

# **Diploma in IT, Networking and Cloud**

## **Module 2**

### **Web Design and Development**

#### **Lab Manual**

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**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:**



**References:**

- [https://www.w3schools.com/html/html\\_editors.asp](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. 1Windows/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>

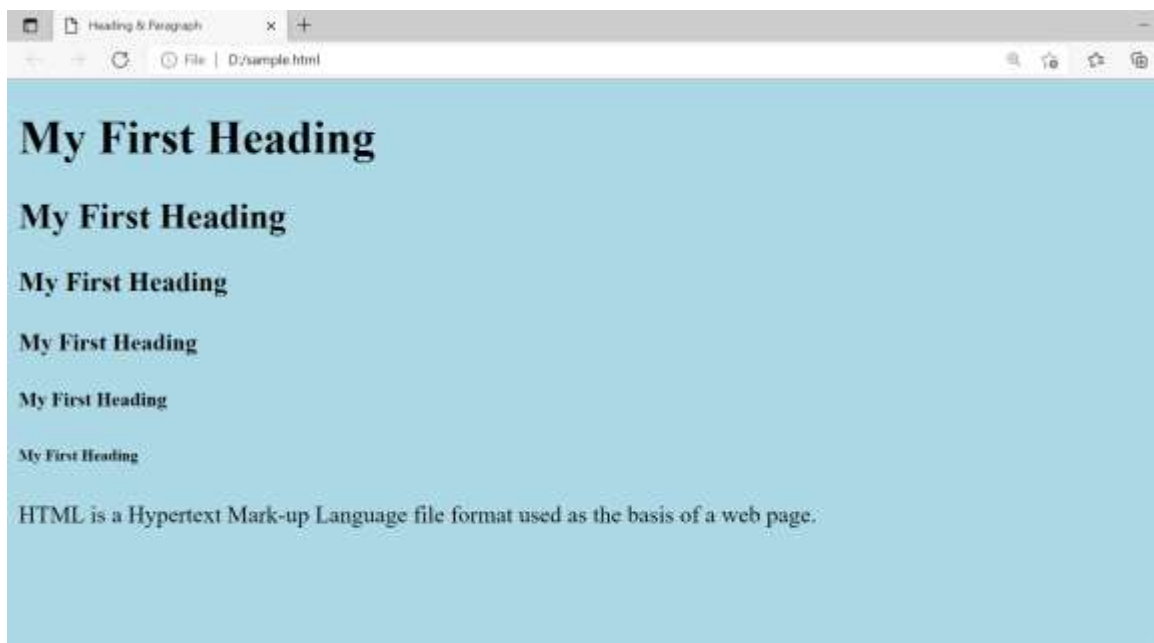
<h6>My First Heading</h6>

<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</br>in a text,</br>use the br element.

</p>

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

</html>

### Output/Results snippet:



### 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:



### References:

- [https://www.w3schools.com/html/html\\_intro.asp](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>
```

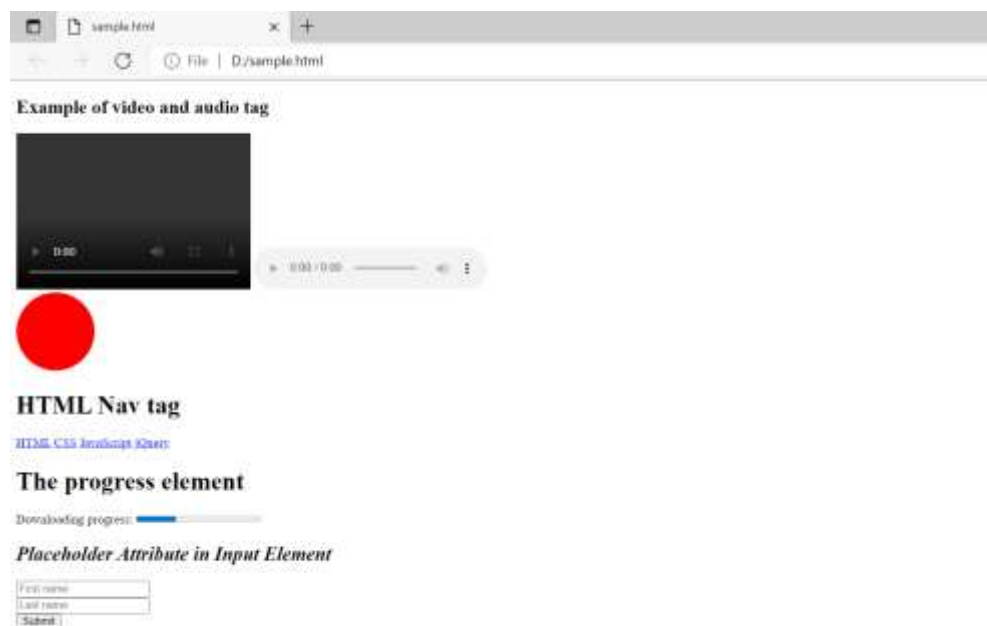
```
<input type="text" name="lname"
```

