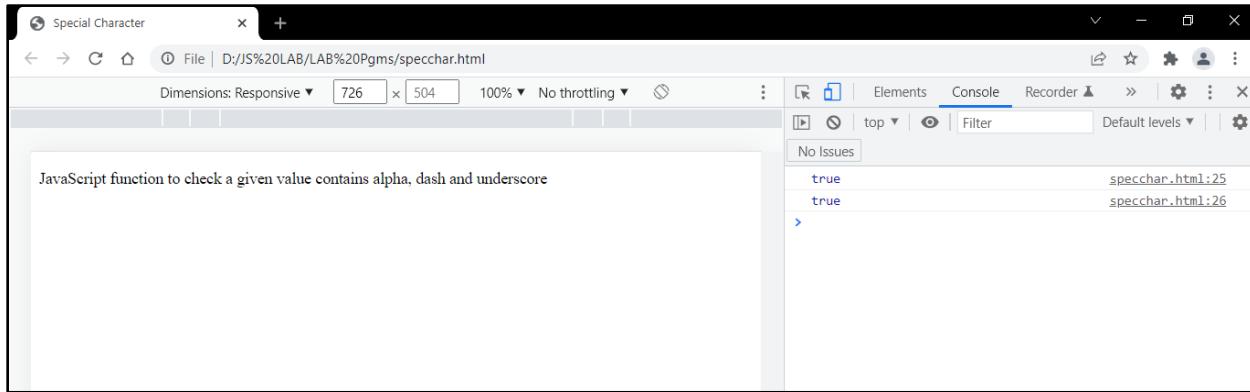
        function is_alphaDash(str)
        {

```

```
regexp = /^[a-zA-Z0-9_\-\-]+$/i;
```

```
if (regexp.test(str))  
{  
    return true;  
}  
  
else  
{  
    return false;  
}  
  
}  
  
console.log(is_alphaDash('12-133'));  
console.log(is_alphaDash('100_23'));  
  
</script> //Javascript Ends  
  
</body> <!-- Document Body Ends -->  
  
</html>
```

Output:



References:

- <https://www.w3resource.com/javascript-exercises/javascript-regexp-exercise-20.php>

Activity 21

Aim: Write a JavaScript function to check whether a given value represents a domain or not.

Write a JavaScript function to check whether a given value is html or not.

Learning outcome: Able to understand JavaScript

Duration: 1 Hour

List of Hardware/Software requirements:

1. Windows/Ubuntu OS
2. Text Editors- Notepad++, VS Code, Sublime Text, etc.
3. Web Browser (Chrome/Firefox)

Program:

```
<!DOCTYPE html>

<html lang="en">
  <head>          <!-- Document Head Starts -->

    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Check Domain</title>

  </head>          <!-- Document Head Ends -->

<body>          <!-- Document Body Starts -->

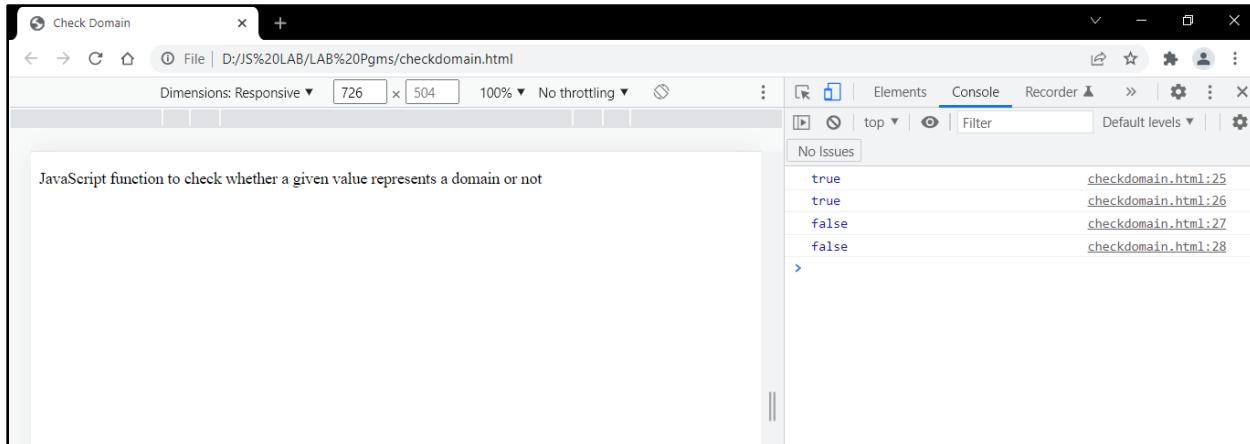
  <p>JavaScript function to check whether a given value represents a domain or not</p>
  <script>          //Javascript Starts
```

```
function is_domain(str)
{
  regexp = /^[a-zA-Z0-9]+([-.]{1}[a-zA-Z0-9]+)*\.[a-zA-Z]{2,6}$/i;

  if (regexp.test(str))
  {
    return true;
  }
  else
  {
    return false;
  }
}

console.log(is_domain('www.example.com'));
console.log(is_domain('www.npm.co.uk'));
console.log(is_domain('http://www.example.com'));
console.log(is_domain('https://www.example.com'));

</script>          //Javascript Ends
</body>          <!-- Document Body Ends -->
</html>
```

Output:**Program:**

```
<!DOCTYPE html>

<html lang="en">

<head>                                <! -- Document Head Starts -->

    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Check HTML</title>

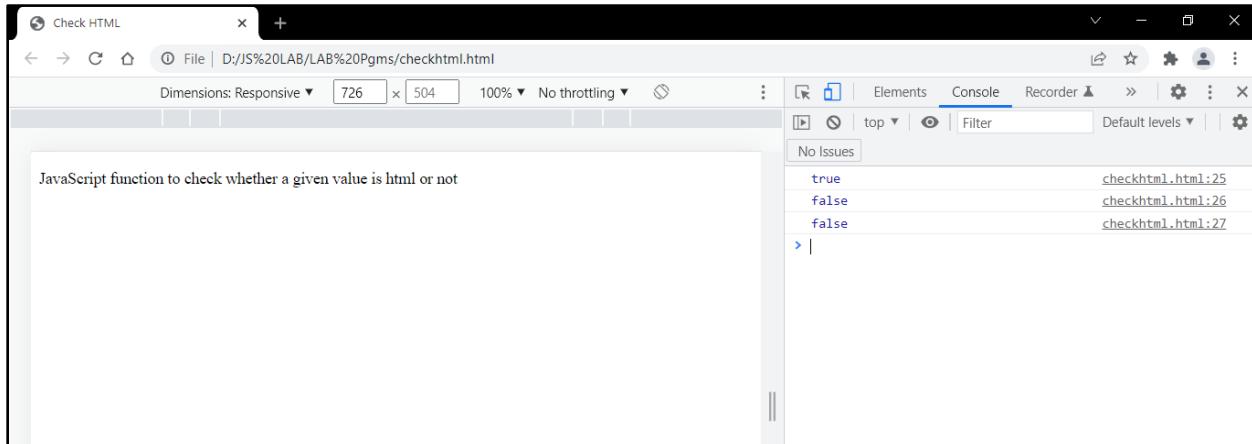
</head>                                <! -- Document Head Ends -->

<body>                                <! -- Document Body Starts -->

    <p>JavaScript function to check whether a given value is html or not</p>
    <script>                                //Javascript Starts

        function is_html(str)
```

```
{  
  regexp = /<([a-z]+) *[^/]*?>/;  
  
  if (regexp.test(str))  
  {  
    return true;  
  }  
  else  
  {  
    return false;  
  }  
}  
  
console.log(is_html('<h1>'));  
console.log(is_html(""));  
console.log(is_html('.selector'));  
  
</script>                                //Javascript Ends  
  
</body>                                    <! -- Document Body Ends -->  
  
</html>
```

Output:

The screenshot shows a browser window with developer tools open. The console tab is selected. The output area displays the following text:

```
JavaScript function to check whether a given value is html or not
true
false
false
```

The console also shows the file names and line numbers for each output line: `checkhtml1.html:25`, `checkhtml1.html:26`, and `checkhtml1.html:27`.

References:

- <https://www.w3resource.com/javascript-exercises/javascript-regexp-exercise-18.php>
- <https://www.w3resource.com/javascript-exercises/javascript-regexp-exercise-19.php>

Learning Outcome

After completing this module, the student should be able to understand basic of bootstrap and jQuery.

To meet the learning outcome, a student has to complete the following activities

1. Building responsive webpage using bootstrap (20 hrs)
2. Use jQuery selectors to identify elements with these properties in a hypothetical page: (2 hrs)
3. Write jQuery Code to change the hyperlink and the text of a existing link. (30 mins)
4. How to Print a Page Using JQuery? (30 mins)
5. Display and hide message shown in the div tag on click of the buttons. (30 mins)
6. Create one button and a textbox. On click of the button the text written in text box should display on the button. (1 hr)
7. Toggle a specified class when an element is clicked. (30 mins)
8. Disable the submit button until the visitor has clicked a check box. (30 mins)
9. Create a text input field. Listen for the keyup event. Alert the value of the text box whenever keyup occurs. (1 hrs)
10. Set a timer to delay execution of subsequent items in the queue. (30 mins)
11. Find all the text nodes inside a paragraph and wrap them with an italic tag. (1 hr)
12. Write a jquery to attach a change event to the select element (Use to create a drop-down list.) that gets the text for each selected option and writes them in a paragraph.(1 hr)
13. Find the widths and heights of various elements. Get the scroll top and left of an element. Access the position of an element. (1 hr)"

Activity 1

Aim: Building responsive webpage using bootstrap

Learning outcome: Able to create simple web pages using bootstrap.

Duration: 20 hours

List of Hardware/Software requirements:

1. Laptop/Computer with Windows OS
2. Bootstrap v4.6 and a Browser

Program 1:

```
<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="utf-8">

<meta name="viewport" content="width=device-width, initial-scale=1">

<title>Bootstrap 4 Responsive Layout</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/css/bootstrap.min.css" rel="stylesheet">

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.2/dist/js/bootstrap.bundle.min.js"></script>

</head>

<body>

<nav class="navbar navbar-expand-lg navbar-dark bg-dark">

<div class="container-fluid">

<a href="#" class="navbar-brand">Tutorial Republic</a>

<button type="button" class="navbar-toggler" data-bs-toggle="collapse" data-bs-target="#navbarCollapse">
```

```
<span class="navbar-toggler-icon"></span>
</button>
<div class="collapse navbar-collapse" id="navbarCollapse">
<div class="navbar-nav">
<a href="#" class="nav-item nav-link active">Home</a>
<a href="#" class="nav-item nav-link">Services</a>
<a href="#" class="nav-item nav-link">About</a>
<a href="#" class="nav-item nav-link">Contact</a>
</div>
<div class="navbar-nav ms-auto">
<a href="#" class="nav-item nav-link">Login</a>
<a href="#" class="nav-item nav-link">Register</a>
</div>
</div>
</div>
</div>
</div>
</div>
<div class="container">
<div class="p-5 my-4 bg-light rounded-3">
<h1>Learn to Create Websites</h1>
<p class="lead">In today's world internet is the most popular way of connecting with the people. At <a href="https://www.tutorialrepublic.com" class="text-success" target="_blank">tutorialrepublic.com</a> you will learn the essential web development technologies along with real life practice examples, so that you can create your own website to connect with the people around the world.</p>
<p><a href="https://www.tutorialrepublic.com" target="_blank" class="btn btn-success btn-lg">Get started today</a></p>
</div>
```

```
<div class="row g-3">
  <div class="col-md-6 col-lg-4 col-xl-3">
```

HTML

HTML is the standard markup language for describing the structure of the web pages. Our HTML tutorials will help you to understand the basics of latest HTML5 language, so that you can create your own website.

<p>Learn More »</p>

```
</div>
```

```
<div class="col-md-6 col-lg-4 col-xl-3">
```

CSS

CSS is used for describing the presentation of web pages. CSS can save a lot of time and effort. Our CSS tutorials will help you to learn the essentials of latest CSS3, so that you can control the style and layout of your website.

<p>Learn More »</p>

```
</div>
```

```
<div class="col-md-6 col-lg-4 col-xl-3">
```

JavaScript

JavaScript is the most popular and widely used client-side scripting language. Our JavaScript tutorials will provide in-depth knowledge of the JavaScript including ES6 features, so that you can create interactive websites.

<p>Learn More »</p>

```
</div>
```

```
<div class="col-md-6 col-lg-4 col-xl-3">
```

Bootstrap

Bootstrap is a powerful front-end framework for faster and easier web development. Our Bootstrap tutorials will help you to learn all the features of latest Bootstrap 4 framework so that you can easily create responsive websites.

```
<p><a href="https://www.tutorialrepublic.com/twitter-bootstrap-tutorial/" target="_blank" class="btn btn-success">Learn More &raquo;</a></p>
</div>
```

```
<div class="col-md-6 col-lg-4 col-xl-3">
```

<h2>PHP</h2>

<p>PHP is the most popular server-side scripting language for creating dynamic web pages. Our PHP tutorials will help you to learn all the features of latest PHP7 scripting language so that you can easily create dynamic websites.</p>

```
<p><a href="https://www.tutorialrepublic.com/twitter-bootstrap-tutorial/" target="_blank" class="btn btn-success">Learn More &raquo;</a></p>
```

```
</div>
```

```
<div class="col-md-6 col-lg-4 col-xl-3">
```

<h2>SQL</h2>

<p>SQL is a standard language designed for managing data in relational database management system. Our SQL tutorials will help you to learn the fundamentals of the SQL language so that you can efficiently manage your databases.</p>

```
<p><a href="https://www.tutorialrepublic.com/twitter-bootstrap-tutorial/" target="_blank" class="btn btn-success">Learn More &raquo;</a></p>
```

```
</div>
```

```
<div class="col-md-6 col-lg-4 col-xl-3">
```

<h2>References</h2>

<p>Our references section outlines all the standard HTML5 tags and CSS3 properties along with other useful references such as color names and values, character entities, web safe fonts, language codes, HTTP messages, and more.</p>

```
<p><a href="https://www.tutorialrepublic.com/twitter-bootstrap-tutorial/" target="_blank" class="btn btn-success">Learn More &raquo;</a></p>
```

```
</div>
```

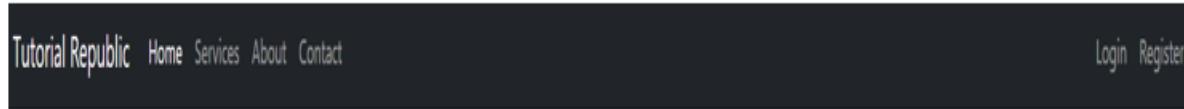
```
<div class="col-md-6 col-lg-4 col-xl-3">
```

<h2>FAQ</h2>

<p>Our Frequently Asked Questions (FAQ) section is an extensive collection of FAQs that provides quick and working solution of common questions and queries related to web design and development with live demo.</p>

```
<p><a href="https://www.tutorialrepublic.com/twitter-bootstrap-tutorial/"  
target="_blank" class="btn btn-success">Learn More &raquo;</a></p>  
</div>  
</div>  
<hr>  
<footer>  
<div class="row">  
<div class="col-md-6">  
<p>Copyright © 2021 Tutorial Republic</p>  
</div>  
<div class="col-md-6 text-md-end">  
<a href="#" class="text-dark">Terms of Use</a>  
<span class="text-muted mx-2">|</span>  
<a href="#" class="text-dark">Privacy Policy</a>  
</div>  
</div>  
</footer>  
</div>  
</body>  
</html>
```

Output/Results snippet:



Tutorial Republic Home Services About Contact Login Register

Learn to Create Websites

In today's world internet is the most popular way of connecting with the people. At tutorialrepublic.com you will learn the essential web development technologies along with real life practice examples, so that you can create your own website to connect with the people around the world.

Get started today

HTML

HTML is the standard markup language for describing the structure of the web pages. Our HTML tutorials will help you to understand the basics of latest HTML5 language, so that you can create your own website.

[Learn More »](#)

CSS

CSS is used for describing the presentation of web pages. CSS can save a lot of time and effort. Our CSS tutorials will help you to learn the essentials of latest CSS3, so that you can control the style and layout of your website.

[Learn More »](#)

JavaScript

JavaScript is the most popular and widely used client-side scripting language. Our JavaScript tutorials will provide in-depth knowledge of the JavaScript including ES6 features, so that you can create interactive websites.

[Learn More »](#)

Bootstrap

Bootstrap is a powerful front-end framework for faster and easier web development. Our Bootstrap tutorials will help you to learn all the features of latest Bootstrap 4 framework so that you can easily create responsive websites.

[Learn More »](#)

PHP

PHP is the most popular server-side scripting language for creating dynamic web pages. Our PHP tutorials will help you to learn all the features of latest PHP7 scripting language so that you can easily create dynamic websites.

[Learn More »](#)

SQL

SQL is a standard language designed for managing data in relational database management system. Our SQL tutorials will help you to learn the fundamentals of the SQL language so that you can efficiently manage your databases.

[Learn More »](#)

References

Our references section outlines all the standard HTML5 tags and CSS3 properties along with other useful references such as color names and values, character entities, web safe fonts, language codes, HTTP messages, and more.

[Learn More »](#)

FAQ

Our Frequently Asked Questions (FAQ) section is an extensive collection of FAQs that provides quick and working solution of common questions and queries related to web design and development with live demo.

[Learn More »](#)

Program 2:

```
<!doctype html>

<html lang="en">

<head>

    <!-- Required meta tags -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
    <!-- Bootstrap CSS -->
    <link rel="stylesheet"
        href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css"
        integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/eSrtxUkn"
        crossorigin="anonymous">

    <title>Bootstrap Responsive Webpage</title>

</head>

<body>

    <nav class="navbar navbar-expand-lg navbar-dark bg-dark">
        <a class="navbar-brand" href="#">Bootstrap Responsive Webpage</a>
        <button    class="navbar-toggler"    type="button"    data-toggle="collapse"    data-target="#navbarSupportedContent"
            aria-controls="navbarSupportedContent" aria-expanded="false"
            aria-label="Toggle navigation">
            <span class="navbar-toggler-icon"></span>
        </button>
    </nav>

```

```
<div class="collapse navbar-collapse" id="navbarSupportedContent">
  <ul class="navbar-nav mr-auto">
    <li class="nav-item active">
      <a class="nav-link" href="#">Home <span class="sr-only">(current)</span></a>
    </li>
    <li class="nav-item">
      <a class="nav-link" href="#">Link</a>
    </li>
    <li class="nav-item dropdown">
      <a class="nav-link dropdown-toggle" href="#" id="navbarDropdown" role="button"
         data-toggle="dropdown" aria-expanded="false">
        Dropdown
      </a>
      <div class="dropdown-menu" aria-labelledby="navbarDropdown">
        <a class="dropdown-item" href="#">Action</a>
        <a class="dropdown-item" href="#">Another action</a>
        <div class="dropdown-divider"></div>
        <a class="dropdown-item" href="#">Something else here</a>
      </div>
    </li>
    <li class="nav-item">
      <a class="nav-link disabled">Disabled</a>
    </li>
  </ul>
  <form class="form-inline my-2 my-lg-0">
```

```
<input class="form-control mr-sm-2" type="search" placeholder="Search"
aria-label="Search">

<button class="btn btn-outline-warning my-2 my-sm-0"
type="submit">Search</button>

</form>

</div>

</nav>

<div id="carouselExampleIndicators" class="carousel slide" data-ride="carousel">

<ol class="carousel-indicators">
  <li data-target="#carouselExampleIndicators" data-slide-to="0" class="active"></li>
  <li data-target="#carouselExampleIndicators" data-slide-to="1"></li>
  <li data-target="#carouselExampleIndicators" data-slide-to="2"></li>
</ol>

<div class="carousel-inner">

  <div class="carousel-item active">
    
  </div>

  <div class="carousel-item">
    
  </div>

  <div class="carousel-item">
    
  </div>

</div>
```

```
</div>

<button class="carousel-control-prev" type="button" data-target="#carouselExampleIndicators" data-slide="prev">
  <span class="carousel-control-prev-icon" aria-hidden="true"></span>
  <span class="sr-only">Previous</span>
</button>

<button class="carousel-control-next" type="button" data-target="#carouselExampleIndicators" data-slide="next">
  <span class="carousel-control-next-icon" aria-hidden="true"></span>
  <span class="sr-only">Next</span>
</button>

</div>

<div class="row mt-4 mb-2">
  <div class="col-sm-6">
    <div class="card bg-dark text-white">
      
      <div class="card-img-overlay">
        <h5 class="card-title text-dark font-weight-bold">Card title</h5>
        <p class="card-text text-dark font-weight-bold">This is a wider card with supporting text below as a natural lead-in to
          additional content. This content is a little bit longer.</p>
        <p class="card-text text-dark font-weight-bold">Last updated 3 mins ago</p>
      </div>
    </div>
  </div>
</div>
```

```
<div class="col-sm-6">
  <div class="card bg-dark text-white">
    
    <div class="card-img-overlay">
      <h5 class="card-title text-dark font-weight-bold">Card title</h5>
      <p class="card-text text-dark font-weight-bold">This is a wider card with supporting text below as a natural lead-in to
        additional content. This content is a little bit longer.</p>
      <p class="card-text text-dark font-weight-bold">Last updated 3 mins ago</p>
    </div>
  </div>
</div>
</div>

<div class="row mt-1 mb-4">
  <div class="col-sm-6">
    <div class="card bg-dark text-white">
      
      <div class="card-img-overlay">
        <h5 class="card-title text-dark font-weight-bold">Card title</h5>
        <p class="card-text text-dark font-weight-bold">This is a wider card with supporting text below as a natural lead-in to
          additional content. This content is a little bit longer.</p>
        <p class="card-text text-dark font-weight-bold">Last updated 3 mins ago</p>
      </div>
    </div>
  </div>
</div>
```

```
</div>

<div class="col-sm-6">

  <div class="card bg-dark text-white">

    <div class="card-img-overlay">

      <h5 class="card-title text-dark font-weight-bold">Card title</h5>

      <p class="card-text text-dark font-weight-bold">This is a wider card with supporting text below as a natural lead-in to additional content. This content is a little bit longer.</p>

      <p class="card-text text-dark font-weight-bold">Last updated 3 mins ago</p>

    </div>

  </div>

</div>

</div>

<div class="card bg-light mx-2 mb-3">

  <div class="card-header bg-light">

    Featured

  </div>

  <div class="card-body">

    <h5 class="card-title">Special title treatment</h5>

    <p class="card-text">With supporting text below as a natural lead-in to additional content.</p>

    <a href="#" class="btn btn-warning">Go somewhere</a>

  </div>

</div>
```

```
<div class="row container">
  <div class="col-sm-6">
    <div class="card">
      <div class="card-body">
        <h5 class="card-title">Special title treatment</h5>
        <p class="card-text">With supporting text below as a natural lead-in to additional content.</p>
        <a href="#" class="btn btn-warning">Go somewhere</a>
      </div>
    </div>
  </div>
  <div class="col-sm-6">
    <div class="card">
      <div class="card-body">
        <h5 class="card-title">Special title treatment</h5>
        <p class="card-text">With supporting text below as a natural lead-in to additional content.</p>
        <a href="#" class="btn btn-warning">Go somewhere</a>
      </div>
    </div>
  </div>
</div>

<div class="container bg-light mx-3 pb-2 mt-4 pt-2">
  <h3>Contact Us</h3>
  <form>
```

```
<div class="form-group row">
  <label for="inputEmail3" class="col-sm-2 col-form-label">Name</label>
  <div class="col-sm-10">
    <input type="text" class="form-control" id="inputEmail3">
  </div>
</div>

<div class="form-group row">
  <label for="inputEmail3" class="col-sm-2 col-form-label">Email</label>
  <div class="col-sm-10">
    <input type="email" class="form-control" id="inputEmail3">
  </div>
</div>

<label for="validationTextarea">Message</label>
<textarea class="form-control" id="validationTextarea" placeholder="Share your concern here"></textarea>

<div class="form-group row mt-2">
  <div class="col-sm-10">
    <button type="submit" class="btn btn-warning">Submit</button>
  </div>
</div>
</form>
</div>
```

```
<footer class="pt-4 my-md-5 pt-md-5 border-top container">
  <div class="row">
    <div class="col-12 col-md">
      
      <small class="d-block mb-3 text-muted">© 2017-2022</small>
    </div>
    <div class="col-6 col-md">
      <h5>Features</h5>
      <ul class="list-unstyled text-small">
        <li><a class="text-muted" href="#">Cool stuff</a></li>
        <li><a class="text-muted" href="#">Random feature</a></li>
        <li><a class="text-muted" href="#">Team feature</a></li>
        <li><a class="text-muted" href="#">Stuff for developers</a></li>
        <li><a class="text-muted" href="#">Another one</a></li>
        <li><a class="text-muted" href="#">Last time</a></li>
      </ul>
    </div>
    <div class="col-6 col-md">
      <h5>Resources</h5>
      <ul class="list-unstyled text-small">
        <li><a class="text-muted" href="#">Resource</a></li>
        <li><a class="text-muted" href="#">Resource name</a></li>
        <li><a class="text-muted" href="#">Another resource</a></li>
        <li><a class="text-muted" href="#">Final resource</a></li>
      </ul>
    </div>
  </div>
</footer>
```

```
</div>

<div class="col-6 col-md">

    <h5>About</h5>

    <ul class="list-unstyled text-small">

        <li><a class="text-muted" href="#">Team</a></li>
        <li><a class="text-muted" href="#">Locations</a></li>
        <li><a class="text-muted" href="#">Privacy</a></li>
        <li><a class="text-muted" href="#">Terms</a></li>
    </ul>

</div>

</div>

</footer>

<script src="https://cdn.jsdelivr.net/npm/jquery@3.5.1/dist/jquery.slim.min.js"
    integrity="sha384-DfXdz2htPH0lsSS5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew+OrCXaRkfj"
    crossorigin="anonymous"></script>

<script src="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/js/bootstrap.bundle.min.js"
    integrity="sha384-fQybjgWLrvvRgtW6bFlB7jaZrFsaBXjsOMm/tB9LTS58ONXgqbR9W8oWht/amnpF"
    crossorigin="anonymous"></script>

</body>

</html>
```

Output/Results snippet:

Bootstrap Responsive Webpage [Home](#) [Link](#) [Dropdown ▾](#) [Disabled](#)

[Search](#)



Card title
This is a wider card with supporting text below as a natural lead-in to additional content. This content is a little bit longer.
Last updated 3 mins ago

Card title
This is a wider card with supporting text below as a natural lead-in to additional content. This content is a little bit longer.
Last updated 3 mins ago

Card title
This is a wider card with supporting text below as a natural lead-in to additional content. This content is a little bit longer.
Last updated 3 mins ago

Card title
This is a wider card with supporting text below as a natural lead-in to additional content. This content is a little bit longer.
Last updated 3 mins ago

Featured

Special title treatment
With supporting text below as a natural lead-in to additional content.
[Go somewhere](#)

Special title treatment
With supporting text below as a natural lead-in to additional content.
[Go somewhere](#)

Special title treatment
With supporting text below as a natural lead-in to additional content.
[Go somewhere](#)

Contact Us

Name

Email

Message

[Submit](#)



© 2017-2022

Features

Cool stuff
Random feature
Team feature
Stuff for developers
Another one
Last time

Resources

Resource
Resource name
Another resource
Final resource

About

Team
Locations
Privacy
Terms

References:

1. <https://www.geeksforgeeks.org/create-a-single-page-responsive-website-using-bootstrap/>
2. [https://getbootstrap.com/ \(v4.6\)](https://getbootstrap.com/)
3. <https://unsplash.com/>

Activity 2

Aim: Use jQuery selectors to identify elements with some properties in a hypothetical page

Learning outcome: Able to identify elements with following properties in a hypothetical page:

- All p tags that have no children, but only if they don't have a class of ignore
- Any element with the text ""REPLACE_ME"" in it.
- All div tags with a child that has a class of special will fade out
- All heading elements (h1, h2, h3, h4, h5, h6)
- Every other visible li

Duration: 2 hours

List of Hardware/Software requirements:

1. Laptop/Computer with Windows OS
2. Bootstrap v4.6 and a Browser

Program 1: All p tags that have no children, but only if they don't have a class of ignore

```
<!doctype html>

<html lang="en">

<head>

  <!-- Required meta tags -->

  <meta charset="utf-8">

  <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

  <!-- Bootstrap CSS -->

  <link rel="stylesheet"
    href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css"
    integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/eSrtxUkn"
    crossorigin="anonymous">
```

```
<title>App P tags</title>
</head>
<body>
<div class="container">
<h3>Task -1<br>All p tags that have no children, but only if they don't have a class of ignore will hide when
click on bellow button
</h3>
<button type="button" name="click" id="click">Click me</button>
</div>
<div class="container">
<p>
<h4>1.p tag having one child</h4>
</p>
<p>2. p tag don't have any child</p>
<p>
<h4 class="ignore">3.p tag have child with class ignore</h4>
</p>
<p>4.p tag don't have any child</p>
<p class="ignore">5.p tag don't have any child but have class ignore</p>
</div>
<script src="https://cdn.jsdelivr.net/npm/jquery@3.5.1/dist/jquery.slim.min.js"
integrity="sha384-DfXdz2htPH0lsSS5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew+OrCXaRkfj"
DfXdz2htPH0lsSS5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew+OrCXaRkfj" data-bbox="134 815 758 835"/>
```

```
crossorigin="anonymous"></script>

<script>
$(document).ready(function(){
    $('#click').click(function(){
        $('p:not(.ignore)').hide();
    });
});
</script>

</body>
</html>
```

Output/Results snippet:

Task -1

All p tags that have no children, but only if they don't have a class of ignore will hide when click on bellow button

[Click me](#)

- 1.p tag having one child
2. p tag don't have any child
- 3.p tag have child with class ignore
- 4.p tag don't have any child
- 5.p tag don't have any child but have class ignore

Task -1

All p tags that have no children, but only if they don't have a class of ignore will hide when click on bellow button

[Click me](#)

- 1.p tag having one child
- 3.p tag have child with class ignore
- 5.p tag don't have any child but have class ignore

Program 2: Any element with the text ""REPLACE_ME"" in it.

```

<!doctype html>

<html lang="en">

<head>

    <!-- Required meta tags -->

    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <!-- Bootstrap CSS -->

    <link rel="stylesheet"
        href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css"
        integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/e
        SrtxUkn" crossorigin="anonymous">

    <title>Replace me</title>

</head>

<body>

    <div class="container">

        <h3>Task-2<br>Any element with the text "REPLACE_ME" in it, it will replace with
        "REPLACED!" on click of bellow

        <button>Replace me</button>

        <div>

            <p> REPLACE_ME </p>

            <p> Hi </p>

            <p> REPLACE_ME </p>

        </div>

    </div>

</body>

```

```

<p> Lorem ipsum dolor sit amet. </p>
<p> Whatsapp...! </p>
</div>
</div>

<script src="https://cdn.jsdelivr.net/npm/jquery@3.5.1/dist/jquery.slim.min.js"
integrity="sha384-DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUe
w+OrCxaRkfj"
crossorigin="anonymous"></script>

<script>
$(document).ready(function () {
    $('#click').click(function () {
        $('p:contains(REPLACE_ME)').replaceWith("REPLACED!");
    });
});
</script>

</body>
</html>

```

Output/Results snippet:

Task-2

Any element with the text "REPLACE_ME" in it, it will replace with "REPLACED!" on click of bellow button

Click me
REPLACE_ME

Hi

REPLACE_ME

 Lorem ipsum dolor sit amet.

 Whatsapp...!

Task-2

Any element with the text "REPLACE_ME" in it, it will replace with "REPLACED!" on click of bellow button

```


REPLACED!
Hi

REPLACED!
Lorem ipsum dolor sit amet.

Whatsapp...!

```

Program 3: All div tags with a child that has a class of special will fade out

```

<!doctype html>

<html lang="en">

<head>

<!-- Required meta tags -->

<meta charset="utf-8">

<meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

<!-- Bootstrap CSS -->

<link rel="stylesheet"
      href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css"
      integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/e
      SrtxUkn" crossorigin="anonymous">

<title>All div tags with a child that has a class of special will shift left on click of bellow
button</title>

<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>

<script>

$(document).ready(function () {

    $('#click').click(function () {

```

```
$(“div.block:has(p.special)”).fadeOut(“slow”);  
});  
});  
</script>  
</head>  
<body>  
<div class="container">  
<h3>Task-2<br>All div tags with a child that has a class of special class will fade out.  
</h3>  
<button type="button" name="click" id="click">Click here</button>  
<div class="block">  
<p class="special">I am Special Class in p tag  
</div>  
</div>  
</body>  
</html>
```

Output/Results snippet:

Task-2
All div tags with a child that has a class of special class will fade out.
[Click here](#)
I am Special Class in p tag

Task-2
All div tags with a child that has a class of special class will fade out.
[Click here](#)

Program 4: All heading elements (h1, h2, h3, h4, h5, h6)

```
<!doctype html>

<html lang="en">

<head>

    <!-- Required meta tags -->

    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <!-- Bootstrap CSS -->

    <link rel="stylesheet"
        href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css"
        integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/e
        SrtxUkn" crossorigin="anonymous">

        <title>All Heading elements</title>

</head>

<body>

    <div class="container">

        <h3>Task-4<br>All heading elements (h1,h2,h3,h4,h5,h6) change on click of bellow
        button</h3>

        <button type="button" name="click" id="click">Click me</button>

        <div>

            <p>its paragraph tag</p>

            <h1>its h1 tag</h1>

            <h2>its h2 tag</h2>

            <p>its paragraph tag</p>

        </div>

    </div>

</body>
```

```
<h3>its h3 tag</h3>
<h4>its h4 tag</h4>
<h5>its h5 tag</h5>
<p>its paragraph tag</p>
<h6>its h6 tag</h6>
</div>
</div>
<script src="https://cdn.jsdelivr.net/npm/jquery@3.5.1/dist/jquery.slim.min.js"
integrity="sha384-DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew+OrCXaRkfj"
crossorigin="anonymous"></script>
<script>
$(document).ready(function () {
  $('#click').click(function(){
    $('#header').css({"color":"red"});
  });
});
</script>
</body>
</html>
```

Output/Results snippet:

Task-4

All heading elements (h1,h2,h3,h4,h5,h6) change on click of bellow button

its paragraph tag

its h1 tag

its h2 tag

its paragraph tag

its h3 tag

its h4 tag

its h5 tag

its paragraph tag

its h6 tag

Task-4

All heading elements (h1,h2,h3,h4,h5,h6) change on click of bellow button

its paragraph tag

its h1 tag

its h2 tag

its paragraph tag

its h3 tag

its h4 tag

its h5 tag

its paragraph tag

its h6 tag

References:

1. https://www.w3schools.com/jquery/tryit.asp?filename=tryjquery_eff_show_hide
2. https://www.w3schools.com/jquery/html_replacewith.asp
3. <https://api.jquery.com/replacewith/>
4. https://www.w3schools.com/jquery/tryit.asp?filename=tryjquery_eff_fadeout_fadein
5. <https://sebastian.com/jquery-change-background-color/>

Activity 3

Aim: Write jQuery Code to change the hyperlink and the text of an existing link

Learning outcome: Able to change the hyperlink and the text of an existing link

Duration: 30 minutes

List of Hardware/Software requirements:

1. Laptop/Computer with Windows OS
2. Bootstrap v4.6 and a Browser

Program:

```
<!doctype html>

<html lang="en">

<head>

    <!-- Required meta tags -->

    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <!-- Bootstrap CSS -->

    <link rel="stylesheet"
        href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css"
        integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/eSrt
        xUkn" crossorigin="anonymous">

    <title>change the hyperlink and the text</title>

</head>

<body>
```

```
<div class="container">
  <h3>Write a jQuery Code to change the hyperlink and the text of a existing link</h3>
  <a href="https://www.w3schools.com/jquery/default.asp" >w3schools - Jquery</a>
</div>
<script src="https://cdn.jsdelivr.net/npm/jquery@3.5.1/dist/jquery.slim.min.js"
integrity="sha384-DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew+OrC
XaRkfj"
crossorigin="anonymous"></script>
<script>
  $("a").attr("href", "https://www.w3schools.com/js/default.asp");
  $("a").text("w3schools - Javascript");
</script>
</body>
</html>
```

Output/Results snippet:

Write a jQuery Code to change the hyperlink and the text of a existing link
[w3schools - Javascript](https://www.w3schools.com/js/default.asp)

References:

1. <https://www.w3resource.com/jquery-exercises/jquery-core-exercise-9.php>

Activity 4

Aim: How to Print a Page Using jQuery

Learning outcome: To Print a Page Using JQuery

Duration: 30 minutes

List of Hardware/Software requirements:

1. Laptop/Computer with Windows OS
2. Bootstrap v4.6 and a Browser

Program:

```
<!doctype html>

<html lang="en">

<head>

    <!-- Required meta tags -->

    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <!-- Bootstrap CSS -->

    <link rel="stylesheet"
        href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css"
        integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/eSrt
        xUkn" crossorigin="anonymous">

    <title>Print this page</title>

</head>

<body>
```

```
<div class="container">

<h3>Print a Page Using JQuery</h3>

<div>

    <p>Lorem, ipsum dolor sit amet consectetur adipisicing elit. Tempora corrupti animi
    voluptas sunt beatae eum harum veniam in labore tenetur, quos at, velit consectetur quas!</p>

    <a class="printPage" href="#">Print</a>

</div>

</div>

<script src="https://cdn.jsdelivr.net/npm/jquery@3.5.1/dist/jquery.slim.min.js"
integrity="sha384-DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew+OrC
XaRkfj"
crossorigin="anonymous"></script>

<script>

    $('a.printPage').click(function(){

        window.print();

        return false;

    });

</script>

</body>

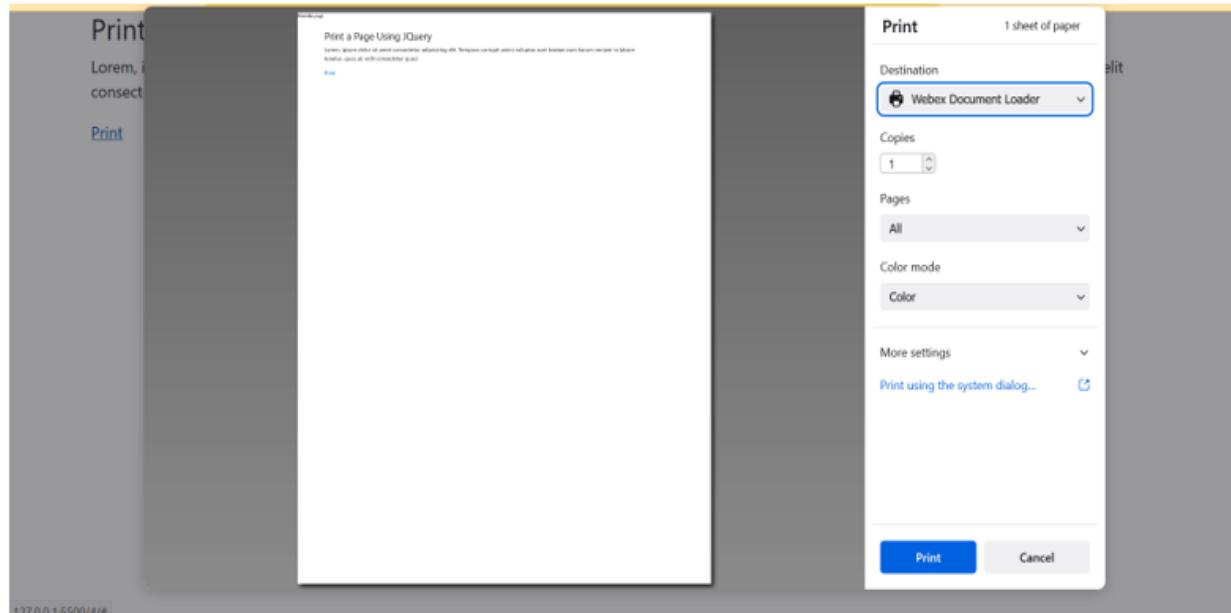
</html>
```

Output/Results snippet:

Print a Page Using JQuery

Lorem, ipsum dolor sit amet consectetur adipisicing elit. Tempora corrupti animi voluptas sunt beatae eum harum veniam in labore tenetur, quos at, velit consectetur quas!

[Print](#)



References:

1. <https://www.geeksforgeeks.org/how-to-print-a-page-using-jquery/>

Activity 5

Aim: Display and hide message shown in the div tag on click of the buttons

Learning outcome: Able to display and hide message shown in the div tag on click of the buttons

Duration: 30 minutes

List of Hardware/Software requirements:

1. Laptop/Computer with Windows OS
2. Bootstrap v4.6 and a Browser

Program:

```
<!doctype html>

<html lang="en">

<head>

    <!-- Required meta tags -->

    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <!-- Bootstrap CSS -->

    <link rel="stylesheet"
        href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css"
        integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/eSrt
        xUkn" crossorigin="anonymous">

    <title>Display and hide message</title>

</head>

<body>
```

```
<span class="container">  
  <h3>Display and hide message shown in the div tag on click of the buttons.</h3>  
  </span>  
  
<div>Lorem, ipsum dolor sit amet consectetur adipisicing elit. Tempora corrupti animi voluptas  
sunt beatae eum harum  
  veniam in labore tenetur, quos at, velit consectetur quas!</div>  
  
<button id="hide">Hide</button>  
  
<button id="show">Show</button>  
  
<script src="https://cdn.jsdelivr.net/npm/jquery@3.5.1/dist/jquery.slim.min.js"  
integrity="sha384-DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew+OrC  
XaRkfj"  
crossorigin="anonymous"></script>  
  
<script>  
  $(document).ready(function () {  
    $("#hide").click(function () {  
      $("div").hide();  
    });  
    $("#show").click(function () {  
      $("div").show();  
    });  
  });  
</script>  
</body>
```

```
</html>
```

Output/Results snippet:

Display and hide message shown in the div tag on click of the buttons.

 Lorem, ipsum dolor sit amet consectetur adipisicing elit. Tempora corrupti animi voluptas sunt beatae eum harum veniam in labore tenetur, quos at, velit consectetur quas!

Display and hide message shown in the div tag on click of the buttons.

References:

1. https://www.w3schools.com/howto/howto_js_toggle_hide_show.asp

Activity 6

Aim: Create one button and a textbox. On click of the button the text written in text box should display on the button

Learning outcome: Able to create one button and a textbox. On click of the button the text written in text box should display on the button

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Windows OS
2. Bootstrap v4.6 and a Browser

Program:

```
<!doctype html>

<html lang="en">

<head>

  <!-- Required meta tags -->

  <meta charset="utf-8">

  <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

  <!-- Bootstrap CSS -->

  <link rel="stylesheet"
    href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css"
    integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/eSrt
    xUkn" crossorigin="anonymous">

  <title>Create a button and a textbox. On click of the button the text written in text box should
  display on the button</title>
```

```
<script type="text/javascript"
src="http://ajax.googleapis.com/ajax/libs/jquery/1.8.3/jquery.min.js"></script>

<script type="text/javascript">
$(function () {
    $("input[name=btnPassport]").click(function () {
        if ($(this).val() == "Yes") {
            $("#dvPassport").show();
        } else {
            $("#dvPassport").hide();
        }
    });
});

</script>

</head>

<body>

<div class="container">

    <h3>Create a button and a textbox. On click of the button the text written in text box should display on the button</h3>

    <span>Do you have Passport?</span>
    <input type="button" value="Yes" name="btnPassport" />
    <input type="button" value="No" name="btnPassport" />
    <hr />

</div>


```

```
<div id="dvPassport" style="display: none">  
    Passport Number:  
    <input type="text" id="txtPassportNumber" />  
</div>  
</div>  
</body>  
</html>
```

Output/Results snippet:

Create a button and a textbox. On click of the button the text written in text box should display on the button

Do you have Passport?

Create a button and a textbox. On click of the button the text written in text box should display on the button

Do you have Passport?

Passport Number:

References:

1. <https://www.aspsnippets.com/Articles>Show-Hide-TextBox-on-Button-Click-using-JavaScript-and-jQuery.aspx>

Activity 7

Aim: Toggle a specified class when an element is clicked

Learning outcome: Able to toggle a specified class when an element is clicked

Duration: 30 minutes

List of Hardware/Software requirements:

1. Laptop/Computer with Windows OS
2. Bootstrap v4.6 and a Browser

Program:

```
<!doctype html>

<html lang="en">

<head>

    <!-- Required meta tags -->

    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <!-- Bootstrap CSS -->

    <link rel="stylesheet"
        href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css"
        integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/eSrt
        xUkn" crossorigin="anonymous">

<style>

    p {
        margin: 5px;
        font-size: 15px;
    }
</style>
```

```
cursor: pointer;
}

.highlight {
background:
#F4FA58;
}

</style>

<title>Toggle a specified class</title>

</head>

<body>

<div class="container">

<h3>Toggle a specified class when an element is clicked.</h3>

<p>Click on the Paragraphs</p>

<p>jQuery Exercises</p>

<p>JavaScript Exercises</p>

</div>

<script src="https://cdn.jsdelivr.net/npm/jquery@3.5.1/dist/jquery.slim.min.js"
integrity="sha384-DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew+OrC
XaRkfj"
crossorigin="anonymous"></script>

<script>

 $("p").click(function () {
 $(this).toggleClass("highlight");
});


```

```
</script>  
</body>  
</html>
```

Output/Results snippet:

Toggle a specified class when an element is clicked.

Click on the Paragraphs
jQuery Exercises
JavaScript Exercises

Toggle a specified class when an element is clicked.

Click on the Paragraphs
jQuery Exercises
JavaScript Exercises

References:

1. <https://www.w3resource.com/jquery-exercises/jquery-css-exercise-10.php>

Activity 8

Aim: Disable the submit button until the visitor has clicked a check box

Learning outcome: To disable the submit button until the visitor has clicked a check box

Duration: 30 minutes

List of Hardware/Software requirements:

1. Laptop/Computer with Windows OS
2. Bootstrap v4.6 and a Browser

Program:

```
<!doctype html>

<html lang="en">

<head>

    <!-- Required meta tags -->

    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <!-- Bootstrap CSS -->

    <link rel="stylesheet"
        href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css"
        integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/eSrt
        xUkn" crossorigin="anonymous">

    <title>Disable the submit button until the visitor has clicked a check box.</title>

</head>

<body>

    <div class="container">
```

<h3>Disable the submit button until the visitor has clicked a check box.</h3>

<form>

<div class="mb-3">

<label for="exampleInputEmail1" class="form-label">Email address</label>

<input type="email" class="form-control" id="exampleInputEmail1"

aria-describedby="emailHelp">

</div>

<div class="mb-3 form-check">

<input id="accept" name="accept" type="checkbox" value="y"/>

<label class="form-check-label" for="exampleCheck1">I accept</label>

</div>

<input id="submitbtn" disabled="disabled" name="Submit" type="submit"

value="Submit" />

</form>

</div>

<script src="https://cdn.jsdelivr.net/npm/jquery@3.5.1/dist/jquery.slim.min.js"

integrity="sha384-DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUe
w+OrCxaRkfi"

crossorigin="anonymous"></script>

<script>

\$('#accept').click(function () {

if (\$('#submitbtn').is(':disabled')) {

\$('#submitbtn').removeAttr('disabled');

} else {

```
        $('#submitbtn').attr('disabled', 'disabled');  
    }  
});  
</script>  
</body>  
</html>
```

Output/Results snippet:

Disable the submit button until the visitor has clicked a check box.

Email address

I accept

Submit

Disable the submit button until the visitor has clicked a check box.

Email address

I accept

Submit

References:

1. <https://www.w3resource.com/jquery-exercises/part1/jquery-practical-exercise-4.php>

Activity 9

Aim: Create a text input field. Listen for the key up event. Alert the value of the text box whenever key up occurs

Learning outcome: To create a text input field and listen for the key up event and also alert the value of the text box whenever key up occurs

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Windows OS
2. Bootstrap v4.6 and a Browser

Program:

```
<!doctype html>

<html lang="en">

<head>

    <!-- Required meta tags -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
    <!-- Bootstrap CSS -->
    <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css" integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/eSrtxUkn" crossorigin="anonymous">

    <title>Create a text input field. Listen for the keyup event. Alert the value of the text box whenever keyup occurs.</title>
```

```

</head>

<body>

<div class="container">

    <h3>Create a text input field. Listen for the keyup event. Alert the value of the text box
    whenever keyup

    occurs. </h3>

    <form>

        <div class="mb-3">

            <label for="exampleInputEmail1" class="form-label">Enter your name: </label>

            <input type="text" class="form-control" id="exampleInputEmail1" aria-
            describedby="emailHelp">

        </div>

    </form>

</div>

<script src="https://cdn.jsdelivr.net/npm/jquery@3.5.1/dist/jquery.slim.min.js"
integrity="sha384-DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew+OrC
XaRkfj"
crossorigin="anonymous"></script>

<script>

$(document).ready(function () {

    $("input").keydown(function () {

        $("input").css("background-color", "yellow");

    });

    $("input").keyup(function () {

        $("input").css("background-color", "pink");

    });