```
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.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, Tables 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><br>  
<!-- This text is Teletype Text-->

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

<em>Emphasized text.</em><br> <!-- This text is Emphasize -->

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

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

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

<del>Delete this text.</del><br> <!-- This text is Delete Text -->

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

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

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

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

<var>Variable text.</var><br> <!-- 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:**



**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](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://edunetworld.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-->

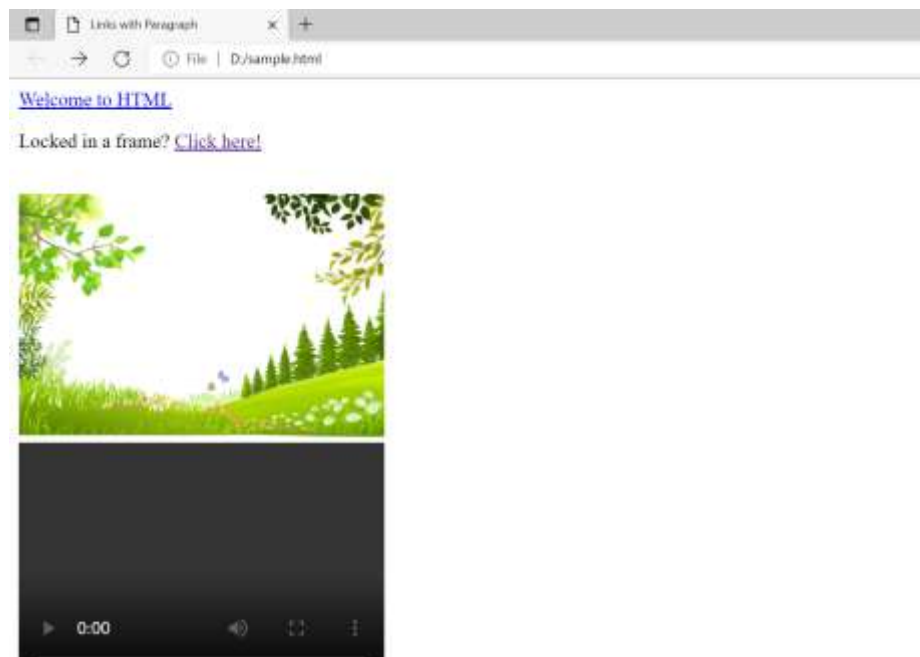
<source src = "../video.mp4" type="video/mp4" />Your browser does not support the  
<video> element.

</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="mobilenno" id="mobilenno" size="30"></td>
    <!--This is Textbox-->

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

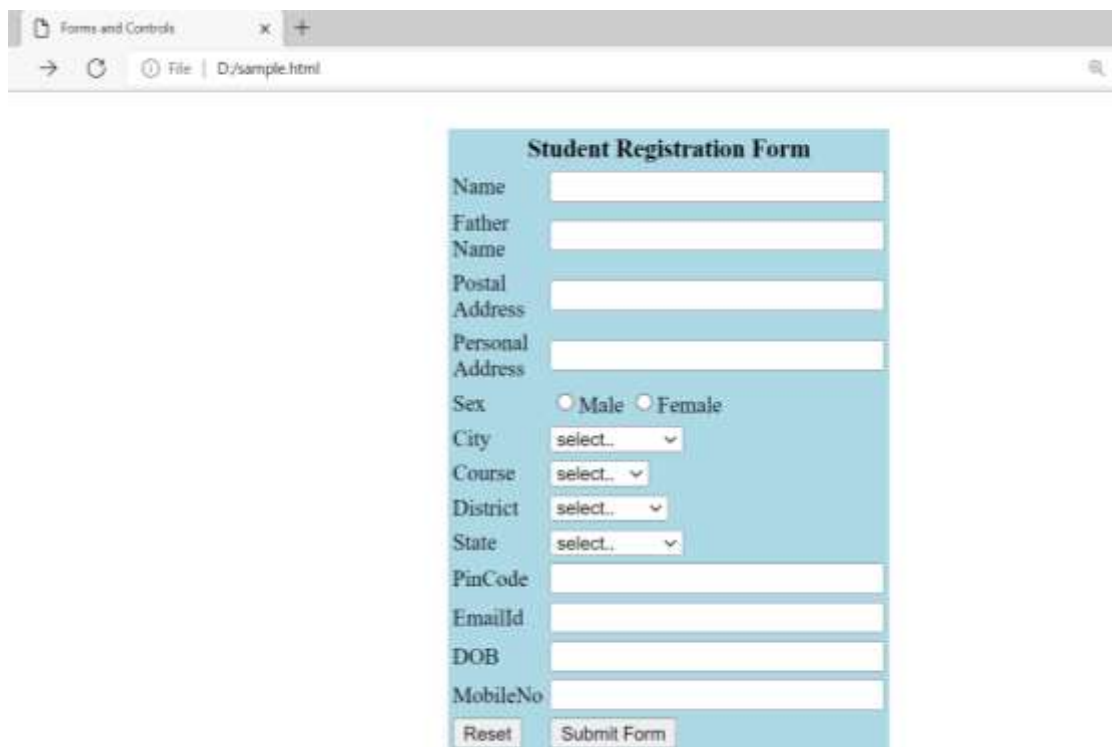
<tr>                                <!--Table Row Starts -->

<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>
</form>
</body>
</html>
```

### Output/Results snippet:



The screenshot shows a web browser window with the title 'Forms and Controls'. The address bar shows 'File | D:/sample.html'. The main content area displays a 'Student Registration Form' with the following fields and controls:

- Name:
- Father Name:
- Postal Address:
- Personal Address:
- Sex: ☐ Male ☐ Female
- City:
- Course:
- District:
- State:
- PinCode:
- EmailId:
- DOB:
- MobileNo:
- Buttons:

### References:

- [https://www.tutorialspoint.com/adobe\\_robohelp/adobe\\_robohelp\\_linking\\_images\\_multimedia.htm](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>
```