});

```

```
});  
});  
</script>  
  
</body>  
  
</html>
```

Output/Results snippet:

Create a text input field. Listen for the keyup event. Alert the value of the text box whenever keyup occurs.

Enter your name:

Create a text input field. Listen for the keyup event. Alert the value of the text box whenever keyup occurs.

Enter your name:

Create a text input field. Listen for the keyup event. Alert the value of the text box whenever keyup occurs.

Enter your name:

References:

1. https://www.w3schools.com/jquery/tryit.asp?filename=tryjquery_event_keydown_keyup

Activity 10

Aim: Set a timer to delay execution of subsequent items in the queue

Learning outcome: To set a timer and delay execution of subsequent items in the queue

Duration: 30 minutes

List of Hardware/Software requirements:

1. Laptop/Computer with Windows OS
2. Bootstrap v4.6 and a Browser

Program:

```
<!doctype html>

<html lang="en">

<head>

    <!-- Required meta tags -->

    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <!-- Bootstrap CSS -->

    <link rel="stylesheet"
        href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css"
        integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/eSrt
        xUkn" crossorigin="anonymous">

    <title>Set a timer to delay execution of subsequent items in the queue.
    </title>

    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>

    <script>
```

```
$(document).ready(function () {  
    $("button").click(function () {  
        $("#div1").delay("slow").fadeIn();  
        $("#div2").delay("fast").fadeIn();  
        $("#div3").delay(800).fadeIn();  
        $("#div4").delay(2000).fadeIn();  
        $("#div5").delay(4000).fadeIn();  
    });  
});  
</script>  
</head>  
<body>  
    <div class="container">  
        <h3>Set a timer to delay execution of subsequent items in the queue. </h3>  
        <p>delay() method sets different speed values.</p>  
        <button>Click to fade in boxes with a delay</button></p>  
        <div id="div1" style="width:90px;height:90px;display:none;background-color:black;"></div><br>  
        <div id="div2" style="width:90px;height:90px;display:none;background-color:green;"></div><br>  
        <div id="div3" style="width:90px;height:90px;display:none;background-color:blue;"></div><br>  
        <div id="div4" style="width:90px;height:90px;display:none;background-color:red;"></div><br>
```

```
color:red;"></div><br>
<div id="div5" style="width:90px;height:90px;display:none;background-
color:purple;"></div><br>
</div>
</body>
</html>
```

Output/Results snippet:

Set a timer to delay execution of subsequent items in the queue.

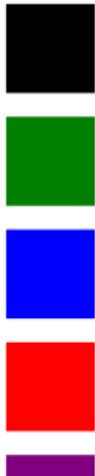
delay() method sets different speed values.

[Click to fade in boxes with a delay](#)

Set a timer to delay execution of subsequent items in the queue.

delay() method sets different speed values.

[Click to fade in boxes with a delay](#)



References:

1. https://www.w3schools.com/jquery/eff_delay.asp

Activity 11

Aim: Find all the text nodes inside a paragraph and wrap them with an italic tag

Learning outcome: Able to find all the text nodes inside a paragraph and wrap them with an italic tag

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Windows OS
2. Bootstrap v4.6 and a Browser

Program:

```
<!doctype html>

<html lang="en">

<head>

    <!-- Required meta tags -->

    <meta charset="utf-8">

    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">

    <!-- Bootstrap CSS -->

    <link rel="stylesheet"
        href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css"
        integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlf
        G/eSrtxUkn" crossorigin="anonymous">

    <title>Find all the text nodes inside a paragraph and wrap them with an italic tag.</title>

</head>

<body>
```

```
<div class="container">

<h3>Find all the text nodes inside a paragraph and wrap them with an italic tag. </h3>

<p><a href="https://www.w3resource.com/jquery-exercises/">jQuery</a> Exercises,
   Practice and Solution</p>

<p><a href="https://www.w3resource.com/javascript-exercises/">JavaScript</a> Exercises,
   Practice and Solution

</p>

</div>

<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>

<script>

  $("p")
    .contents()
    .filter(function () {
      return this.nodeType !== 1;
    })
    .wrap("<i></i>");

</script>

</body>

</html>
```

Output/Results snippet:

Find all the text nodes inside a paragraph and wrap them with an italic tag.

[jQuery Exercises, Practice and Solution](#)

[JavaScript Exercises, Practice and Solution](#)

References:

1. <https://www.w3resource.com/jquery-exercises/2/jquery-fundamental-exercise-60.php>

Activity 12

Aim: Write a jquery to attach a change event to the select element (Use to create a drop-down list.) that gets the text for each selected option and writes them in a paragraph

Learning outcome: To attach a change event to the select element (Use to create a drop-down list.) that gets the text for each selected option and writes them in a paragraph

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Windows OS
2. Bootstrap v4.6 and a Browser

Program:

```
<!doctype html>

<html lang="en">

<head>

    <!-- Required meta tags -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
    <!-- Bootstrap CSS -->
    <link rel="stylesheet"
        href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css"
        integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlf
        G/eSrtxUkn" crossorigin="anonymous">

    <title>Write a jquery to attach a change event to the select element (Use to create a drop-down
list.) that gets the
        text for each selected option and writes them in a paragraph.</title>

</head>
```

```
<body>
<div class="container">
<h3>Write a jquery to attach a change event to the select element (Use to create a drop-down list.) that gets the text for each selected option and writes them in a paragraph.</h3>
<select name="colors" multiple="multiple">
<option>Red</option>
<option>Green</option>
<option>Blue</option>
<option>Orange</option>
<option>Black</option>
<option>White</option>
</select>
<p></p>
</div>
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
<script>
var foo = function (value) {
  console.log("foo: " + value);
};

var callbacks = $.Callbacks();
$("select")
.change(function () {
  var str = "";
  $("select option:selected").each(function () {

```

```
str += $(this).text() + " ";  
});  
$("p").text("Selected Colors: " + str).css("color", "blue");  
}  
.change();  
</script>  
</body>  
</html>
```

Output/Results snippet:

Write a jquery to attach a change event to the select element (Use to create a drop-down list.) that gets the text for each selected option and writes them in a paragraph.



Selected Colors:

Write a jquery to attach a change event to the select element (Use to create a drop-down list.) that gets the text for each selected option and writes them in a paragraph.



Selected Colors: Blue

References:

1. <https://www.w3resource.com/jquery-exercises/2/jquery-fundamental-exercise-53.php>

Activity 13

Aim: Find the widths and heights of various elements. Get the scroll top and left of an element. Access the position of an element.

Learning outcome: Able to find the widths and heights of various elements. Get the scroll top and left of an element. Access the position of an element.

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with Windows OS
2. Bootstrap v4.6 and a Browser

Program:

```
<!doctype html>

<html lang="en">

<head>

    <!-- Required meta tags -->
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">
    <!-- Bootstrap CSS -->
    <link rel="stylesheet"
        href="https://cdn.jsdelivr.net/npm/bootstrap@4.6.1/dist/css/bootstrap.min.css"
        integrity="sha384-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/eSrt
        xUkn" crossorigin="anonymous">

    <title>Find the widths and heights of various elements. Get the scroll top and left of an element.
        Access the position of an element.</title>

    <style>
        p {
```

```
margin-top: 20px;  
margin-left: 10px;  
padding: 5px;  
border: 2px solid #666;  
}  
</style>  
</head>  
<body>  
  <div class="container">  
    <h3>Find the widths and heights of various elements. Get the scroll top and left of an element.  
    Access the position of an element.</h3>  
    <div  
      style="height:75px; width:200px; padding:10px; margin:3px; border:1px solid rgba(15, 95, 25, 0.678); background-color:#035770;">  
      </div>  
    </div>  
    <p> </p>  
    <p>This is a paragraph.</p>  
    <button>Return the top and left position of the p element</button>  
    <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>  
    <script>  
      console.log("The width of the h3 tag is:" + $("h3").width());  
      console.log("The width of the div is:" + $("div").width());  
      console.log("Scroll left, top position of the Paragraph are:" + $("p").scrollLeft() + ',' +  
      $("p").scrollTop());
```

```

</script>

<script>

$(document).ready(function () {

    $("button").click(function () {

        var x = $("p").position();

        alert("Top position: " + x.top + " Left position: " + x.left);

    });

});