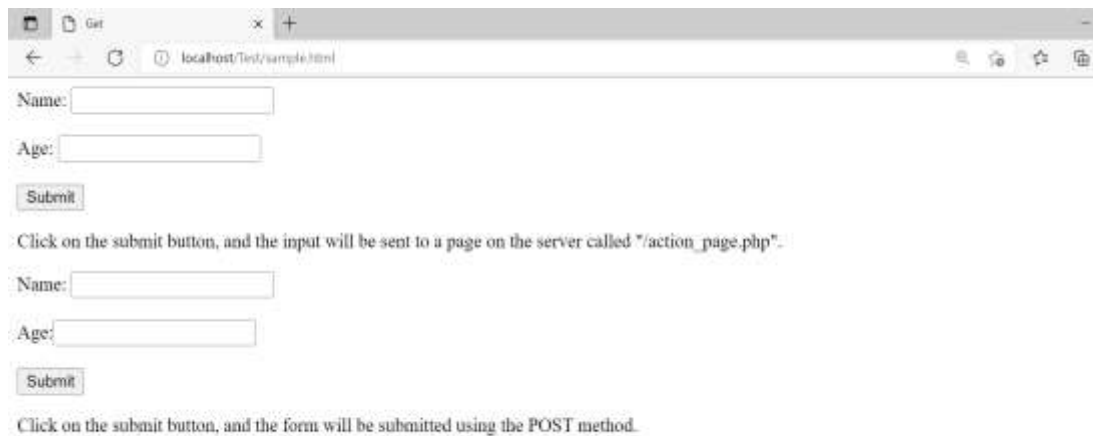
**action\_page.php**

```
<?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:

Submit

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

Name:

Age:

Submit

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

## GET Method URL



Get

localhost/Test/action\_page.php?name=Priya+Sharma&age=24

Welcome Priya Sharma  
You are 24 years old.

## POST Method URL



Get

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 a single tab titled 'Users'. The address bar displays 'localhost/Test/users.html'. The page content includes a form with two input fields: 'Username:' and 'Password:'. Below these fields is a 'Submit' button.

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 libero 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>Pelentesque 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 ultricies. Curabitur ornare, ligula semper consectetur

sagittis, nisi diam iaculis velit, is fringille sem nunc vel 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;

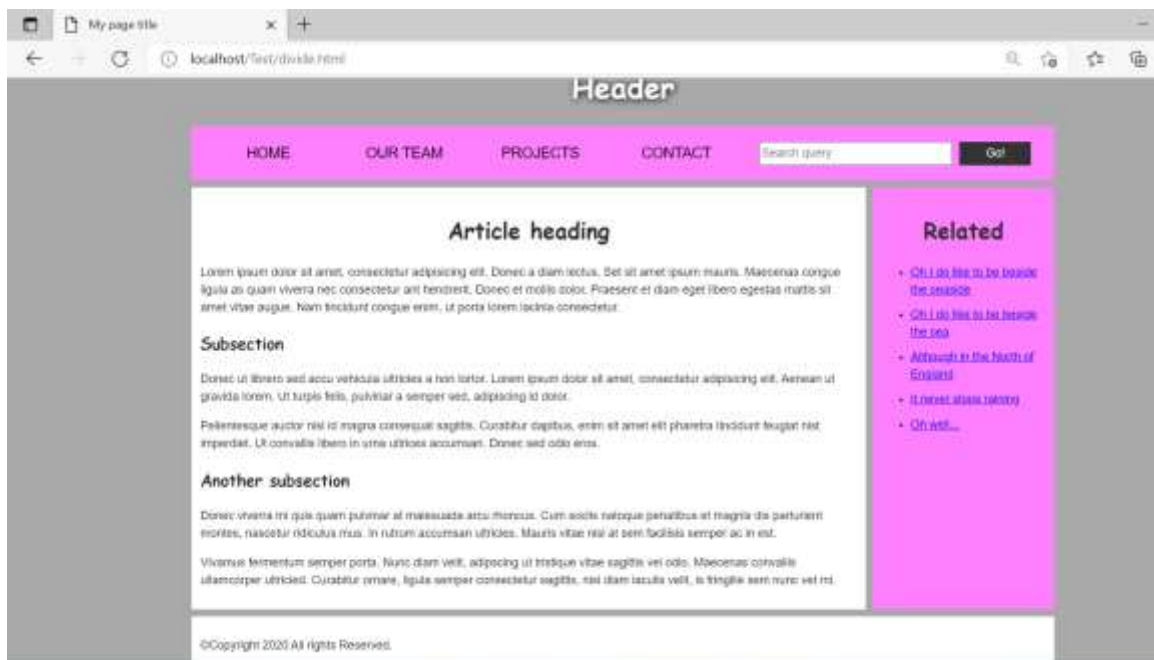
}

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...");

}

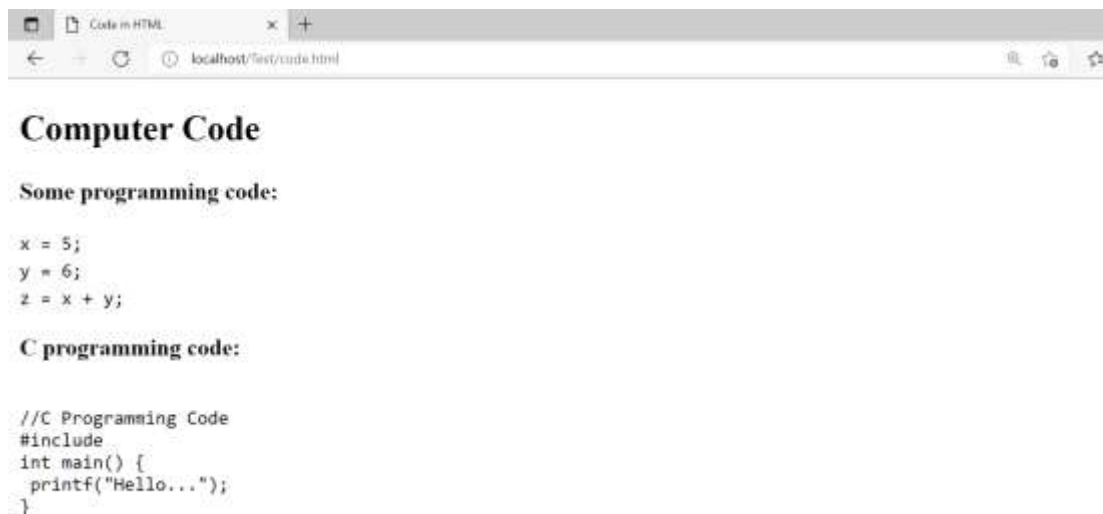
</code> </pre>

<!--Computer Code Ends>

</body>

</html>

**Output/Results snippet:**



**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>
```

```

```

```

```

```

```

```

```

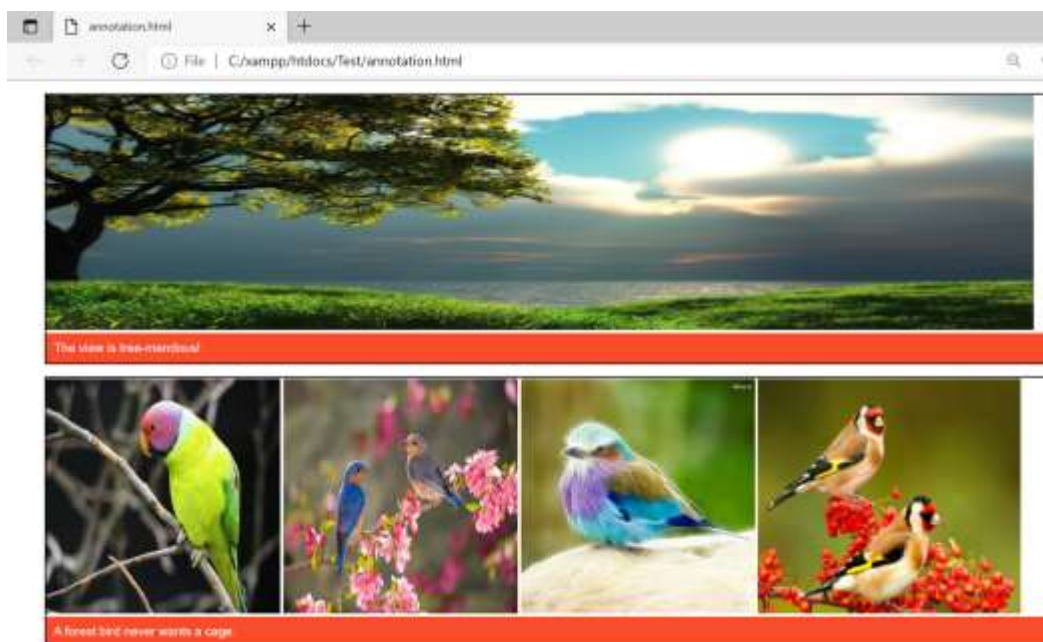
```
<figcaption>A forest bird never wants a cage.</figcaption>
```

```
</figure>
```

```
</body>
```

```
</html>
```

## Output/Results snippet:



## References:

- [https://developer.mozilla.org/enUS/docs/Learn/HTML/Multimedia\\_and\\_embedding/Images\\_in\\_HTML](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:



## References:

- [https://www.w3schools.com/tags/tag\\_abbr.asp](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](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">

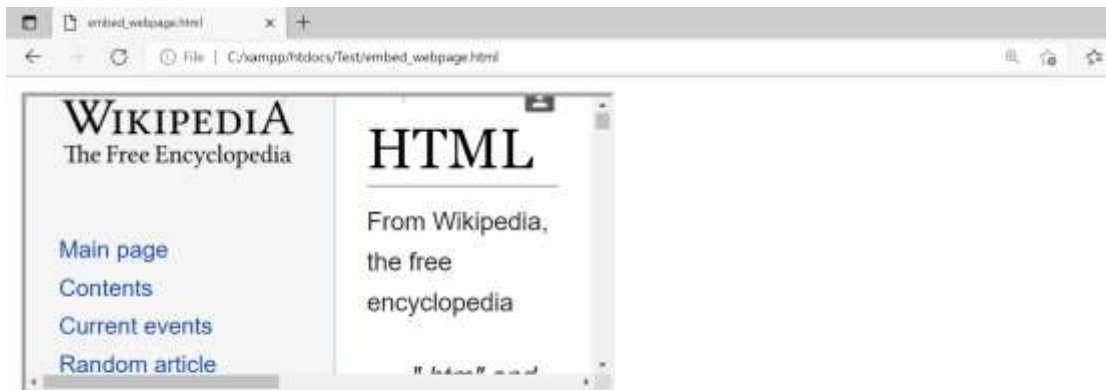
  <p>Your browser does not support iframes.</p>