</script>

</body>

</html>

```

Output/Results snippet:

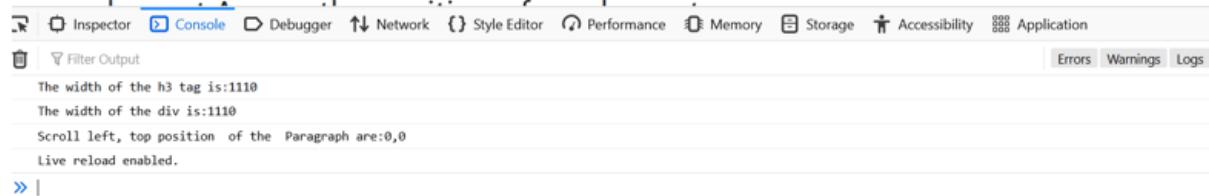
Find the widths and heights of various elements. Get the scroll top and left of an element. Access the position of an element.



This is a paragraph.

Return the top and left position of the p element

Find the widths and heights of various elements. Get the scroll top and left of



References:

1. <https://www.w3resource.com/jquery-exercises/jquery-css-exercise-4.php>
2. https://www.w3schools.com/jquery/tryit.asp?filename=tryjquery_css_position
3. <https://www.w3resource.com/jquery-exercises/jquery-css-exercise-3.php>

Learning Outcome - Able to understand database and its commands

After achieving this learning outcome, a student will be able to understand concept of databases. In order to achieve this learning outcome, a student has to complete the following:

1. Installing MySQL (1 hrs)
2. Creating and Manipulating Database objects and Applying Constraints (DDL) (2 hrs)
3. Manipulating Data with Database Objects (DML) (1 hrs)
4. SQL Single Row Functions (1 hrs)
5. Displaying Data from Multiple Tables (Join) (2 hrs)
6. SQL Multiple Row Functions (Aggregate Function) (1 hrs)
7. SQL using sub query (2 hrs)

Activity 1

Aim: Installing MySQL on windows

Learning outcome: Able to install MySQL.

Duration: 1 hour

List of Hardware/Software requirements:

1. Laptop/Computer with windows OS

Code/Program/Procedure (with comments):

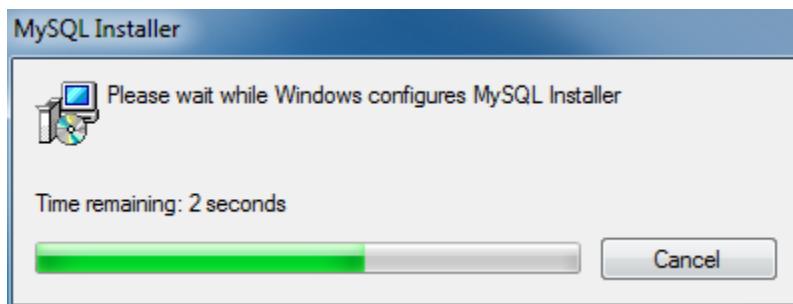
If you want to install MySQL on the Windows environment, using MySQL installer is the easiest way.

To download MySQL installer, go to the following link <http://dev.mysql.com/downloads/installer/>. There are two installer files:

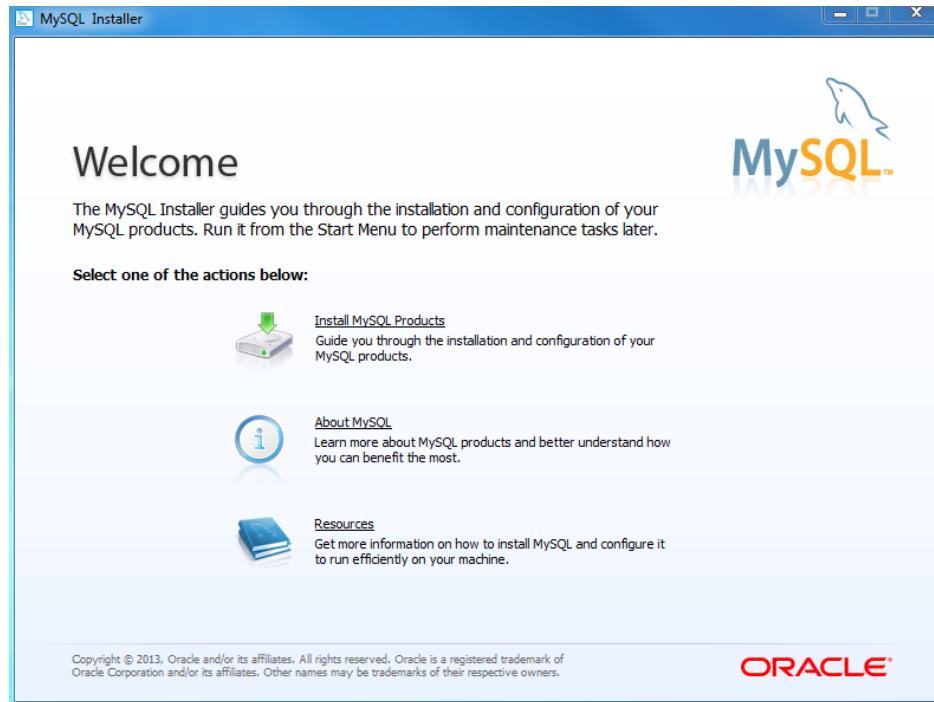
- If you are connecting to the internet while installing MySQL, you can choose the online installation version mysql-installer-web-community-<version>.exe.
- In case you want to install MySQL offline, you can download the mysql-installer-community-<version>.exe file.

Install MySQL via MySQL Installer

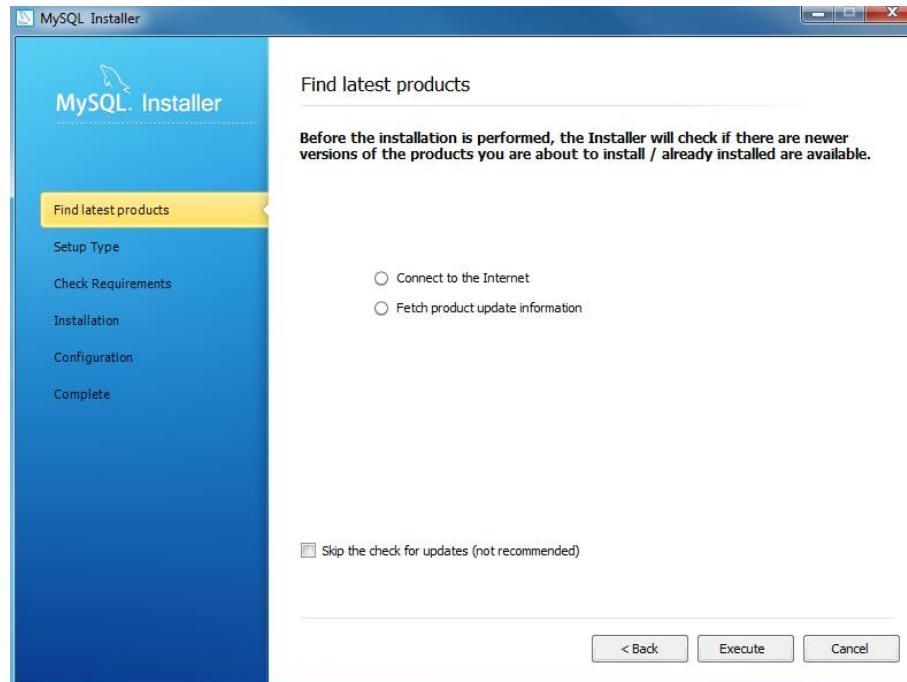
To install MySQL using the MySQL installer, double-click on the MySQL installer file and follow the steps below:



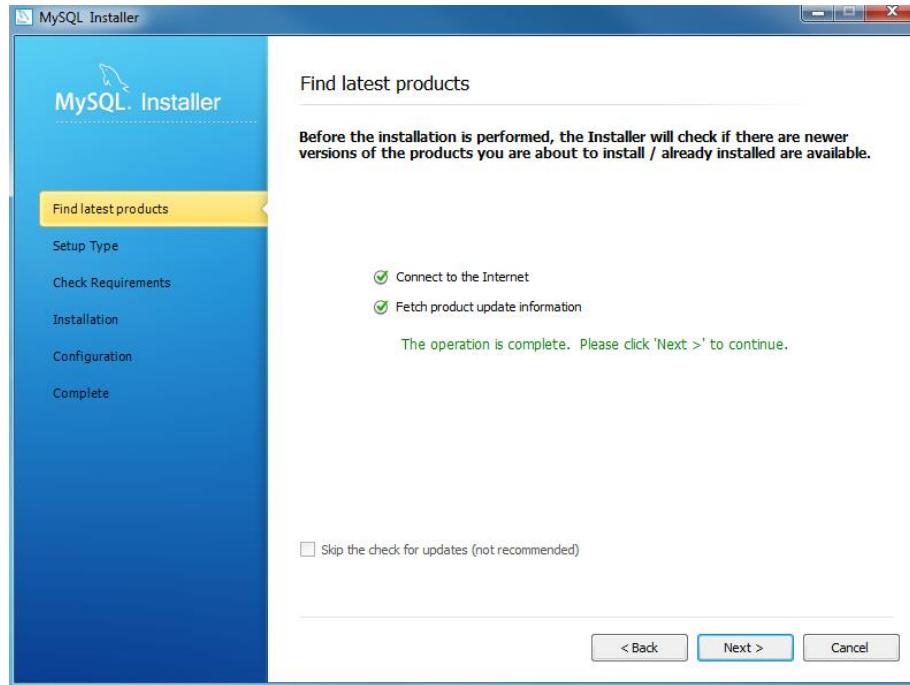
Install MySQL Step 1: Windows configures MySQL Installer



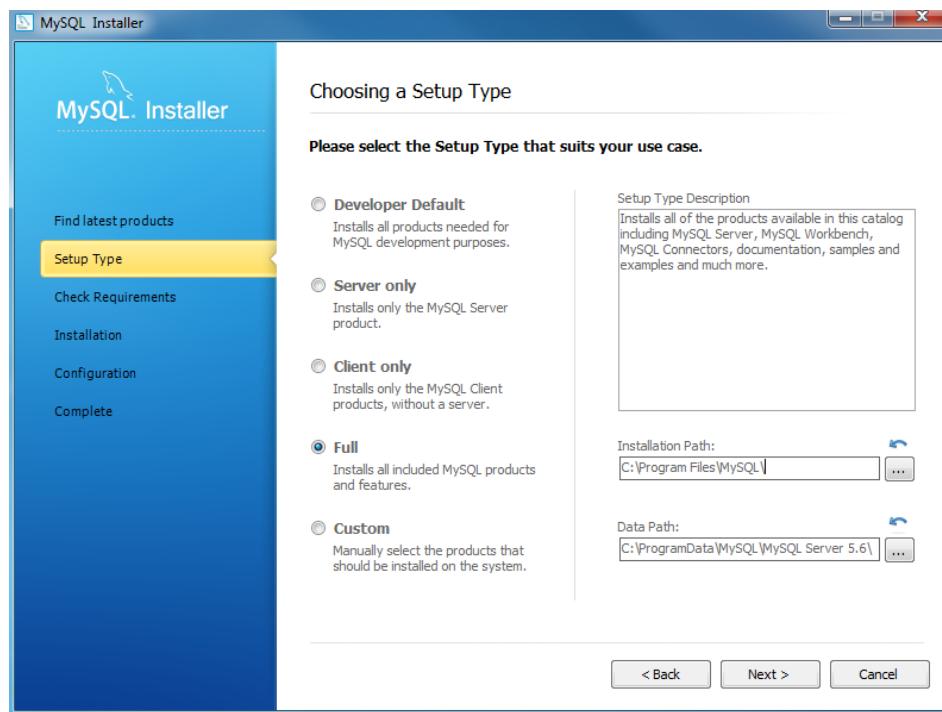
Install MySQL Step 2 – Welcome Screen: A welcome screen provides several options. Choose the first option: Install MySQL Products



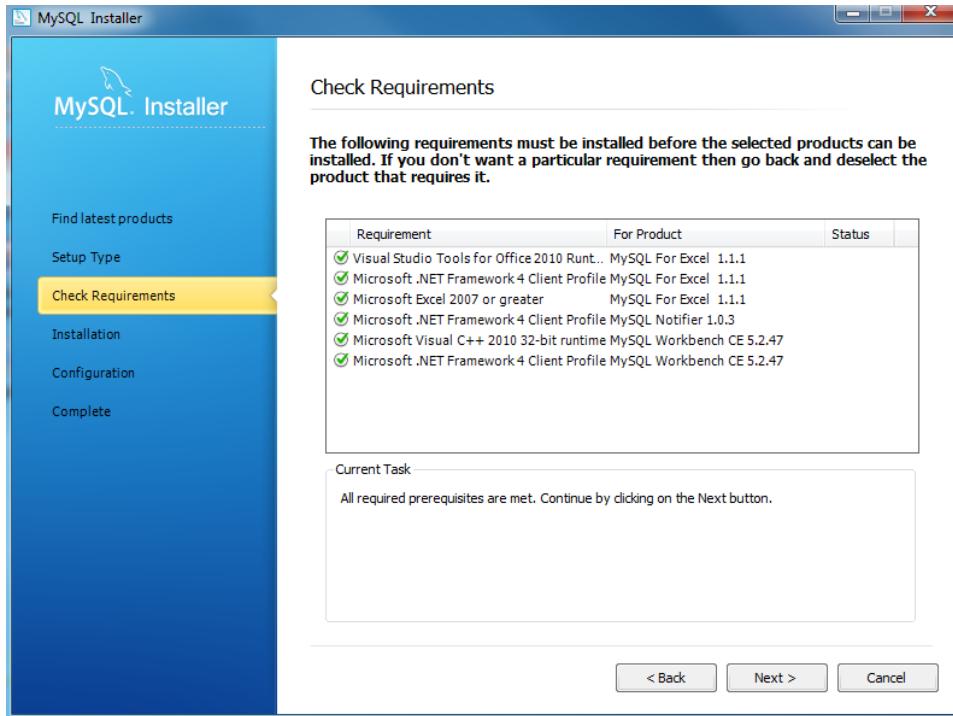
Install MySQL Step 3 – Download the latest MySQL products: MySQL installer checks and downloads the latest MySQL products including MySQL server, MySQL Workbench, etc.



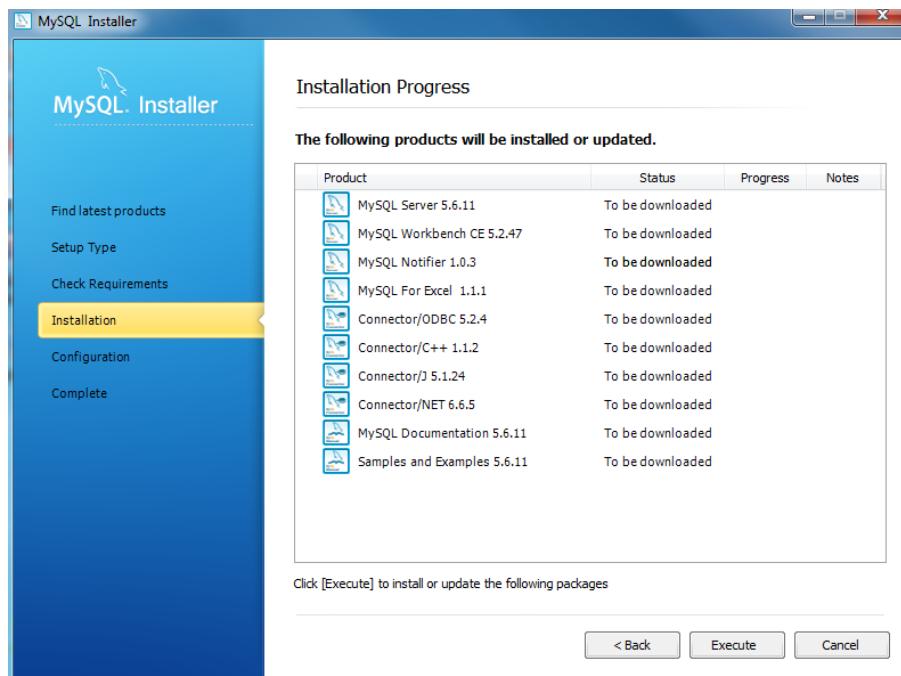
Install MySQL Step 4: Click the Next button to continue



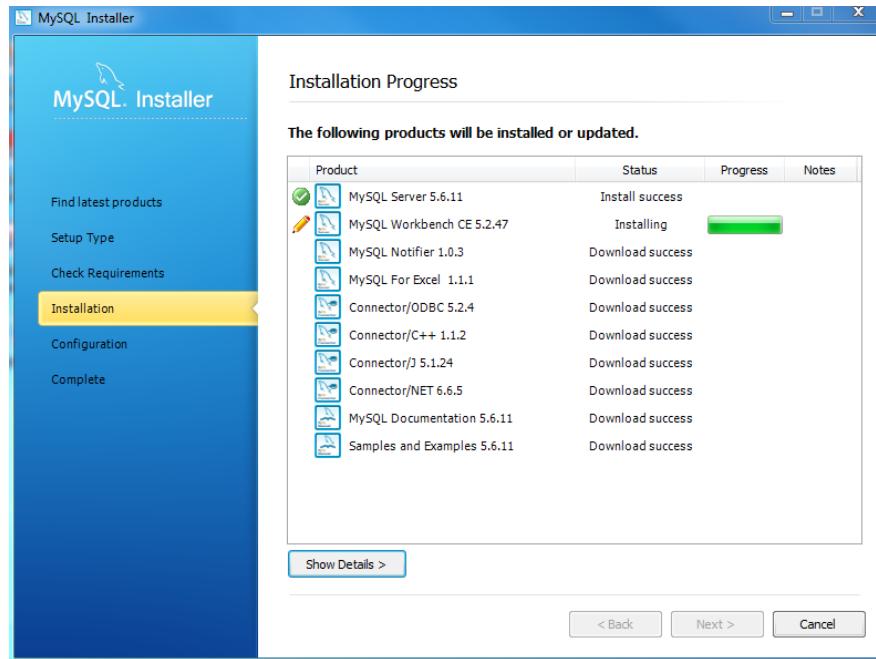
Install MySQL Step 5 – Choosing a Setup Type: there are several setup types available. Choose the Full option to install all MySQL products and features.



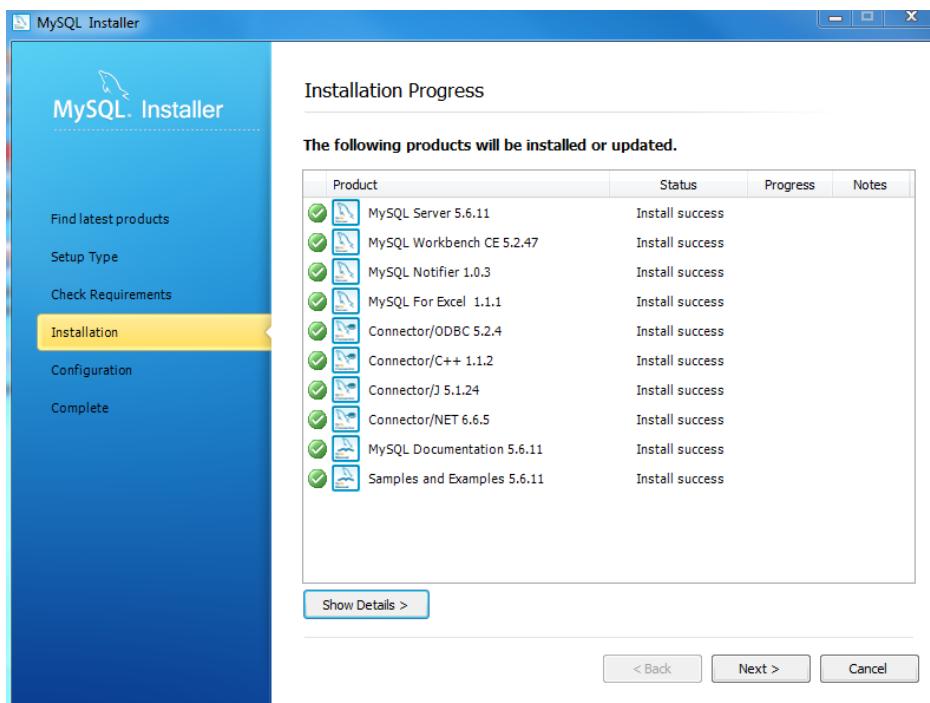
Install MySQL Step 6 – Checking Requirements



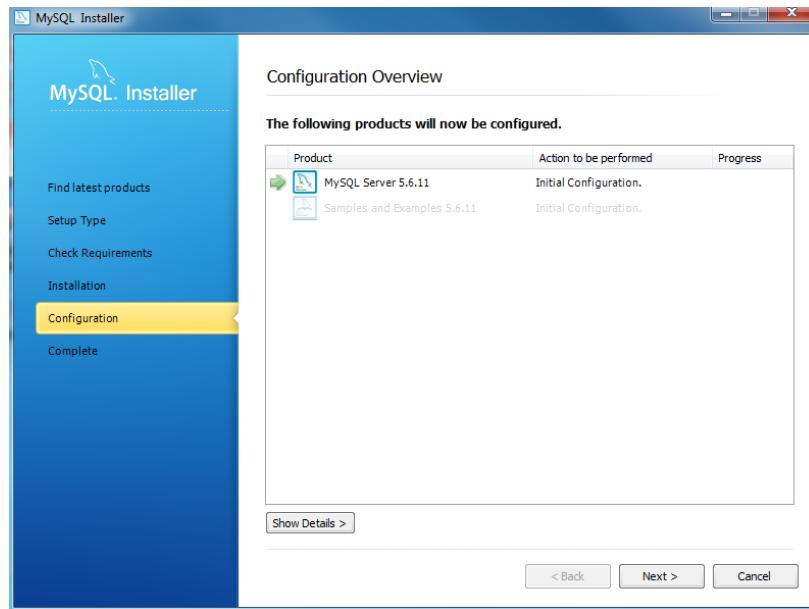
Install MySQL Step 7 – Installation Progress: MySQL Installer downloads all selected products. It will take a while, depending on which products you selected and the speed of your internet connection.



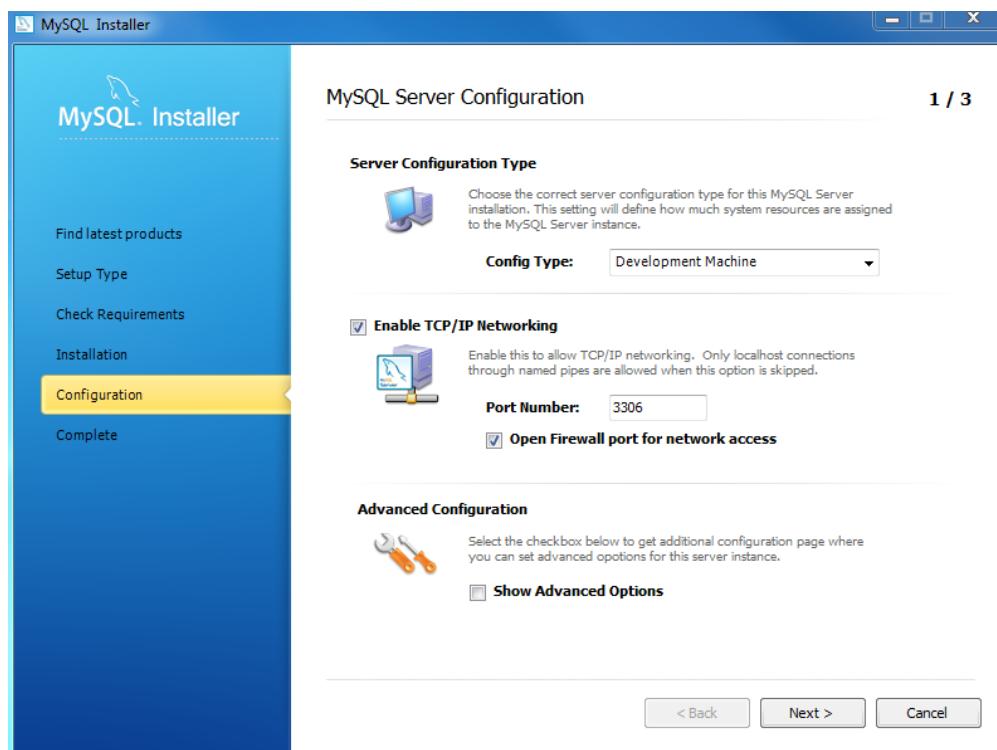
Install MySQL Step 7 – Installation Progress: downloading Products in progress.



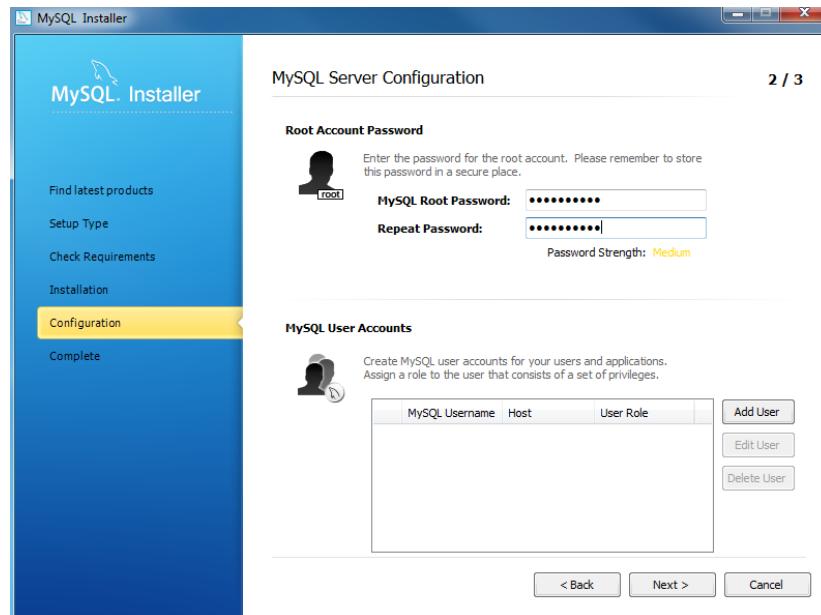
Install MySQL Step 7 – Installation Progress: Complete Downloading. Click the **Next** button to continue...



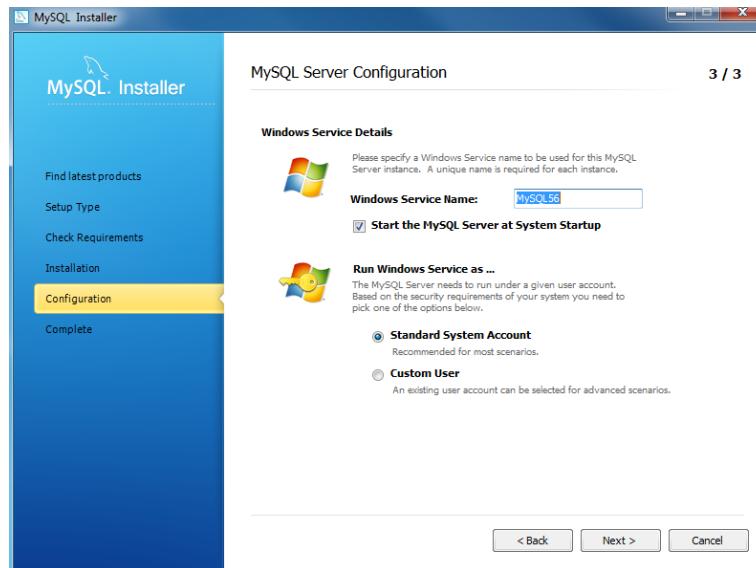
Install MySQL Step 8 – Configuration Overview. Click the Next button to configure MySQL Database Server



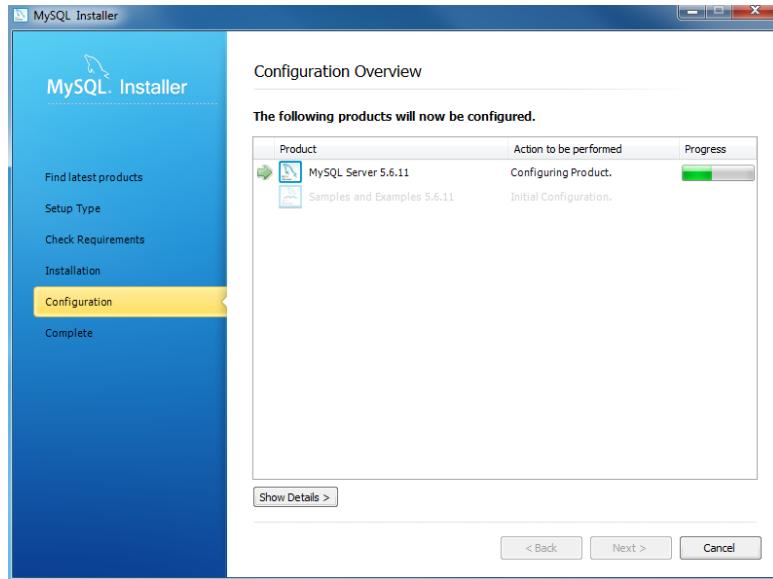
Install MySQL Step 8.1 – MySQL Server Configuration: choose Config Type and MySQL port (3006 by default) and click Next button to continue.



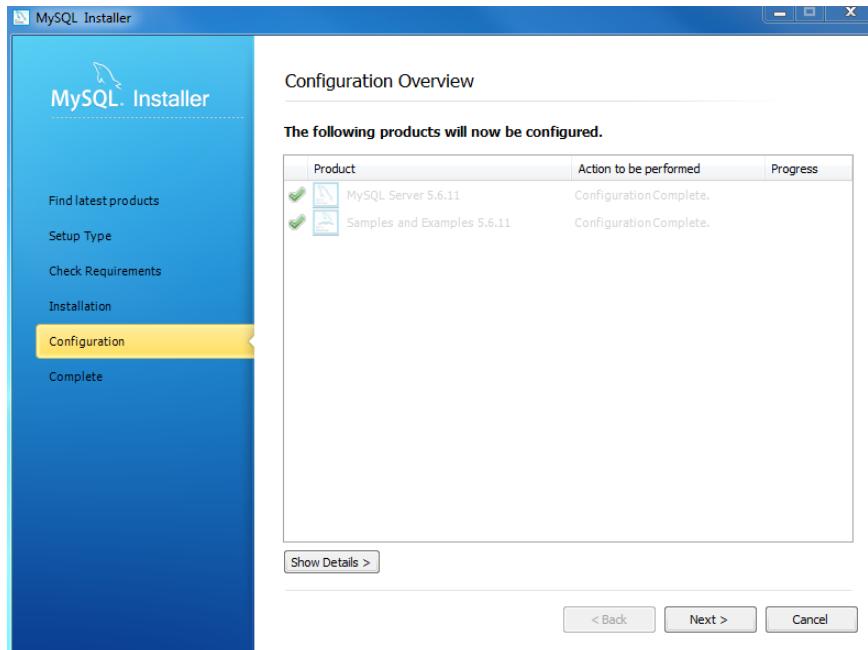
Install MySQL Step 8.1 – MySQL Server Configuration: choose a password for the root account. Please note the password download and keep it securely if you are installing MySQL database server on a production server. If you want to add a more MySQL user, you can do it in this step.



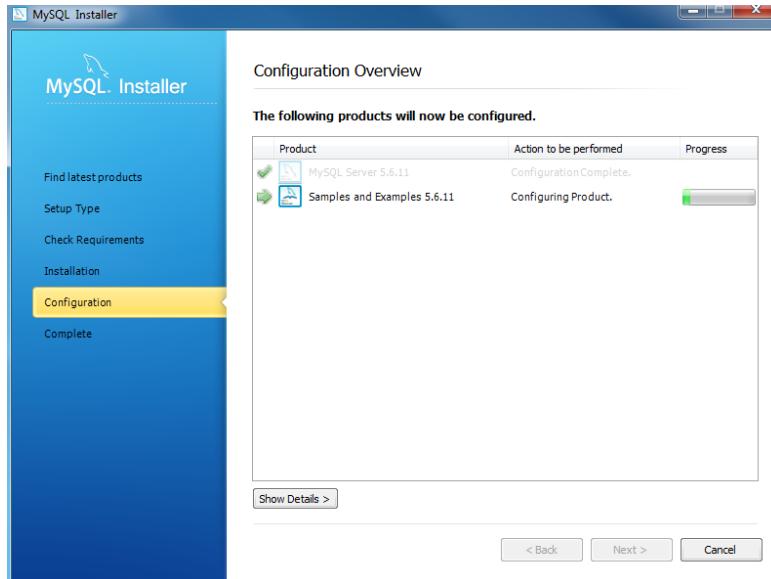
Install MySQL Step 8.1 – MySQL Server Configuration: choose Windows service details including Windows Service Name and account type, then click Next button to continue.



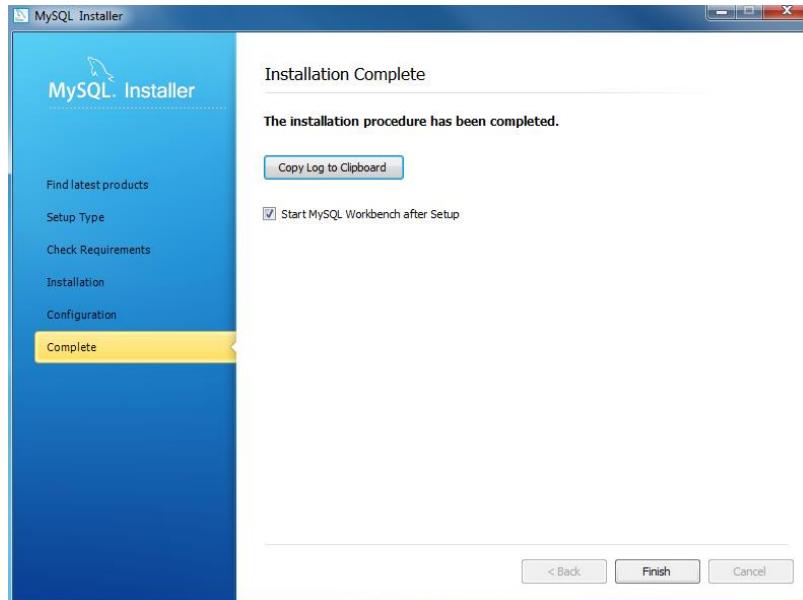
Install MySQL Step 8.1 – MySQL Server Configuration – In Progress: MySQL Installer is configuring MySQL database server. Wait until it is done and click the Next button to continue.



Install MySQL Step 8.1 – MySQL Server Configuration – Done. Click the Next button to continue.



Install MySQL Step 8.2 – Configuration Overview: MySQL Installer installs sample databases and sample models.



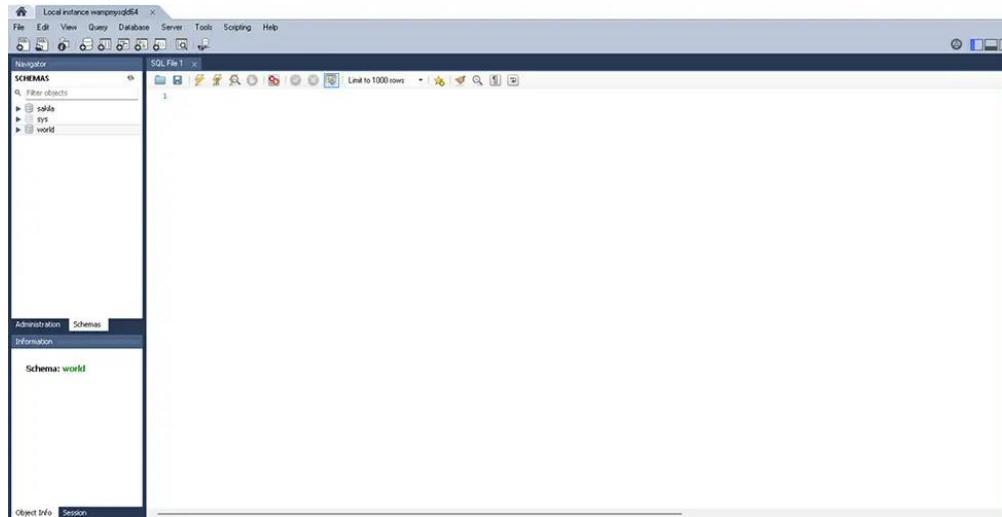
Install MySQL Step 9 – Installation Completes: the installation completes. Click the **Finish** button to close the installation wizard and launch the MySQL Workbench.

If you chose to start the Workbench after finishing the installation, you'll see the following screen:



Choose the connection to the server you created and log into it.

This is your working space:



Notice in the **SCHEMAS** window that you already have a few sample databases to play with. In the **Information** window, you can see the database you have selected. Of course, you have the main window to write SQL code.

Activity 2

Aim: Creating and Manipulating Database objects and Applying Constraints (DDL)

Learning outcome: Able to use DDL commands.

Duration: 2 hour

List of Hardware/Software requirements:

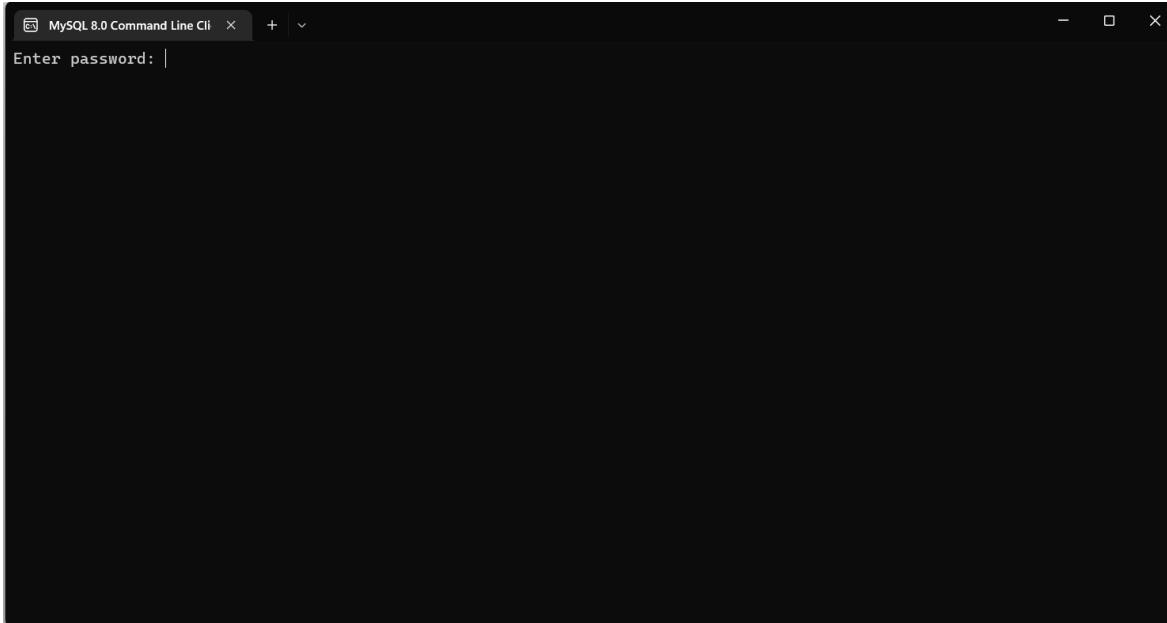
1. Laptop/Computer with windows OS
2. MySql

Code/Program/Procedure (with comments):

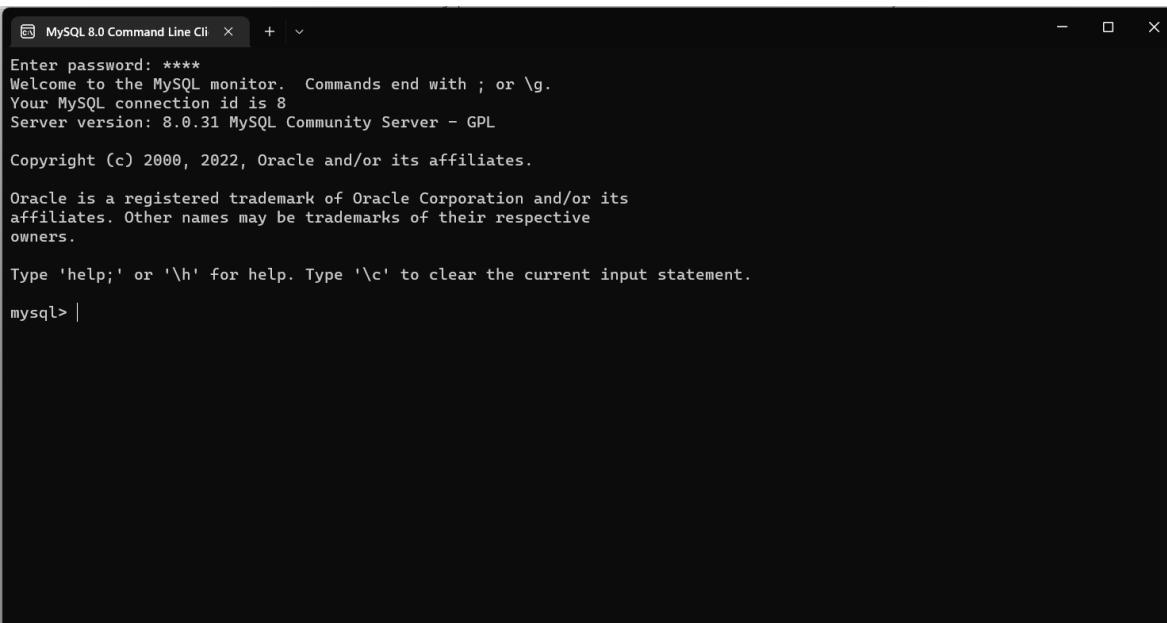
DDL Commands

- **CREATE:** This command is used to create the database or its objects (like table, index, function, views, store procedure, and triggers).
- **DROP:** This command is used to delete objects from the database.
- **ALTER:** This is used to alter the structure of the database.
- **TRUNCATE:** This is used to remove all records from a table, including all spaces allocated for the records are removed.
- **COMMENT:** This is used to add comments to the data dictionary.
- **RENAME:** This is used to rename an object existing in the database.

1. Login to MySQL

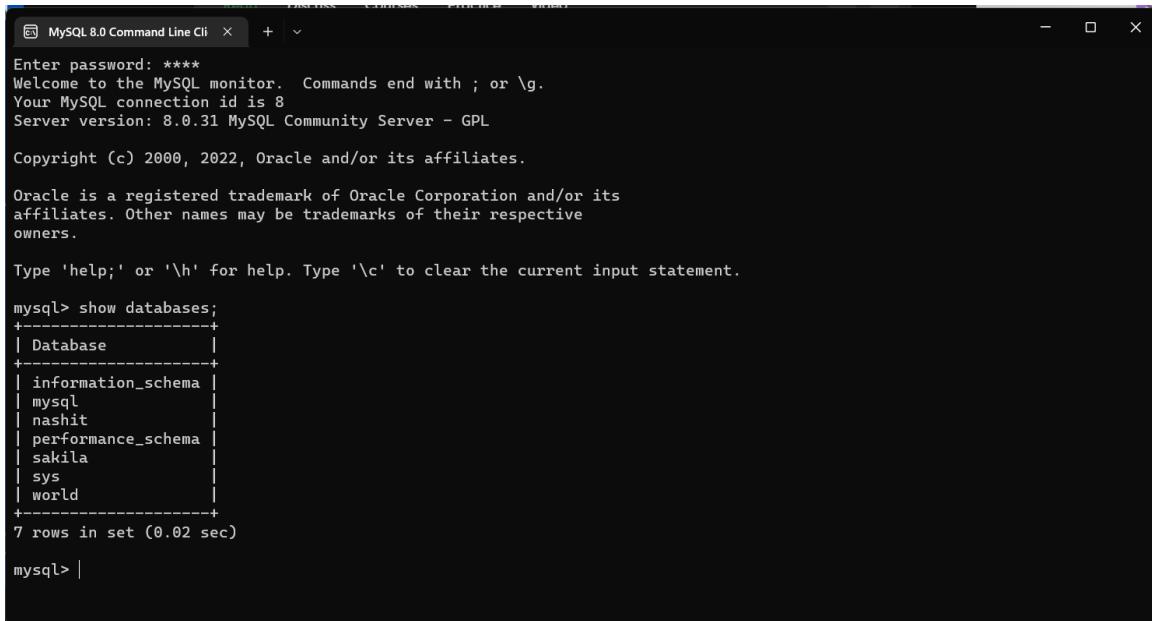


2. Enter your password



3. To check all the existing databases, use command