</iframe>

</body>

</html>
```

### Output/Results snippet:



### References:

- <https://atomisystems.com/html5-animation/embedding-html5-project-into-webpage/>
- <https://www.tutorialrepublic.com/html-tutorial/html-iframes.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();

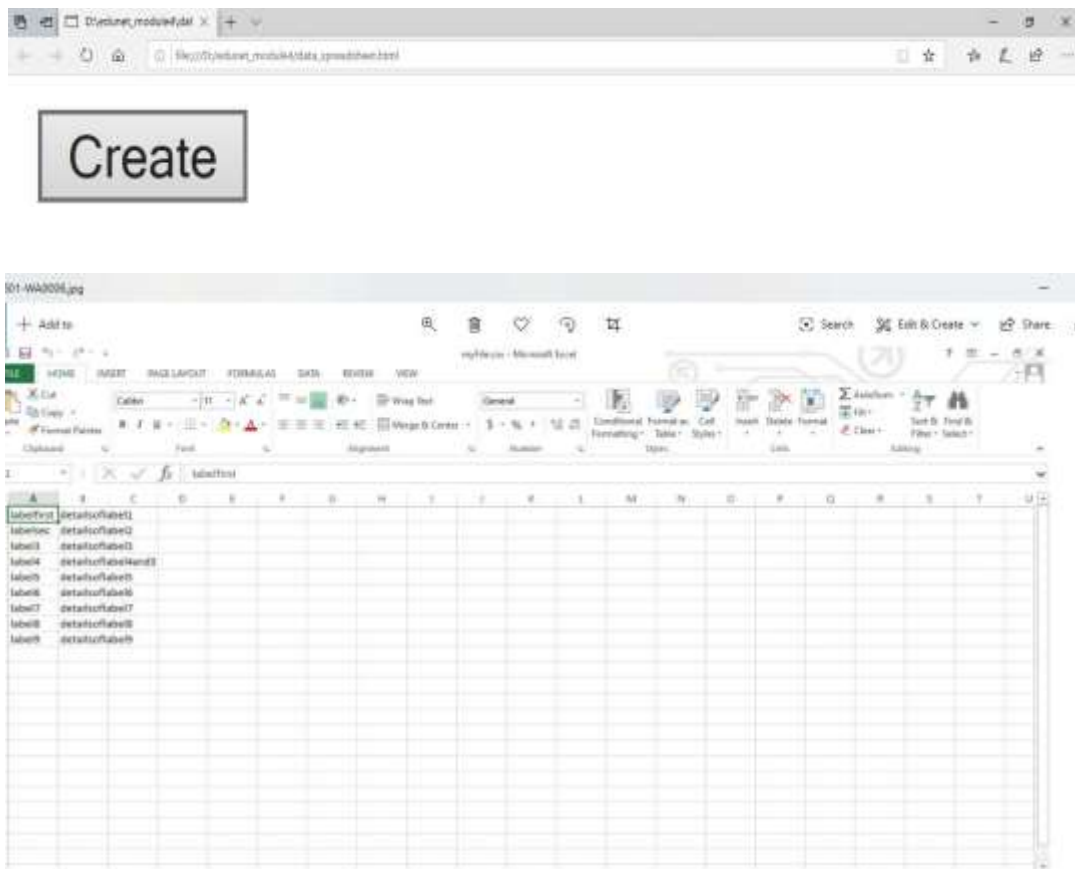
}

</script>

<body>
```