```
show databases;
```



```
MySQL 8.0 Command Line Cli  X  +  v
Enter password: ****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.31 MySQL Community Server - GPL

Copyright (c) 2000, 2022, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

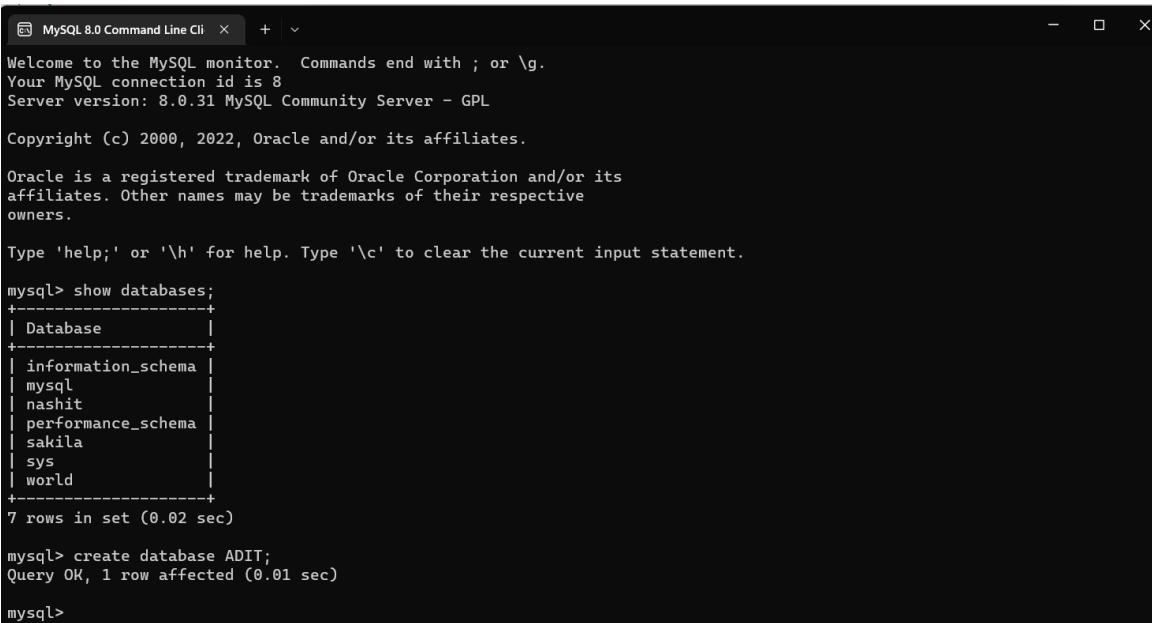
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| nashit |
| performance_schema |
| sakila |
| sys |
| world |
+-----+
7 rows in set (0.02 sec)

mysql> |
```

4. To create a new database, use command

```
create database database_name
```



```
MySQL 8.0 Command Line Cli  X  +  v
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.31 MySQL Community Server - GPL

Copyright (c) 2000, 2022, Oracle and/or its affiliates.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| nashit |
| performance_schema |
| sakila |
| sys |
| world |
+-----+
7 rows in set (0.02 sec)

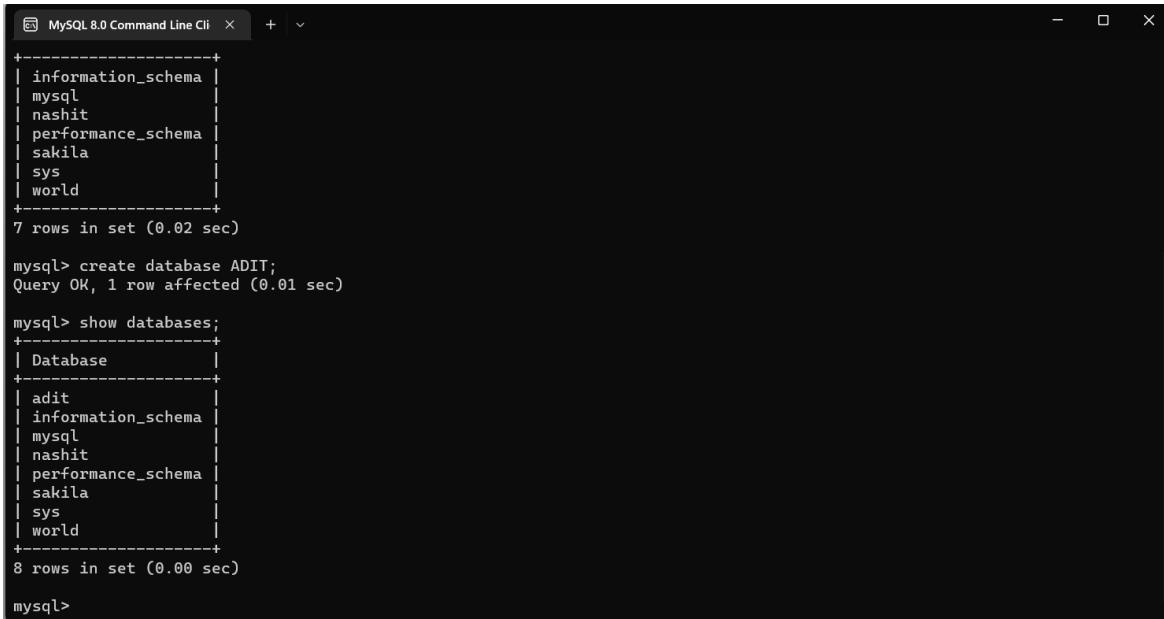
mysql> create database ADIT;
Query OK, 1 row affected (0.01 sec)

mysql>
```

-
5. To check if the database has been created, use command

show databases;

If the database has been created, we need to proceed to use the database we created.



MySQL 8.0 Command Line Cli

```
+-----+  
| information_schema |  
| mysql |  
| nashit |  
| performance_schema |  
| sakila |  
| sys |  
| world |  
+-----+  
7 rows in set (0.02 sec)  
  
mysql> create database ADIT;  
Query OK, 1 row affected (0.01 sec)  
  
mysql> show databases;  
+-----+  
| Database |  
+-----+  
| adit |  
| information_schema |  
| mysql |  
| nashit |  
| performance_schema |  
| sakila |  
| sys |  
| world |  
+-----+  
8 rows in set (0.00 sec)  
  
mysql>
```

6. To select the database we created, use the command

use database_name;

```
MySQL 8.0 Command Line Cli  x  +  v

| mysql      |
| nashit    |
| performance_schema |
| sakila    |
| sys       |
| world    |
+-----+
7 rows in set (0.02 sec)

mysql> create database ADIT;
Query OK, 1 row affected (0.01 sec)

mysql> show databases;
+-----+
| Database   |
+-----+
| adit      |
| information_schema |
| mysql      |
| nashit    |
| performance_schema |
| sakila    |
| sys       |
| world    |
+-----+
8 rows in set (0.00 sec)

mysql> use adit;
Database changed
mysql>
```

7. To create a new table in the database, use command

```
create table table_name (column1_name datatype(character count), column2_name
datatype(character count), column3_name datatype(character count),
column4_name datatype(charcter count) ..... Column'n'_name
datatype(character count));
```

```
mysql> create table students (name varchar(20), age integer(2), email varchar(25), location varchar(12));
Query OK, 0 rows affected, 1 warning (0.03 sec)

mysql> |
```

8. To check the table, if created use

```
show tables
```

```
mysql> show tables;
+-----+
| Tables_in_adit |
+-----+
| students      |
+-----+
1 row in set (0.01 sec)

mysql> |
```

9. To insert data in the table, insert data using command

```
insert into table_name values ('data_column1', 'data_column2', 'data_column3',
....., 'data_column'n');
```

```

mysql> insert into students values ('Peter', '19', 'peter@mail.com', 'ITI');
Query OK, 1 row affected (0.01 sec)

mysql> insert into students values ('Mark', '20', 'mark@mail.com', 'ITI');
Query OK, 1 row affected (0.00 sec)

mysql> insert into students values ('John', '19', 'john@mail.com', 'ITI');
Query OK, 1 row affected (0.00 sec)

mysql> insert into students values ('James', '20', 'james@mail.com', 'ITI');
Query OK, 1 row affected (0.00 sec)

mysql> |

```

10. To check the kind of table, to describe the table, use command;

describe table_name;

```

mysql> describe students;
+-----+-----+-----+-----+-----+-----+
| Field | Type  | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| name  | varchar(20) | YES |   | NULL   |       |
| age   | int    | YES |   | NULL   |       |
| email | varchar(25) | YES |   | NULL   |       |
| location | varchar(12) | YES |   | NULL   |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.01 sec)

mysql>

```

11. To check if data has been inserted, use command

select * from table_name;

```

mysql> select * from students;
+-----+-----+-----+-----+
| name | age  | email        | location |
+-----+-----+-----+-----+
| Peter | 19  | peter@mail.com | ITI      |
| Mark  | 20  | mark@mail.com  | ITI      |
| John  | 19  | john@mail.com  | ITI      |
| James | 20  | james@mail.com | ITI      |
+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql>

```

12. To change the wrong title of column, use command

alter table table_name rename column wrong_column_name to new_column_name;

```

mysql> alter table students rename column location to qualification;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql>

```

13. To check if the changes have been made, show table

select * from table_name;

```
mysql> alter table students rename column location to qualification;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> select * from students;
+-----+-----+-----+-----+
| name | age | email | qualification |
+-----+-----+-----+-----+
| Peter | 19 | peter@mail.com | ITI
| Mark | 20 | mark@mail.com | ITI
| John | 19 | john@mail.com | ITI
| James | 20 | james@mail.com | ITI
+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql> |
```

14. If a column needs to be removed

```
alter table table_name
drop column column_name;
```

```
mysql> alter table students
      -> drop column qualification;
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql>
```

15. To check if the changes are in effect

```
show * from table_name;
```

```
mysql> alter table students
      -> drop column qualification;
Query OK, 0 rows affected (0.01 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> select * from students;
+-----+-----+-----+
| name | age | email |
+-----+-----+-----+
| Peter | 19 | peter@mail.com |
| Mark | 20 | mark@mail.com |
| John | 19 | john@mail.com |
| James | 20 | james@mail.com |
+-----+-----+-----+
4 rows in set (0.00 sec)

mysql> |
```

16. For our reference, we might add comments, after any command, using # or – or /*

```
show * from table_name; #Comment
```

```
mysql> select * from students; #This is the data of adit students
+-----+-----+-----+
| name | age | email |
+-----+-----+-----+
| Peter | 19 | peter@mail.com |
| Mark | 20 | mark@mail.com |
| John | 19 | john@mail.com |
| James | 20 | james@mail.com |
+-----+-----+-----+
4 rows in set (0.00 sec)

mysql> select * from students; --This is the data of adit students
+-----+-----+-----+
| name | age | email |
+-----+-----+-----+
| Peter | 19 | peter@mail.com |
| Mark | 20 | mark@mail.com |
| John | 19 | john@mail.com |
| James | 20 | james@mail.com |
+-----+-----+-----+
4 rows in set (0.00 sec)

-> ^C
mysql>
```

17. To delete a row, we might use

```
delete from table_name where column_name='column_value';
```

& Check the table

```
mysql> delete from students where name='John';
Query OK, 1 row affected (0.01 sec)

mysql> select * from students;
+-----+-----+-----+
| name | age | email |
+-----+-----+-----+
| Peter | 19 | peter@mail.com |
| Mark | 20 | mark@mail.com |
| James | 20 | james@mail.com |
+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> |
```

18. To remove the data from the table, use truncate command

```
truncate table table_name;
```

& Check the table

```
mysql> truncate table students;
Query OK, 0 rows affected (0.04 sec)

mysql> select * from students;
Empty set (0.00 sec)

mysql> |
```

Activity 3

Aim: Manipulating Data with Database Objects (DML)

Learning outcome: Able to understand basic computer network technology.

Duration: 1 hour

List of Hardware/Software requirements:

1. A computer with Windows/Linux/Mac operating system
2. MySQL Installed

Code/Program/Procedure (with comments):

Data Manipulation Language (DML) commands in SQL deals with manipulation of data records stored within the database tables. It does not deal with changes to database objects and its structure. The commonly known DML commands are INSERT, UPDATE and DELETE.

Command	Description
SELECT	Used to query or fetch selected fields or columns from a database table
INSERT	Used to insert new data records or rows in the database table
UPDATE	Used to set the value of a field or column for a particular record to a new value
DELETE	Used to remove one or more rows from the database table

Commands of DML

1. SELECT

SELECT command or statement in SQL is used to fetch data records from the database table and present it in the form of a result set. It is usually considered as a DQL command but it can also be considered as DML.

The basic syntax for writing a SELECT query in SQL is as follows:

```
SELECT column_name1, column_name2, ...
FROM table_name
WHERE condition_expression;
```

The parameters used in the above syntax are as follows :

- **column_name1, column_name2, ...** : Specify the column_names which have to be fetched or selected for the final result set.
- **table_name**: Specify the name of the database table from which these results have to be fetched.
- **condition_expression**: Specify the condition expression for filtering records for the final result set.

Here are a few examples to illustrate the use of SELECT command.

```
SELECT customer_id,
sale_date,
order_id,
store_state
FROM customers;
```

The query returns the following output.

```
1  SELECT customer_id,  
2      sale_date,  
3      order_id,  
4      store_state  
5  FROM customers;
```

Data Output Messages Notifications Explain

	customer_id integer	sale_date date	order_id character varying (255)	store_state character varying (255)
1	1001	2020-05-23	1001	KA
2	1001	2020-05-22	1002	NULL
3	1002	2020-05-23	1003	MH
4	1003	2020-05-22	1004	MH
5	1001	2020-05-23	1005	MH
6	1002	2020-05-21	1001	NY
7	1004	2020-05-22	1003	NULL

In this example, we have fetched fields such as customer_id, sale_date, order_id and store_state from customers table. Next, suppose if we want to fetch all the records from the customers table. This can be achieved by a simple query as shown below.

```
SELECT * FROM customers;
```

The query returns the following output.

```
1  SELECT * FROM customers;
```

Data Output Messages Notifications Explain

	customer_id integer	sale_date date	sale_amount numeric	salesperson character varying (255)	store_state character varying (255)	order_id character varying (255)
1	1001	2020-05-23	1200	Raj K	KA	1001
2	1001	2020-05-22	1200	M K	NULL	1002
3	1002	2020-05-23	1200	Malika Rakesh	MH	1003
4	1003	2020-05-22	1500	Malika Rakesh	MH	1004
5	1004	2020-05-22	1210	M K	NULL	1003
6	1005	2019-12-12	4200	R K Rakesh	MH	1007
7	1002	2020-05-21	1200	Molly Samberg	DL	1001

2. INSERT

INSERT commands in SQL are used to insert data records or rows in a database table. In an INSERT statement, we specify both the column_names for which the entry has to be made along with the data value that has to be inserted.

The basic syntax for writing INSERT statements in SQL is as follows :

```
INSERT INTO table_name (column_name_1, column_name_2, column_name_3, ...)
VALUES (value1, value2, value3, ...)
```

By VALUES, we mean the value of the corresponding columns.

Here are a few examples to further illustrate the INSERT statement.

```
INSERT INTO public.customers(
customer_id, sale_date, sale_amount, salesperson, store_state, order_id)
VALUES (1005,'2019-12-12',4200,'R K Rakesh','MH','1007');
```

```
1 INSERT INTO public.customers(
2     customer_id, sale_date, sale_amount, salesperson, store_state, order_id)
3     VALUES (1005,'2019-12-12',4200,'R K Rakesh','MH','1007');
```

Data Output [Messages](#) Notifications Explain

INSERT 0 1

Query returned successfully in 93 msec.

Here we have tried to insert a new row in the Customers table using the INSERT command. The query accepts two sets of arguments, namely field names or column names and their corresponding values.

Suppose if we have to insert values into all the fields of the database table, then we need not specify the column names, unlike the previous query. Follow the following query for further illustration.

```
INSERT INTO customers
```

```
VALUES ('1006','2020-03-04',3200,'DL', '1008');
```

```
1 INSERT INTO customers
2     VALUES ('1006','2020-03-04',3200,'DL', '1008');
```

Data Output [Messages](#) Notifications Explain

INSERT 0 1

Query returned successfully in 51 msec.

In this example, we have successfully inserted all the values without having to specify the fieldnames.

3. UPDATE

UPDATE command or statement is used to modify the value of an existing column in a database table.

The syntax for writing an UPDATE statement is as follows :

```
UPDATE table_name  
SET column_name_1 = value1, column_name_2 = value2, ...  
WHERE condition;
```

Having learnt the syntax, let us now try an example based on the UPDATE statement in SQL.

```
UPDATE customers  
SET store_state = 'DL'  
WHERE store_state = 'NY';
```

```
1 UPDATE customers  
2 SET store_state = 'DL'  
3 WHERE store_state = 'NY';
```

Data Output Messages Notifications Explain

UPDATE 1

Query returned successfully in 70 msec.

In this example, we have modified the value of store_state for a record where store_state was 'NY' and set it to a new value 'DL'.

4. DELETE

DELETE statement in SQL is used to remove one or more rows from the database table. It does not delete the data records permanently. We can always perform a rollback operation to undo a

DELETE command. With DELETE statements we can use the WHERE clause for filtering specific rows.

The syntax for writing an DELETE statement is as follows :

```
DELETE FROM table_name WHERE condition;
```

Having learnt the syntax, we are all set to try an example based on the DELETE command in SQL.

```
DELETE FROM customers
WHERE store_state = 'MH'
AND customer_id = '1001';
```

```
1  DELETE FROM customers
2  WHERE store_state = 'MH'
3      AND customer_id = '1001';
```

[Data Output](#) [Messages](#) [Notifications](#) [Explain](#)

DELETE 1

Query returned successfully in 48 msec.

In this example, we have removed a row from the customer's table where store_state was 'MH' and customer_id was '1001'.

Output/Results snippet:**1. SELECT**

```
1  SELECT customer_id,  
2      sale_date,  
3      order_id,  
4      store_state  
5  FROM customers;
```

Data Output Messages Notifications Explain

	customer_id integer	sale_date date	order_id character varying (255)	store_state character varying (255)
1	1001	2020-05-23	1001	KA
2	1001	2020-05-22	1002	NULL
3	1002	2020-05-23	1003	MH
4	1003	2020-05-22	1004	MH
5	1001	2020-05-23	1005	MH
6	1002	2020-05-21	1001	NY
7	1004	2020-05-22	1003	NULL

```
1  SELECT * FROM customers;
```

Data Output Messages Notifications Explain

	customer_id integer	sale_date date	sale_amount numeric	salesperson character varying (255)	store_state character varying (255)	order_id character varying (255)
1	1001	2020-05-23	1200	Raj K	KA	1001
2	1001	2020-05-22	1200	M K	NULL	1002
3	1002	2020-05-23	1200	Malika Rakesh	MH	1003
4	1003	2020-05-22	1500	Malika Rakesh	MH	1004
5	1004	2020-05-22	1210	M K	NULL	1003
6	1005	2019-12-12	4200	R K Rakesh	MH	1007
7	1002	2020-05-21	1200	Molly Samberg	DL	1001

2. INSERT

```
1  INSERT INTO public.customers(
2      customer_id, sale_date, sale_amount, salesperson, store_state, order_id)
3      VALUES (1005,'2019-12-12',4200,'R K Rakesh','MH','1007');
```

Data Output **Messages** Notifications Explain

INSERT 0 1

Query returned successfully in 93 msec.

3. UPDATE

```
1  UPDATE customers
2  SET store_state = 'DL'
3  WHERE store_state = 'NY';
```

Data Output **Messages** Notifications Explain

UPDATE 1

Query returned successfully in 70 msec.

4. DELETE

```
1  DELETE FROM customers
2  WHERE store_state = 'MH'
3      AND customer_id = '1001';
```

Data Output **Messages** Notifications Explain

DELETE 1

Query returned successfully in 48 msec.

References:

- <https://satoricyber.com/glossary/dml-data-manipulation-language/#:~:text=DML%20is%20an%20abbreviation%20for,%2C%20UPDATE%2C%20and%20DELETE%20commands.>
- <https://www.geeksforgeeks.org/sql-ddl-dql-dml-dcl-tcl-commands/>
- <https://www.acte.in/data-manipulation-in-sql-tutorial/>

Activity 4

Aim: SQL Single row functions

Consider a table named “Employee” having the following columns:

- EmployeeID
- SSN
- LastName
- FirstName
- MiddleName
- Salary
- Hire_date

Perform the following using MySQL:

1. Use COALESCE function to handle any NULL values in Salary field.
2. USE CONCAT function to join FirstName and LastName
3. USE SUBSTR function to extract the input string from 1st position to 5th position
4. USE MONTHS_BETWEEN functions

Learning outcome:

Duration: 1 hour

List of Hardware/Software requirements:

1. Windows/Linux operating system
2. MySQL installed

Code/Program/Procedure (with comments):

1. SELECT first_name, last_name, COALESCE (salary,0) FROM employee;
2. SELECT CONCAT (first_name, last_name) FROM employee;
3. SELECT SUBSTR (first_name,1,5) FROM employee;
4. SELECT employee_id, MONTHS_BETWEEN (sysdate, Hire_date)
Employment_months FROM employee;

Output/Results snippet:

FIRST_NAME	LAST_NAME	COALESCE (salary,0)
------------	-----------	---------------------

Steven	King	24000
Neena	Kochhar	0
Lex	De Haan	17000
Alexander	Hunold	9000

CONCAT(FIRST_NAME, LAST_NAME)

EllenAbel

SundarAnde

MozheAtkinson

DavidAustin

SUBST

Ellen

Sunda

Mozhe

David

EMPLOYEE_ID	EMPLOYMENT_MONTHS
-------------	-------------------

100	121.504216
101	94.3751837
102	150.633248
103	90.9558289

References:

- https://www.tutorialspoint.com/sql_certificate/the_sql_select_statement.htm

Activity 5

Aim: Displaying Data from Multiple Tables (Join)

Learning outcome: Able to work with SQL Join

Duration: 2 hours

List of Hardware/Software requirements:

1. Laptop/Computer with Linux/Windows
2. Editor (Default GEDIT) and a Browser

Code/Program/Procedure (with comments):

Table Name: member

id	first_name	last_name	movie_id
1	Adam	Smith	1
2	Ravi	Kumar	2
3	Susan	Davidson	5
4	Jenny	Adrianna	8
5	Lee	Pong	10

Table Name: movies

id	title	category
1	ASSASSIN'S CREED: EMBERS	Animations
2	Real Steel(2012)	Animations
3	Alvin and the Chipmunks	Animations
4	The Adventures of Tin Tin	Animations
5	Safe (2012)	Action
6	Safe House(2012)	Action
7	GIA	18+
8	Deadline 2009	18+
9	The Dirty Picture	18+
10	Marley and me	Romance

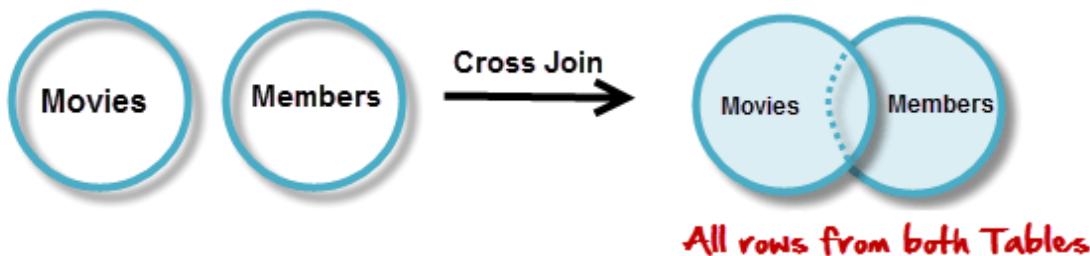
Types of joins

Cross JOIN

Cross JOIN is a simplest form of JOINs which matches each row from one database table to all rows of another.

In other words, it gives us combinations of each row of first table with all records in second table.

Suppose we want to get all member records against all the movie records, we can use the script shown below to get our desired results.



```
SELECT * FROM `movies` CROSS JOIN `members`;
```

Executing the above script in MySQL workbench gives us the following results.

Output:

id	title		id	first_name	last_name	movie_id
1	ASSASSIN'S CREED: EMBERS	Animations	1	Adam	Smith	1
1	ASSASSIN'S CREED: EMBERS	Animations	2	Ravi	Kumar	2
1	ASSASSIN'S CREED: EMBERS	Animations	3	Susan	Davidson	5
1	ASSASSIN'S CREED: EMBERS	Animations	4	Jenny	Adrianna	8
1	ASSASSIN'S CREED: EMBERS	Animations	6	Lee	Pong	10
2	Real Steel(2012)	Animations	1	Adam	Smith	1
2	Real Steel(2012)	Animations	2	Ravi	Kumar	2
2	Real Steel(2012)	Animations	3	Susan	Davidson	5
2	Real Steel(2012)	Animations	4	Jenny	Adrianna	8
2	Real Steel(2012)	Animations	6	Lee	Pong	10
3	Alvin and the Chipmunks	Animations	1	Adam	Smith	1
3	Alvin and the Chipmunks	Animations	2	Ravi	Kumar	2
3	Alvin and the Chipmunks	Animations	3	Susan	Davidson	5
3	Alvin and the Chipmunks	Animations	4	Jenny	Adrianna	8
3	Alvin and the Chipmunks	Animations	6	Lee	Pong	10
4	The Adventures of Tin Tin	Animations	1	Adam	Smith	1

4	The Adventures of Tin Tin	Animations	2	Ravi	Kumar	2
4	The Adventures of Tin Tin	Animations	3	Susan	Davidson	5
4	The Adventures of Tin Tin	Animations	4	Jenny	Adrianna	8
4	The Adventures of Tin Tin	Animations	6	Lee	Pong	10
5	Safe (2012)	Action	1	Adam	Smith	1
5	Safe (2012)	Action	2	Ravi	Kumar	2
5	Safe (2012)	Action	3	Susan	Davidson	5
5	Safe (2012)	Action	4	Jenny	Adrianna	8
5	Safe (2012)	Action	6	Lee	Pong	10
6	Safe House(2012)	Action	1	Adam	Smith	1
6	Safe House(2012)	Action	2	Ravi	Kumar	2
6	Safe House(2012)	Action	3	Susan	Davidson	5
6	Safe House(2012)	Action	4	Jenny	Adrianna	8
6	Safe House(2012)	Action	6	Lee	Pong	10
7	GIA	18+	1	Adam	Smith	1

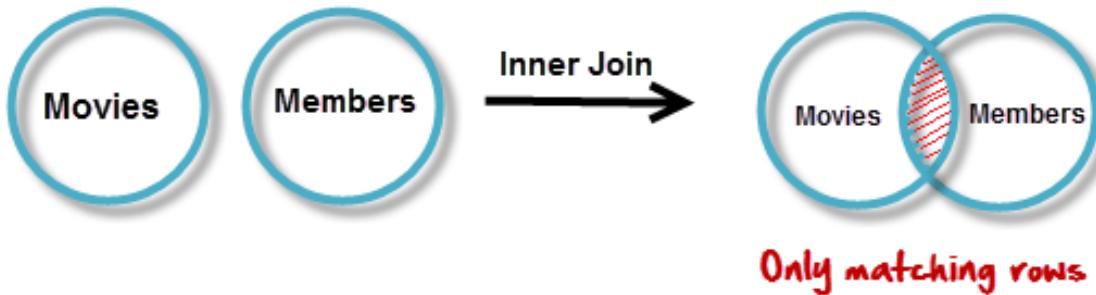
7	GIA	18+	2	Ravi	Kumar	2
7	GIA	18+	3	Susan	Davidson	5
7	GIA	18+	4	Jenny	Adrianna	8
7	GIA	18+	6	Lee	Pong	10
8	Deadline(2009)	18+	1	Adam	Smith	1
8	Deadline(2009)	18+	2	Ravi	Kumar	2
8	Deadline(2009)	18+	3	Susan	Davidson	5
8	Deadline(2009)	18+	4	Jenny	Adrianna	8
8	Deadline(2009)	18+	6	Lee	Pong	10
9	The Dirty Picture	18+	1	Adam	Smith	1
9	The Dirty Picture	18+	2	Ravi	Kumar	2
9	The Dirty Picture	18+	3	Susan	Davidson	5
9	The Dirty Picture	18+	4	Jenny	Adrianna	8
9	The Dirty Picture	18+	6	Lee	Pong	10
10	Marley and me	Romance	1	Adam	Smith	1

10	Marley and me	Romance	2	Ravi	Kumar	2
10	Marley and me	Romance	3	Susan	Davidson	5
10	Marley and me	Romance	4	Jenny	Adrianna	8
10	Marley and me	Romance	6	Lee	Pong	10

INNER JOIN

The inner JOIN is used to return rows from both tables that satisfy the given condition.

Suppose, you want to get list of members who have rented movies together with titles of movies rented by them. You can simply use an INNER JOIN for that, which returns rows from both tables that satisfy with given conditions.



```
SELECT members.`first_name` , members.`last_name` , movies.`title`  
FROM members ,movies  
WHERE movies.`id` = members.`movie_id`;
```

Executing the above script give

Output:

first_name	last_name	title
Adam	Smith	ASSASSIN'S CREED: EMBERS
Ravi	Kumar	Real Steel(2012)
Susan	Davidson	Safe (2012)
Jenny	Adrianna	Deadline(2009)
Lee	Pong	Marley and me

Note the above results script can also be written as follows to achieve the same results.

```
SELECT A.`first_name` , A.`last_name` , B.`title`  
FROM `members`AS A  
INNER JOIN `movies` AS B  
ON B.`id` = A.`movie_id`;
```

Outer JOINs

MySQL Outer JOINs return all records matching from both tables .

It can detect records having no match in joined table. It returns **NULL** values for records of joined table if no match is found.

Sounds Confusing? Let's look into an example –

LEFT JOIN

Assume now you want to get titles of all movies together with names of members who have rented them. It is clear that some movies have not been rented by any one. We can simply use **LEFT JOIN** for the purpose.



The LEFT JOIN returns all the rows from the table on the left even if no matching rows have been found in the table on the right. **Where no matches have been found in the table on the right, NULL is returned.**

```
SELECT A.`title` , B.`first_name` , B.`last_name`  
FROM `movies` AS A  
LEFT JOIN `members` AS B  
ON B.`movie_id` = A.`id`;
```

Executing the above script in MySQL workbench gives. You can see that in the returned result which is listed below that for movies which are not rented, member name fields are having NULL values. That means no matching member found members table for that particular movie.

Output:

title	first_name	last_name
ASSASSIN'S CREED: EMBERS	Adam	Smith
Real Steel(2012)	Ravi	Kumar

Safe (2012)	Susan	Davidson
Deadline(2009)	Jenny	Adrianna
Marley and me	Lee	Pong
Alvin and the Chipmunks	NULL	NULL
The Adventures of Tin Tin	NULL	NULL
Safe House(2012)	NULL	NULL
GIA	NULL	NULL
The Dirty Picture	NULL	NULL

Note: Null is returned for non-matching rows on right

RIGHT JOIN

RIGHT JOIN is obviously the opposite of LEFT JOIN. The RIGHT JOIN returns all the columns from the table on the right even if no matching rows have been found in the table on the left. Where no matches have been found in the table on the left, NULL is returned.

In our example, let's assume that you need to get names of members and movies rented by them. Now we have a new member who has not rented any movie yet.



```
SELECT A.`first_name` , A.`last_name` , B.`title`  
FROM `members` AS A  
RIGHT JOIN `movies` AS B  
ON B.`id` = A.`movie_id`;
```

Executing the above script in MySQL workbench gives the following results.

Output:

first_name	last_name	title
Adam	Smith	ASSASSIN'S CREED: EMBERS
Ravi	Kumar	Real Steel(2012)
Susan	Davidson	Safe (2012)
Jenny	Adrianna	Deadline(2009)
Lee	Pong	Marley and me
NULL	NULL	Alvin and the Chipmunks
NULL	NULL	The Adventures of Tin Tin
NULL	NULL	Safe House(2012)
NULL	NULL	GIA
NULL	NULL	The Dirty Picture

Note: Null is returned for non-matching rows on left

Reference:

- <https://www.guru99.com/joins.html>

Activity 6

Aim: SQL Multiple Row Functions (Aggregate Function)

Learning outcome: Understanding aggregate functions

Duration: 1 hours

List of Hardware/Software requirements:

1. A computer with Windows/Linux/Mac operating system.
2. Visual studio code / MySQL

Code/Program/Procedure (with comments):

The aggregate function is used in the SELECT statement.

Let's discuss the types of aggregate functions-

Types Of Aggregate function

SQL provide several types of aggregate functions they are SUM(), AVG(), MAX(), MIN(), COUNT(), FIRST() and LAST(). SUM(), AVG(), MAX(), MIN() these functions are applied on those attributes which has integer type value for example salary of employees, age of employees, marks of students etc.

SUM()- This function is used to find out the sum of a specified column in a set of rows.

Syntax: `SELECT SUM(column_name) FROM table_name;`

Example: `SELECT SUM(Salary) FROM Employee;`

```
MySQL 8.0 Command Line Client
mysql> SELECT * FROM EMPLOYEE;
+----+----+----+----+
| E_ID | E_NAME | DEPARTMENT | SALARY |
+----+----+----+----+
| A10 | Aditya | Tech | 30000 |
| A62 | Mohan | HR | 35000 |
| B25 | Rajat | IT | 32000 |
| T25 | Tushar | Sales | 25000 |
| T85 | Tuhin | Sales | 28000 |
| B45 | Ankit | IT | 20000 |
| I62 | Isha | HR | 40000 |
| R60 | Ridhima | Sales | 27000 |
+----+----+----+----+
8 rows in set (0.03 sec)

mysql> SELECT SUM(SALARY) FROM EMPLOYEE;
+-----+
| SUM(SALARY) |
+-----+
| 237000 |
+-----+
1 row in set (0.05 sec)
```

AVG()- This function is used to calculate the average of a specified column in a set of rows.

Syntax: `SELECT AVG(column_name) FROM table_name;`

Example: `SELECT AVG(Salary) FROM Employee;`

```
MySQL 8.0 Command Line Client
mysql> SELECT AVG(SALARY) FROM EMPLOYEE;
+-----+
| AVG(SALARY) |
+-----+
| 29625.0000 |
+-----+
1 row in set (0.00 sec)
```

MAX()- This function retrieves the maximum value of a specified column.

Syntax: `SELECT MAX(column_name) FROM table_name;`

Example: `SELECT E_NAME,MAX(SALARY) FROM Employee;`

```
MySQL 8.0 Command Line Client
mysql> SELECT E_NAME,MAX(SALARY) FROM EMPLOYEE;
+-----+-----+
| E_NAME | MAX(SALARY) |
+-----+-----+
| Aditya |      40000 |
+-----+-----+
1 row in set (0.06 sec)
```

MIN()- This function retrieves the minimum value of a specified column.

Syntax: SELECT MIN(column_name) FROM table_name;

Example: SELECT MIN(Salary) FROM Employee;

```
MySQL 8.0 Command Line Client
mysql> SELECT * FROM EMPLOYEE;
+-----+-----+-----+-----+
| E_ID | E_NAME | DEPARTMENT | SALARY |
+-----+-----+-----+-----+
| A10 | Aditya | Tech | 30000 |
| A62 | Mohan | HR | 35000 |
| B25 | Rajat | IT | 32000 |
| T25 | Tushar | Sales | 25000 |
| T85 | Tuhin | Sales | 28000 |
| B45 | Ankit | IT | 20000 |
| I62 | Isha | HR | 40000 |
| R60 | Ridhima | Sales | 27000 |
+-----+-----+-----+-----+
8 rows in set (0.00 sec)

mysql> SELECT MIN(SALARY) FROM EMPLOYEE;
+-----+
| MIN(SALARY) |
+-----+
| 20000 |
+-----+
1 row in set (0.00 sec)
```

COUNT()– This function returns the number of rows in a database table.

Syntax: `SELECT COUNT(*) FROM table_name;`

`SELECT COUNT(DISTINCT column_name) FROM table_name;`

Example: `SELECT COUNT(*) FROM EMPLOYEE ;`

`SELECT COUNT(DEPARTMENT) FROM EMPLOYEE WHERE SALARY>30000;`

```
MySQL 8.0 Command Line Client
mysql> SELECT * FROM EMPLOYEE;
+----+----+----+----+
| E_ID | E_NAME | DEPARTMENT | SALARY |
+----+----+----+----+
| A10 | Aditya | Tech | 30000
| A62 | Mohan | HR | 35000
| B25 | Rajat | IT | 32000
| T25 | Tushar | Sales | 25000
| T85 | Tuhin | Sales | 28000
| B45 | Ankit | IT | 20000
| I62 | Isha | HR | 40000
| R60 | Ridhima | Sales | 27000
+----+----+----+----+
3 rows in set (0.00 sec)

mysql> SELECT COUNT(*) FROM EMPLOYEE;
+----+
| COUNT(*) |
+----+
| 8 |
+----+
1 row in set (0.13 sec)
```

```
MySQL 8.0 Command Line Client
mysql> SELECT COUNT(DEPARTMENT) FROM EMPLOYEE WHERE SALARY>30000;
+----+
| COUNT(DEPARTMENT) |
+----+
| 3 |
+----+
1 row in set (0.00 sec)
```

GROUP BY

The GROUP BY clause is a SQL command used to group rows with the same values. The GROUP BY clause is used in the SELECT statement. Also, we use the WHERE statement with GROUP BY. WHERE clause is used before GROUP BY. To represent a group of values in a particular manner ORDER BY clause is also used with GROUP BY and GROUP BY placed before the ORDER BY.

Syntax:

```
SELECT column_name FROM table_name  
WHERE [condition]  
GROUP BY column_name  
ORDER BY column_name;
```

Example:

```
SELECT DEPARTMENT, SUM(SALARY) FROM EMPLOYEE  
GROUP BY DEPARTMENT  
ORDER BY DEPARTMENT;
```

```
MySQL 8.0 Command Line Client

mysql> SELECT* FROM EMPLOYEE;
+----+----+----+----+
| E_ID | E_NAME | DEPARTMENT | SALARY |
+----+----+----+----+
| A10 | Aditya | Tech | 30000 |
| A62 | Mohan | HR | 35000 |
| B25 | Rajat | IT | 32000 |
| T25 | Tushar | Sales | 25000 |
| T85 | Tuhin | Sales | 28000 |
| B45 | Ankit | IT | 20000 |
| I62 | Isha | HR | 40000 |
| R60 | Ridhima | Sales | 27000 |
+----+----+----+----+
8 rows in set (0.00 sec)

mysql> SELECT DEPARTMENT, SUM(SALARY) FROM EMPLOYEE
    -> GROUP BY DEPARTMENT
    -> ORDER BY DEPARTMENT;
+----+----+
| DEPARTMENT | SUM(SALARY) |
+----+----+
| HR | 75000 |
| IT | 52000 |
| Sales | 80000 |
| Tech | 30000 |
+----+----+
4 rows in set (0.13 sec)
```

Like the SUM() function we can also use other aggregate functions(AVG(),MAX(),MIN(),COUNT(*)) with GROUP BY.

Example:

```
SELECT DEPARTMENT, AVG(SALARY) FROM EMPLOYEE GROUP BY DEPARTMENT
ORDER BY DEPARTMENT;
```

MySQL 8.0 Command Line Client

```
mysql> SELECT DEPARTMENT, AVG(SALARY) FROM EMPLOYEE
   -> GROUP BY DEPARTMENT
   -> ORDER BY DEPARTMENT;
+-----+-----+
| DEPARTMENT | AVG(SALARY) |
+-----+-----+
| HR         | 37500.0000 |
| IT         | 26000.0000 |
| Sales      | 26666.6667 |
| Tech       | 30000.0000 |
+-----+-----+
4 rows in set (0.04 sec)
```

Example:

```
SELECT DEPARTMENT, MIN(SALARY) FROM EMPLOYEE
```

```
GROUP BY DEPARTMENT
```

```
ORDER BY DEPARTMENT;
```

MySQL 8.0 Command Line Client

```
mysql> SELECT DEPARTMENT, MIN(SALARY) FROM EMPLOYEE
   -> GROUP BY DEPARTMENT
   -> ORDER BY DEPARTMENT;
+-----+-----+
| DEPARTMENT | MIN(SALARY) |
+-----+-----+
| HR         | 35000 |
| IT         | 20000 |
| Sales      | 25000 |
| Tech       | 30000 |
+-----+-----+
4 rows in set (0.06 sec)
```

Example:

```
SELECT DEPARTMENT, MAX(SALARY) FROM EMPLOYEE
```

```
GROUP BY DEPARTMENT
```

```
ORDER BY DEPARTMENT;
```

```
MySQL 8.0 Command Line Client

mysql> SELECT DEPARTMENT, MAX(SALARY) FROM EMPLOYEE
   -> GROUP BY DEPARTMENT
   -> ORDER BY DEPARTMENT;
+-----+-----+
| DEPARTMENT | MAX(SALARY) |
+-----+-----+
| HR         | 40000      |
| IT         | 32000      |
| Sales      | 28000      |
| Tech       | 30000      |
+-----+-----+
4 rows in set (0.00 sec)
```

We can also use the GROUP BY without applying the Aggregate function. In this case GROUP BY works like a DISTINCT clause which never shows any duplicate value in the result set.

Example:

```
SELECT E_NAME, Salary FROM EMPLOYEE
GROUP BY DEPARTMENT;
```

```
MySQL 8.0 Command Line Client
mysql> SELECT* FROM EMPLOYEE;
+-----+-----+-----+-----+
| E_ID | E_NAME | DEPARTMENT | SALARY |
+-----+-----+-----+-----+
| A10  | Aditya  | Tech        | 30000 |
| A62  | Mohan    | HR          | 35000 |
| B25  | Rajat    | IT          | 32000 |
| T25  | Tushar   | Sales       | 25000 |
| T85  | Tuhin    | Sales       | 28000 |
| B45  | Ankit    | IT          | 20000 |
| I62  | Isha     | HR          | 40000 |
| R60  | Ridhima  | Sales       | 27000 |
+-----+-----+-----+-----+
8 rows in set (0.71 sec)

mysql> SELECT E_NAME , SALARY FROM EMPLOYEE GROUP BY DEPARTMENT;
+-----+-----+
| E_NAME | SALARY |
+-----+-----+
| Aditya | 30000 |
| Mohan  | 35000 |
| Rajat  | 32000 |
| Tushar | 25000 |
+-----+-----+
4 rows in set (0.27 sec)

mysql> SELECT E_NAME ,DEPARTMENT, SALARY FROM EMPLOYEE GROUP BY DEPARTMENT;
+-----+-----+-----+
| E_NAME | DEPARTMENT | SALARY |
+-----+-----+-----+
| Aditya | Tech        | 30000 |
| Mohan  | HR          | 35000 |
| Rajat  | IT          | 32000 |
| Tushar | Sales       | 25000 |
+-----+-----+-----+
4 rows in set (0.04 sec)
```

HAVING CLAUSE

Sometimes we do not want to see the whole output produced by the GROUP BY. To filter the group of data based on a specified list of conditions the HAVING clause is often used with the GROUP BY. HAVING clause is placed after GROUP BY. Both WHERE and HAVING clauses can be used in the same query. As the WHERE clause can not be used with aggregate functions like SUM(), AVG(), MIN(), etc... for that reason HAVING clause is used with an aggregate function to filter the group of a result set.

Syntax:

```
SELECT column 1,column 2  
FROM table  
WHERE [conditions]  
GROUP BY column 1  
HAVING [condition]  
ORDER BY column 1;
```

Example:

```
SELECT DEPARTMENT, AVG(SALARY)FROM EMPLOYEE  
GROUP BY DEPARTMENT  
HAVING AVG(SALARY)>28000;
```

```
MySQL 8.0 Command Line Client  
mysql> SELECT * FROM EMPLOYEE;  
+----+----+----+----+  
| E_ID | E_NAME | DEPARTMENT | SALARY |  
+----+----+----+----+  
| A10 | Aditya | Tech | 30000 |  
| A62 | Mohan | HR | 35000 |  
| B25 | Rajat | IT | 32000 |  
| T25 | Tushar | Sales | 25000 |  
| T85 | Tuhin | Sales | 28000 |  
| B45 | Ankit | IT | 20000 |  
| I62 | Isha | HR | 40000 |  
| R60 | Ridhima | Sales | 27000 |  
+----+----+----+----+  
8 rows in set (0.60 sec)  
  
mysql> SELECT DEPARTMENT,AVG(SALARY) FROM EMPLOYEE  
    -> GROUP BY DEPARTMENT  
    -> HAVING AVG(SALARY)>28000;  
+----+----+  
| DEPARTMENT | AVG(SALARY) |  
+----+----+  
| Tech | 30000.0000 |  
| HR | 37500.0000 |  
+----+----+  
2 rows in set (0.15 sec)
```

Activity 7

Aim: SQL using Sub Query

Learning outcome: Able to understand MySQL.

Duration: 2 Hours

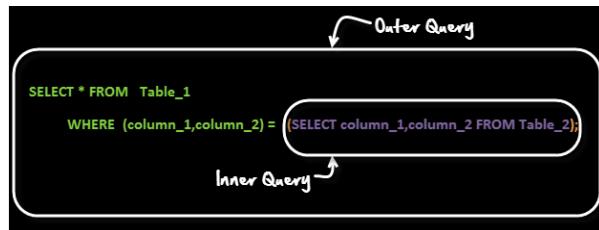
List of Hardware/Software requirements:

1. Computer/Laptop
2. Windows OS/Linux
3. XAMPP/MySQL Command Prompt/Workbench

Code/Program/Procedure (with comments):

Sub query

A sub query is a select query that is contained inside another query. The inner select query is usually used to determine the results of the outer select query.



A **subquery**, or nested query, is a query placed within another SQL query. When requesting information from a database, you may find it necessary to include a subquery into the `SELECT`, `FROM`, `JOIN`, or `WHERE` clause. However, you can also use subqueries when updating the database (i.e. in `INSERT`, `UPDATE`, and `DELETE` statements).

There are several types of SQL subqueries:

Scalar subqueries return a single value, or exactly one row and exactly one column.

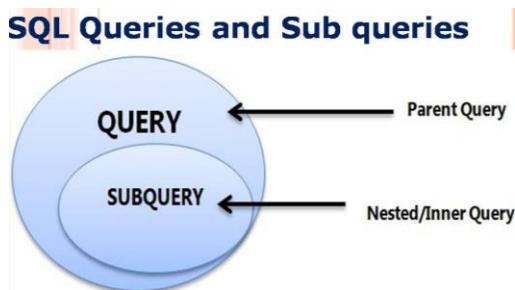
Multirow subqueries return either:

- ✓ One column with multiple rows (i.e. a list of values), or
- ✓ Multiple columns with multiple rows (i.e. tables).

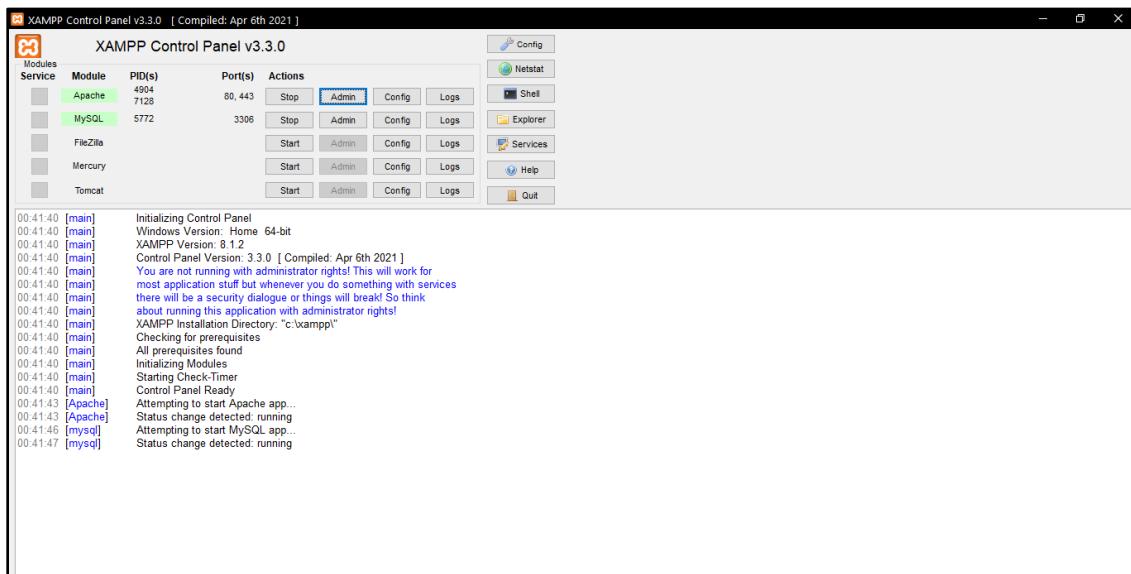
- ✓ Correlated subqueries, where the inner query relies on information obtained from the outer query.

Syntax:

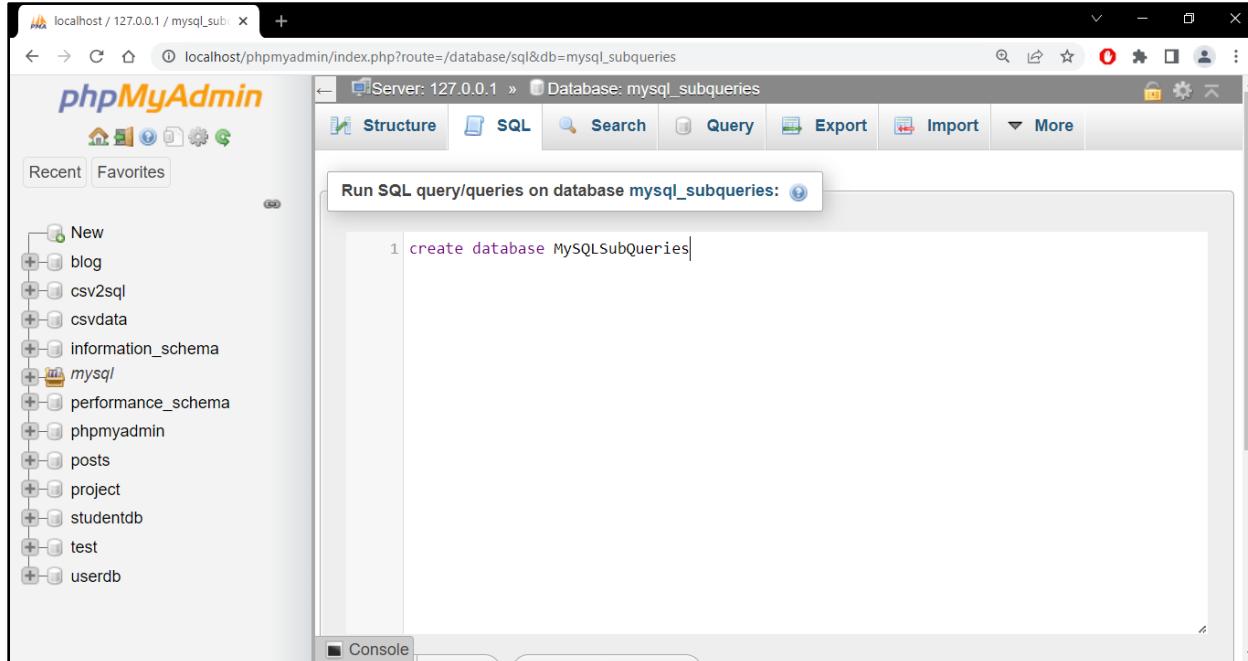
```
SELECT <columns>
FROM <table>
WHERE <column> <operator>
(SELECT <columns>
FROM <table>
)
```



Step 1: Open Xampp with PhpmyAdmin / MySQL Command Prompt

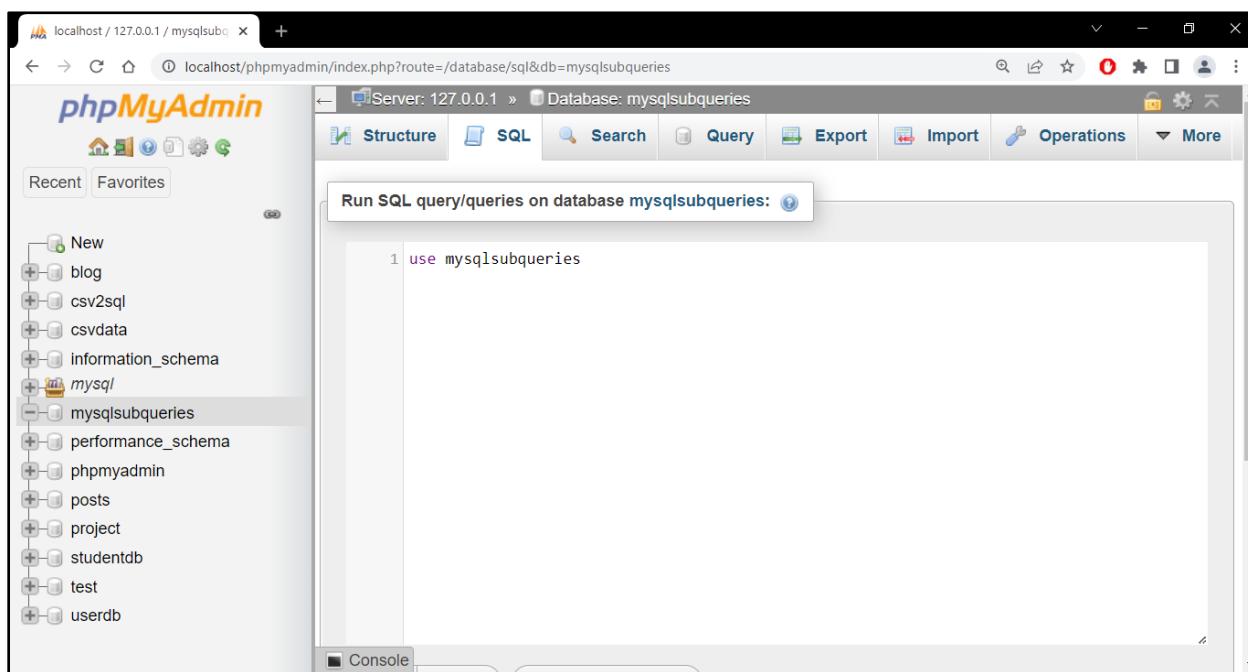


Step 2: Create and Use the database



The screenshot shows the phpMyAdmin interface on a Windows desktop. The title bar says "localhost / 127.0.0.1 / mysql_sub...". The left sidebar lists databases: New, blog, csv2sql, csvdata, information_schema, mysql, performance_schema, phpmyadmin, posts, project, studentdb, test, userdb. The main area shows a SQL query window with the following code:

```
1 create database MySQLSubQueries;
```

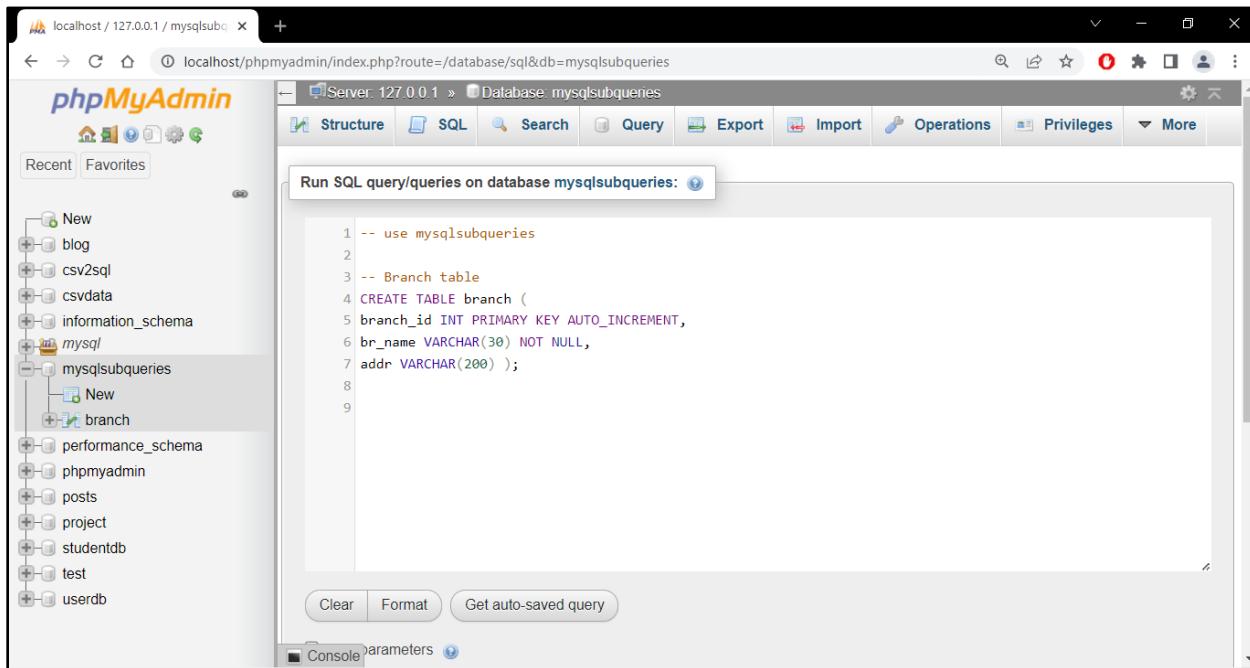


The screenshot shows the phpMyAdmin interface on a Windows desktop. The title bar says "localhost / 127.0.0.1 / mysqlsub...". The left sidebar lists databases: New, blog, csv2sql, csvdata, information_schema, mysql, mysqlsubqueries, performance_schema, phpmyadmin, posts, project, studentdb, test, userdb. The main area shows a SQL query window with the following code:

```
1 use mysqlsubqueries;
```

Step 3: Create Table:

✓ Branch



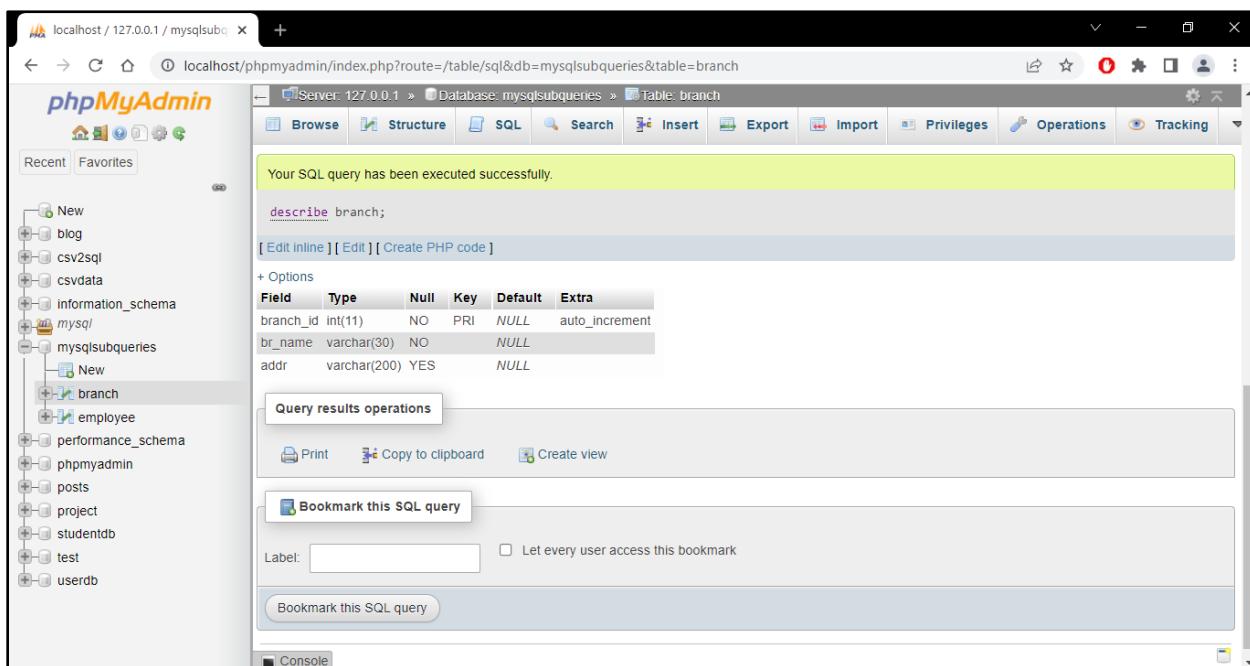
The screenshot shows the phpMyAdmin interface for the 'mysqlsubqueries' database. The left sidebar shows various databases and tables. The main area contains the following SQL code:

```

1 -- use mysqlsubqueries
2
3 -- Branch table
4 CREATE TABLE branch (
5 branch_id INT PRIMARY KEY AUTO_INCREMENT,
6 br_name VARCHAR(30) NOT NULL,
7 addr VARCHAR(200) );
8
9

```

Below the code, there are 'Clear', 'Format', and 'Get auto-saved query' buttons. The status bar at the bottom shows 'Console' and 'parameters'.



The screenshot shows the phpMyAdmin interface for the 'mysqlsubqueries' database, specifically for the 'branch' table. The left sidebar shows the database structure. The main area displays the results of the executed SQL query:

```

Your SQL query has been executed successfully.

describe branch;

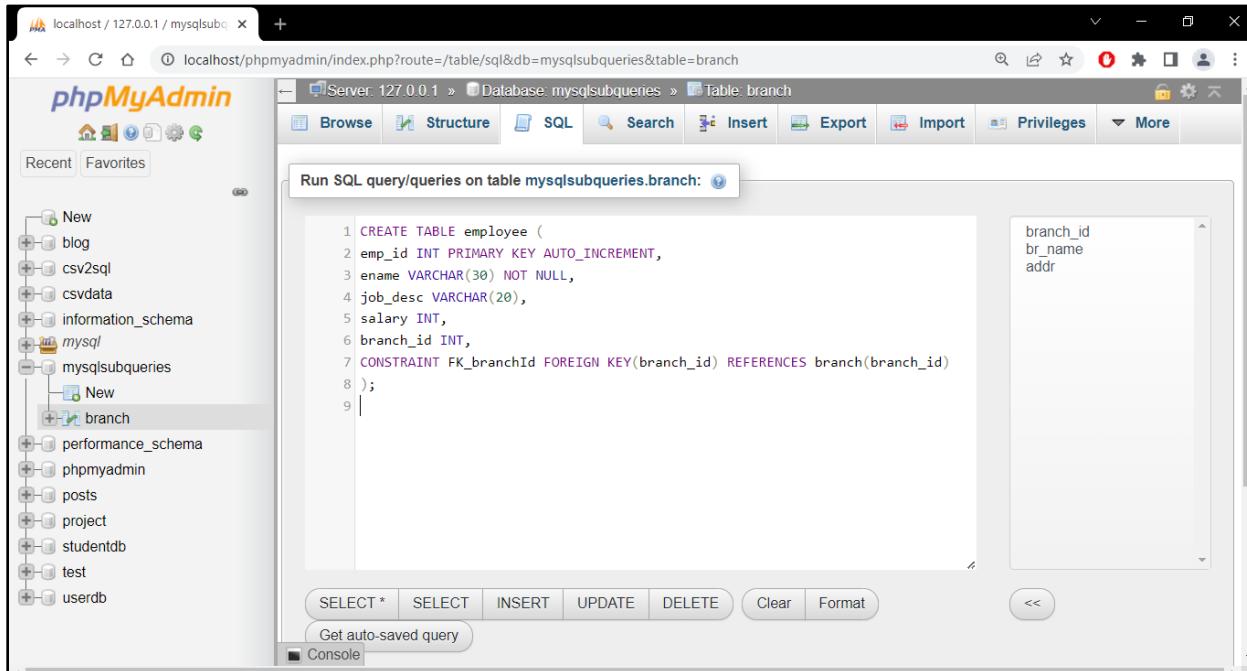
```

Below the query results, the table structure is shown:

Field	Type	Null	Key	Default	Extra
branch_id	int(11)	NO	PRI	NULL	auto_increment
br_name	varchar(30)	NO		NULL	
addr	varchar(200)	YES		NULL	

At the bottom, there are 'Query results operations' buttons for 'Print', 'Copy to clipboard', and 'Create view'. There is also a 'Bookmark this SQL query' section with a 'Label' input field and a checkbox for 'Let every user access this bookmark'.

✓ Employee



localhost / 127.0.0.1 / mysqlsubc x + localhost/phpmyadmin/index.php?route=/table/sql&db=mysqlsubqueries&table=branch

phpMyAdmin

Recent Favorites

New blog csv2sql csvdata information_schema mysql mysqlsubqueries New branch performance_schema phpmyadmin posts project studentdb test userdb

Server: 127.0.0.1 » Database: mysqlsubqueries » Table: branch

Browse Structure SQL Search Insert Export Import Privileges More

Run SQL query/queries on table mysqlsubqueries.branch:

```
1 CREATE TABLE employee (
2     emp_id INT PRIMARY KEY AUTO_INCREMENT,
3     ename VARCHAR(30) NOT NULL,
4     job_desc VARCHAR(20),
5     salary INT,
6     branch_id INT,
7     CONSTRAINT FK_branchId FOREIGN KEY(branch_id) REFERENCES branch(branch_id)
8 );
```

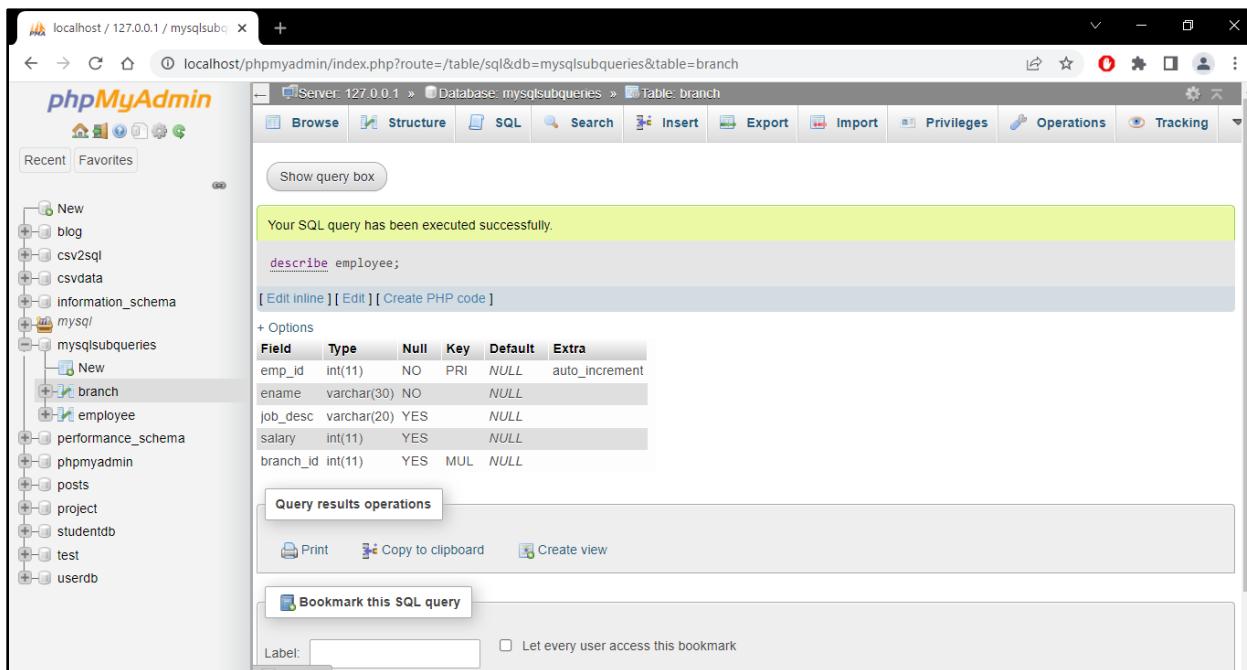
branch_id
br_name
addr

SELECT * SELECT INSERT UPDATE DELETE Clear Format

Get auto-saved query

Console

This screenshot shows the phpMyAdmin interface for the 'mysqlsubqueries' database. The 'branch' table is selected. In the SQL tab, a CREATE TABLE statement is entered for the 'employee' table. The statement includes fields for emp_id (auto-increment), ename (VARCHAR(30) NOT NULL), job_desc (VARCHAR(20)), salary (INT), and branch_id (INT), with a FOREIGN KEY constraint linking branch_id to the branch table. The results pane on the right shows the table structure with columns branch_id, br_name, and addr.



localhost / 127.0.0.1 / mysqlsubc x + localhost/phpmyadmin/index.php?route=/table/sql&db=mysqlsubqueries&table=branch

phpMyAdmin

Recent Favorites

New blog csv2sql csvdata information_schema mysql mysqlsubqueries New branch employee performance_schema phpmyadmin posts project studentdb test userdb

Server: 127.0.0.1 » Database: mysqlsubqueries » Table: branch

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking

Show query box

Your SQL query has been executed successfully.

```
describe employee;
```

[Edit inline] [Edit] [Create PHP code]

+ Options

Field	Type	Null	Key	Default	Extra
emp_id	int(11)	NO	PRI	NULL	auto_increment
ename	varchar(30)	NO		NULL	
job_desc	varchar(20)	YES		NULL	
salary	int(11)	YES		NULL	
branch_id	int(11)	YES	MUL	NULL	

Query results operations

Print Copy to clipboard Create view

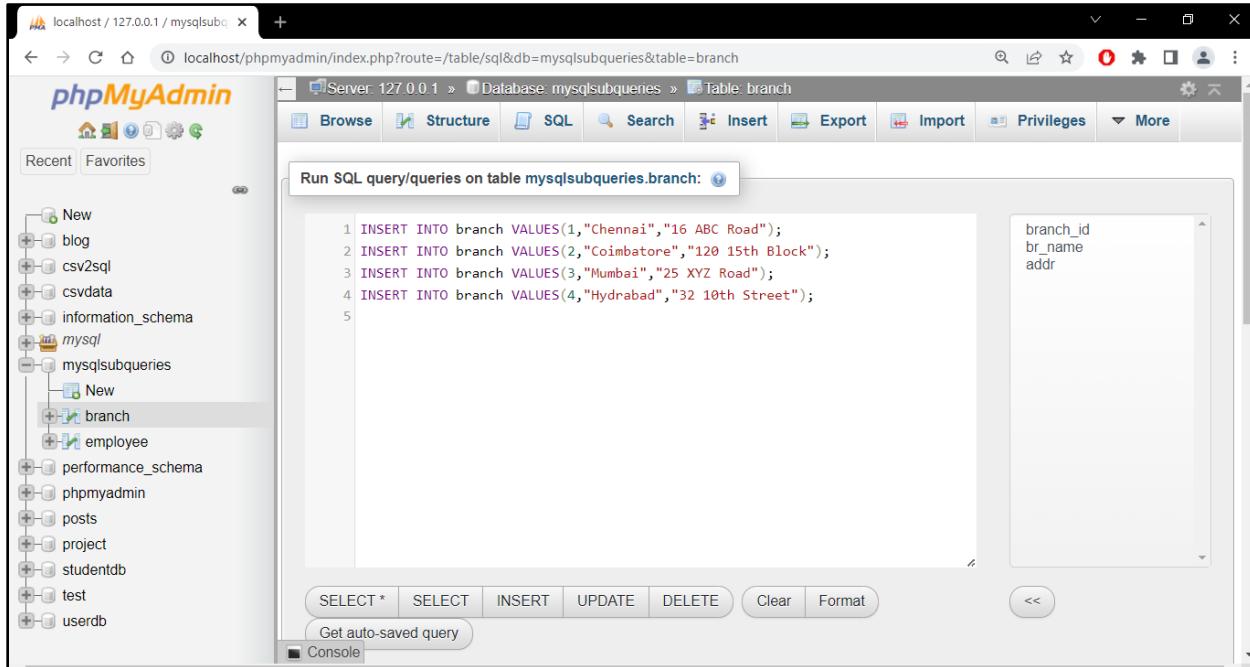
Bookmark this SQL query

Label: Let every user access this bookmark

This screenshot shows the phpMyAdmin interface after the 'employee' table creation query has been executed successfully. The results pane displays the table structure with columns emp_id, ename, job_desc, salary, and branch_id. Below the table structure, there are options for printing, copying to clipboard, and creating a view. At the bottom, there is a 'Bookmark this SQL query' section with a label field and a checkbox for letting every user access the bookmark.

Step 4: Insert the Records in Branch and Employee tables

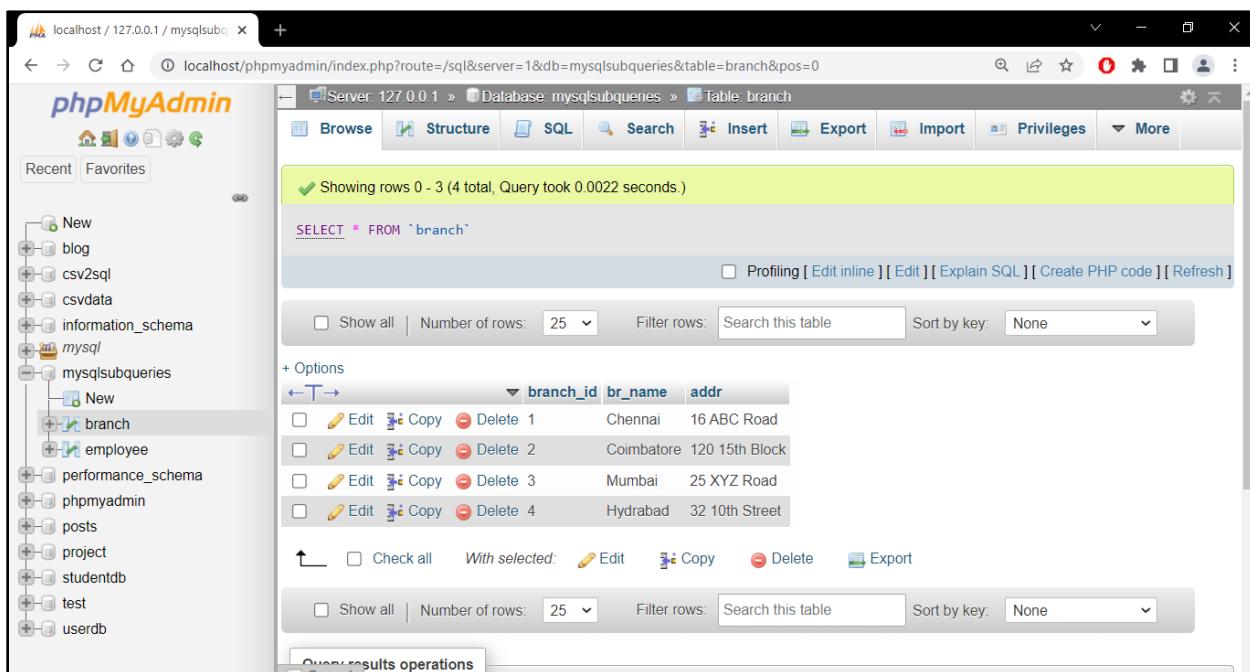
Branch Table:



The screenshot shows the phpMyAdmin interface for the 'branch' table. The left sidebar shows the database structure with 'branch' selected. The main area contains an SQL query window with the following code:

```
1 INSERT INTO branch VALUES(1,"Chennai","16 ABC Road");
2 INSERT INTO branch VALUES(2,"Coimbatore","120 15th Block");
3 INSERT INTO branch VALUES(3,"Mumbai","25 XYZ Road");
4 INSERT INTO branch VALUES(4,"Hydrabad","32 10th Street");
5
```

Below the query window are buttons for SELECT, INSERT, UPDATE, DELETE, Clear, and Format. The results pane on the right shows the table structure with columns: branch_id, br_name, and addr.



The screenshot shows the phpMyAdmin interface for the 'branch' table after the records have been inserted. The left sidebar shows the database structure with 'branch' selected. The main area shows the results of a SELECT query: 'Showing rows 0 - 3 (4 total, Query took 0.0022 seconds.)'. The results table displays the following data:

	branch_id	br_name	addr
<input type="checkbox"/>	1	Chennai	16 ABC Road
<input type="checkbox"/>	2	Coimbatore	120 15th Block
<input type="checkbox"/>	3	Mumbai	25 XYZ Road
<input type="checkbox"/>	4	Hydrabad	32 10th Street

Below the table are buttons for Check all, With selected, Edit, Copy, Delete, and Export. The results pane on the right shows the table structure with columns: branch_id, br_name, and addr.

Employee table:

The screenshot shows the phpMyAdmin interface for the 'employee' table. The left sidebar shows the database structure. The main area contains an SQL query window with the following code:

```

1 INSERT INTO employee VALUES(1,'Ram','ADMIN',1000000,2);
2 INSERT INTO employee VALUES(2,'Harini','MANAGER',2500000,2);
3 INSERT INTO employee VALUES(3,'George','SALES',2000000,1);
4 INSERT INTO employee VALUES(4,'Reya','SALES',1300000,2);
5 INSERT INTO employee VALUES(5,'Meena','HR',2000000,3);
6 INSERT INTO employee VALUES(6,'Ashok','MANAGER',3000000,1);
7 INSERT INTO employee VALUES(7,'Abdul','HR',2000000,1);
8 INSERT INTO employee VALUES(8,'Reya','ENGINEER',1000000,2);
9 INSERT INTO employee VALUES(9,'Raghу','CEO',8000000,3);
10 INSERT INTO employee VALUES(10,'Arvind','MANAGER',2800000,3);
11 INSERT INTO employee VALUES(11,'Akshay','ENGINEER',1000000,1);
12 INSERT INTO employee VALUES(12,'John','ADMIN',2200000,1);
13 INSERT INTO employee VALUES(13,'Abinaya','ENGINEER',2100000,2);
14 INSERT INTO employee VALUES(14,'Vidya','ADMIN',2200000,NULL);
15 INSERT INTO employee VALUES(15,'Ranjani','ENGINEER',2100000,NULL);
16

```

Below the query window are buttons for SELECT, INSERT, UPDATE, DELETE, and a 'Get auto-saved query' link. To the right, a results grid shows the data with the following columns: emp_id, ename, job_desc, salary, and branch_id. The data rows are identical to the ones in the SQL query.

The screenshot shows the phpMyAdmin interface for the 'employee' table. The left sidebar shows the database structure. The main area contains a data grid with the following columns: emp_id, ename, job_desc, salary, and branch_id. The data rows are identical to the ones in the SQL query shown in the previous screenshot. Each row includes edit, copy, and delete options.

	emp_id	ename	job_desc	salary	branch_id
<input type="checkbox"/>	1	Ram	ADMIN	1000000	2
<input type="checkbox"/>	2	Harini	MANAGER	2500000	2
<input type="checkbox"/>	3	George	SALES	2000000	1
<input type="checkbox"/>	4	Reya	SALES	1300000	2
<input type="checkbox"/>	5	Meena	HR	2000000	3
<input type="checkbox"/>	6	Ashok	MANAGER	3000000	1
<input type="checkbox"/>	7	Abdul	HR	2000000	1
<input type="checkbox"/>	8	Reya	ENGINEER	1000000	2
<input type="checkbox"/>	9	Raghу	CEO	8000000	3
<input type="checkbox"/>	10	Arvind	MANAGER	2800000	3
<input type="checkbox"/>	11	Akshay	ENGINEER	1000000	1
<input type="checkbox"/>	12	John	ADMIN	2200000	1
<input type="checkbox"/>	13	Abinaya	ENGINEER	2100000	2
<input type="checkbox"/>	14	Vidya	ADMIN	2200000	NULL
<input type="checkbox"/>	15	Ranjani	ENGINEER	2100000	NULL

localhost / 127.0.0.1 / mysqlsubc

localhost/phpmyadmin/index.php?route=/table/sql&db=mysqlsubqueries&table=employee

phpMyAdmin

Server: 127.0.0.1 » Database: mysqlsubqueries » Table: employee

Browse Structure SQL Search Insert Export Import Privileges More

Recent Favorites

New blog csv2sql csvdata information_schema mysql mysqlsubqueries New branch employee performance_schema phpmyadmin posts project studentdb test userdb

Run SQL query/queries on table mysqlsubqueries.employee:

```

1 SELECT * FROM employee;
2 SELECT * FROM branch;
3
4
5
6
7
8
  
```

emp_id
ename
job_desc
salary
branch_id

SELECT * SELECT INSERT UPDATE DELETE Clear Format

Get auto-saved query

Console

localhost / 127.0.0.1 / mysqlsubc

localhost/phpmyadmin/index.php?route=/table/sql&db=mysqlsubqueries&table=branch

phpMyAdmin

Server: 127.0.0.1 » Database: mysqlsubqueries » Table: branch

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

New blog csv2sql csvdata information_schema mysql mysqlsubqueries New branch employee performance_schema phpmyadmin posts project studentdb test userdb

emp_id
ename
job_desc
salary
branch_id

Arvind
Akshay
John
Abinaya
Vidya
Ranjani

Manager
Engineer
Admin
Engineer
Admin
Engineer

2800000 3
1000000 1
2200000 1
2100000 2
2200000 NULL
2100000 NULL

Check all With selected Edit Copy Delete

Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

Query results operations

Print Copy to clipboard Export Display chart Create view

Bookmark this SQL query

Label: Let every user access this bookmark

Showing rows 0 - 3 (4 total). Query took 0.0024 seconds.

SELECT * FROM branch;

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

branch_id br_name addr

1 Chennai 16 ABC Road
2 Coimbatore 120 15th Block

Step 5: SubQ 1: Displays employee list in Chennai Branch

-- Displays employee list in Chennai Branch

```
SELECT * FROM employee  
WHERE branch_id = (SELECT branch_id  
FROM branch  
WHERE br_name="Chennai");
```

emp_id	ename	job_desc	salary	branch_id
3	George	SALES	2000000	1
6	Ashok	MANAGER	3000000	1
7	Abdul	HR	2000000	1

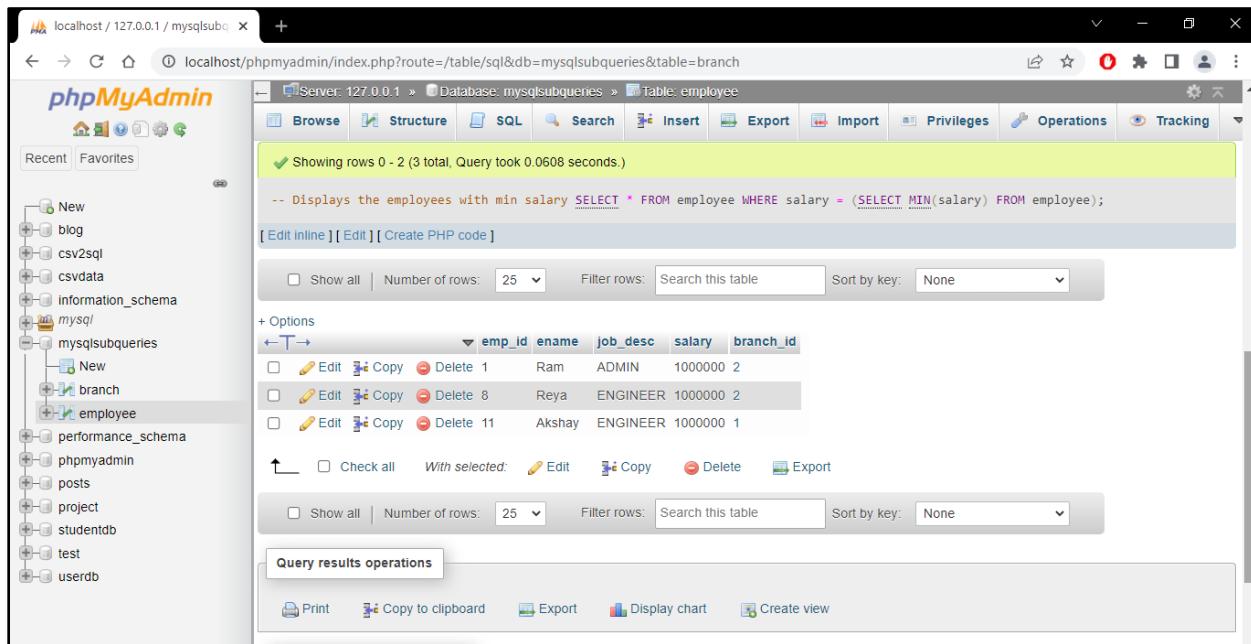
Step 6: SubQ 2: Displays the employees with min & maximum salary

-- Displays the employees with min salary

```
SELECT * FROM employee  
WHERE salary = (SELECT MIN(salary)  
FROM employee);
```

-- Displays the employees with maximum salary

```
SELECT * FROM employee  
WHERE salary = (SELECT MAX(salary)  
FROM employee);
```



The screenshot shows the phpMyAdmin interface for a MySQL database named 'mysqlsubqueries'. The 'employee' table is selected. The results of the query are displayed in a table:

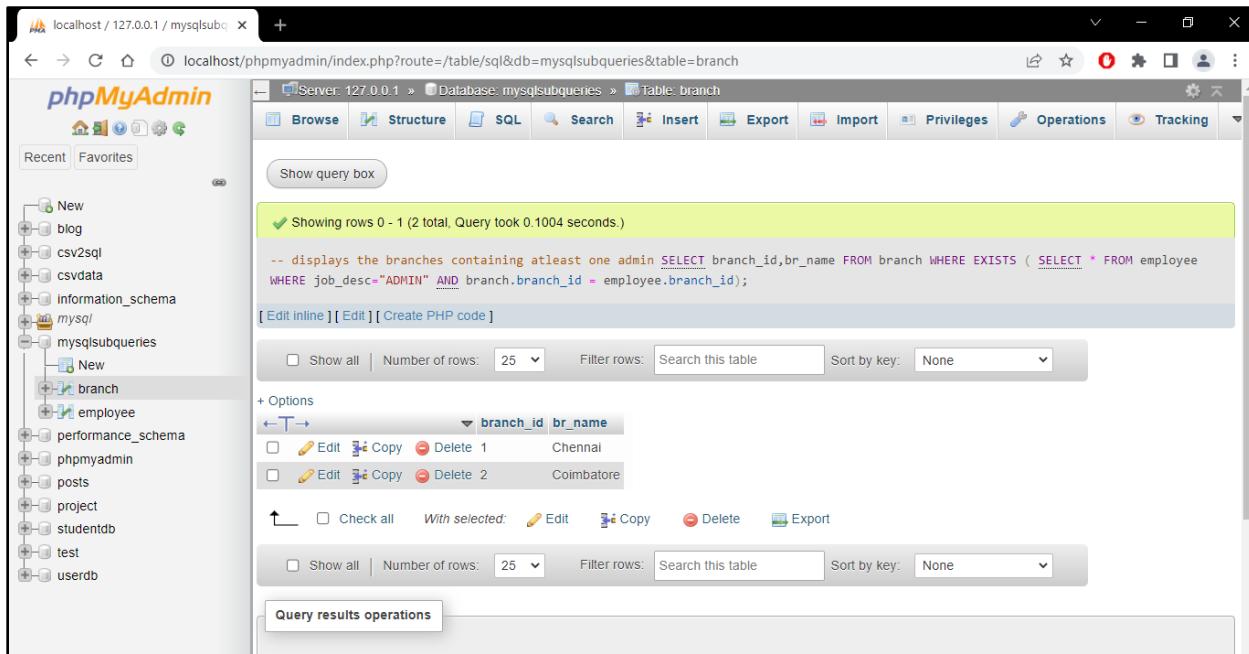
emp_id	ename	job_desc	salary	branch_id
1	Ram	ADMIN	1000000	2
8	Reya	ENGINEER	1000000	2
11	Akshay	ENGINEER	1000000	1

Below the table, there are buttons for 'Edit', 'Copy', 'Delete', 'Check all', and 'With selected'. At the bottom, there are 'Query results operations' buttons for 'Print', 'Copy to clipboard', 'Export', 'Display chart', and 'Create view'.

Step 7: SubQ 3: Displays the branches containing atleast one admin

-- Displays the branches containing atleast one admin

```
SELECT branch_id,br_name
FROM branch
WHERE EXISTS
( SELECT * FROM employee
WHERE job_desc="ADMIN" AND branch.branch_id = employee.branch_id);
```



Step 8: SubQ 4: Displays the branch info in which any employee gets more than 25L

-- Displays the branch info in which any employee gets more than 25L

```

SELECT branch_id,br_name
FROM branch
WHERE branch_id = ANY
  (SELECT branch_id FROM employee
  WHERE salary>2500000);

```

Showing rows 0 - 1 (2 total, Query took 0.0071 seconds.)

```
-- displays the branch info in which any employee gets more than 25L
SELECT branch_id,br_name FROM branch WHERE branch_id = ANY
(SELECT branch_id FROM employee WHERE salary>2500000);
```

[Edit inline] [Edit] [Create PHP code]

Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None

+ Options

branch_id	br_name
1	Chennai
3	Mumbai

Check all With selected: Edit Copy Delete Export

Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None

Step 9: SubQ 5: Displays employees not working in chennai or coimbatore

-- Displays employees not working in chennai or coimbatore

```
SELECT * FROM employee
WHERE branch_id <> ALL ( SELECT branch_id FROM branch
WHERE br_name IN ("Chennai","Coimbatore"));
```

Showing rows 0 - 2 (3 total, Query took 0.0430 seconds.)

```
-- displays employees not working in chennai or coimbatore
SELECT * FROM employee WHERE branch_id NOT IN (SELECT branch_id FROM branch WHERE br_name IN ("Chennai", "Coimbatore"));
```

Query results operations

emp_id	ename	job_desc	salary	branch_id
5	Meena	HR	2000000	3
9	Raghu	CEO	8000000	3
10	Arvind	MANAGER	2800000	3

Output/Results snippet:

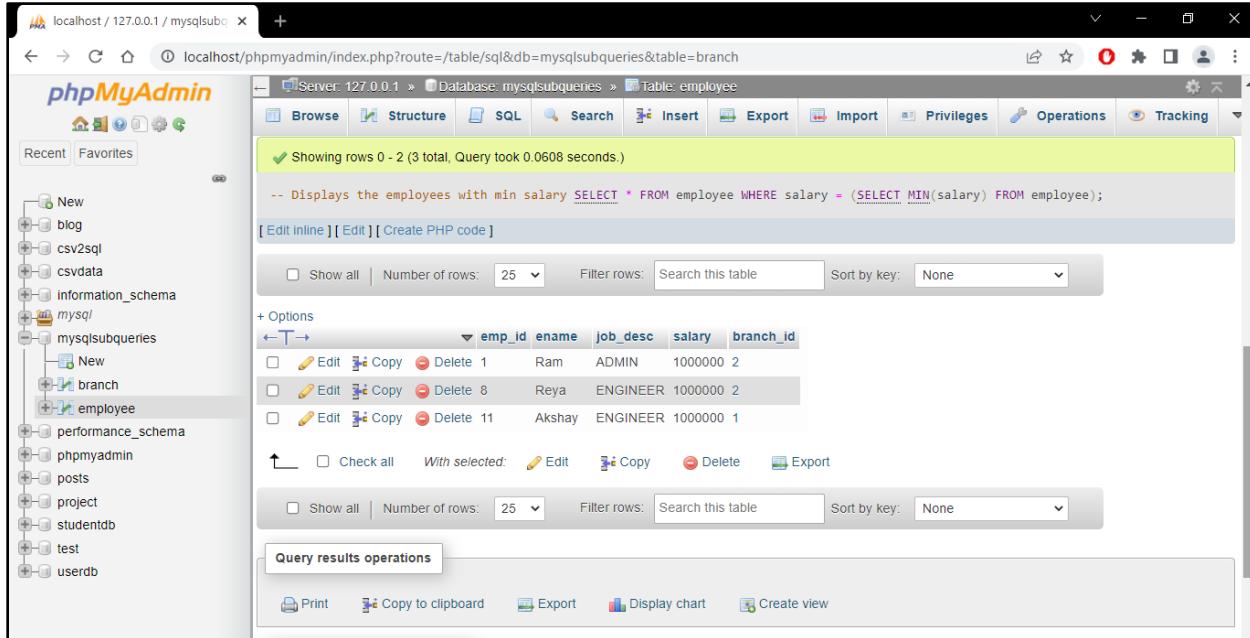
Displays employee list in Chennai Branch

Showing rows 0 - 4 (5 total, Query took 0.0554 seconds.)

```
-- Displays employee list in Chennai Branch
SELECT * FROM employee WHERE branch_id = (SELECT branch_id FROM branch WHERE br_name="Chennai");
```

emp_id	ename	job_desc	salary	branch_id
3	George	SALES	2000000	1
6	Ashok	MANAGER	3000000	1
7	Abdul	HR	2000000	1
11	Akshay	ENGINEER	1000000	1
12	John	ADMIN	2200000	1

Displays the employees with min/max salary



localhost / 127.0.0.1 / mysqlsubq x +

localhost/phpmyadmin/index.php?route=/table/sql&db=mysqlsubqueries&table=branch

phpMyAdmin

Server: 127.0.0.1 » Database: mysqlsubqueries » Table: employee

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking

Showing rows 0 - 2 (3 total, Query took 0.0608 seconds.)

-- Displays the employees with min salary `SELECT * FROM employee WHERE salary = (SELECT MIN(salary) FROM employee);`

[Edit inline] [Edit] [Create PHP code]

Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

+ Options

	emp_id	ename	job_desc	salary	branch_id
<input type="checkbox"/>	1	Ram	ADMIN	1000000	2
<input type="checkbox"/>	8	Reya	ENGINEER	1000000	2
<input type="checkbox"/>	11	Akshay	ENGINEER	1000000	1

Check all With selected: Edit Copy Delete Export

Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

Query results operations

Print Copy to clipboard Export Display chart Create view

localhost / 127.0.0.1 / mysqlsubq x +

localhost/phpmyadmin/index.php?route=/table/sql&db=mysqlsubqueries&table=branch

phpMyAdmin

Server: 127.0.0.1 » Database: mysqlsubqueries » Table: employee

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking

Showing rows 0 - 2 (3 total, Query took 0.0608 seconds.)

-- Displays the employees with min salary `SELECT * FROM employee WHERE salary = (SELECT MIN(salary) FROM employee);`

[Edit inline] [Edit] [Create PHP code]

Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

+ Options

	emp_id	ename	job_desc	salary	branch_id
<input type="checkbox"/>	1	Ram	ADMIN	1000000	2
<input type="checkbox"/>	8	Reya	ENGINEER	1000000	2
<input type="checkbox"/>	11	Akshay	ENGINEER	1000000	1

Check all With selected: Edit Copy Delete Export

Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

Query results operations

Print Copy to clipboard Export Display chart Create view

Displays the branches containing at least one admin

The screenshot shows the phpMyAdmin interface for the 'mysqlsubqueries' database. The 'branch' table is selected. The results of a query are displayed in a green box:

```
-- displays the branches containing atleast one admin
SELECT branch_id,br_name
FROM branch
WHERE EXISTS ( SELECT * FROM employee
WHERE job_desc='ADMIN' AND branch.branch_id = employee.branch_id);
```

The results table shows two rows:

branch_id	br_name
1	Chennai
2	Coimbatore

Displays the branch info in which any employee gets more than 25L

The screenshot shows the phpMyAdmin interface for the 'mysqlsubqueries' database. The 'branch' table is selected. The results of a query are displayed in a green box:

```
-- displays the branch info in which any employee gets more than 25L
SELECT branch_id,br_name
FROM branch
WHERE branch_id = ANY (SELECT branch_id FROM employee WHERE salary>2500000);
```

The results table shows two rows:

branch_id	br_name
1	Chennai
3	Mumbai

Displays employees not working in chennai or coimbatore

-- displays employees not working in chennai or coimbatore `SELECT * FROM employee WHERE branch_id NOT IN (SELECT branch_id FROM branch WHERE br_name IN ('Chennai', 'Coimbatore'));`

emp_id	ename	job_desc	salary	branch_id
5	Meena	HR	2000000	3
9	Raghu	CEO	8000000	3
10	Arvind	MANAGER	2800000	3