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

### Output/Results snippet:



### 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">$50</td>

</tr>

<tr>

<td>February</td>

<td>$80</td>

</tr>

</table>

</body>

</html>

```

### Output/Results snippet:



The screenshot shows a web browser window with a single tab titled 'D:\edunet\_module\html'. The address bar displays the file path 'file:///D:/edunet\_module/html/rendering.html'. The rendered table is as follows:

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:



Collapsible Set:



**References:**

- [https://www.w3schools.com/bootstrap/bootstrap\\_collapse.asp](https://www.w3schools.com/bootstrap/bootstrap_collapse.asp)
- [https://www.w3schools.com/howto/howto\\_js\\_collapsible.asp](https://www.w3schools.com/howto/howto_js_collapsible.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:



**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](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](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;
}
/* rough 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();

$dropTrigger.removeAttr("class");

});

});

// actual function to transform select to definition list function createDropDown(){

var $form = $("div#country-select form");

$form.hide();

var source = $("#country-options"); source.removeAttr("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:

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

### Code/Program/Procedure (with comments):

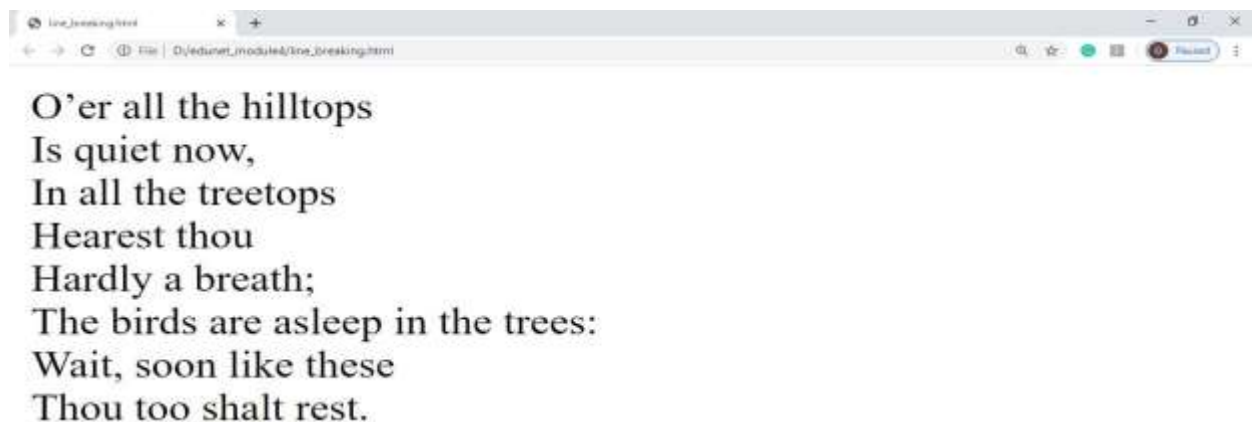
```
<p> O'er all the hilltops<br> Is quiet now,<br>
```

```
In all the treetops<br> Hearest thou<br> Hardly a breath;<br>
```

```
The birds are asleep in the trees:<br> Wait, soon like these<br>
```

```
Thou too shalt rest.</p>
```

### Output/Results snippet:



### 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](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](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](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">

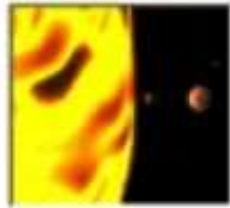
<area shape="circle" coords="124,58,8" alt="Venus" href="venus.htm">

</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](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](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](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>
```

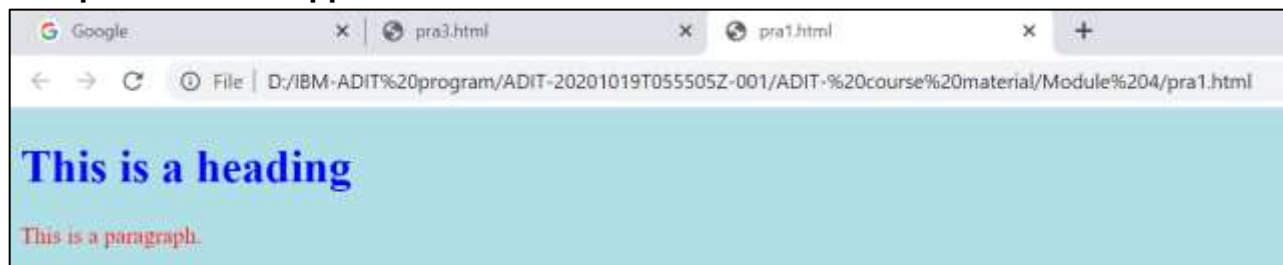
```
<h1>This is a heading</h1>
```

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

```
</body>
```

```
</html>
```

### Output/Results snippet:



### References:

- [https://www.w3schools.com/html/html\\_css.asp](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>

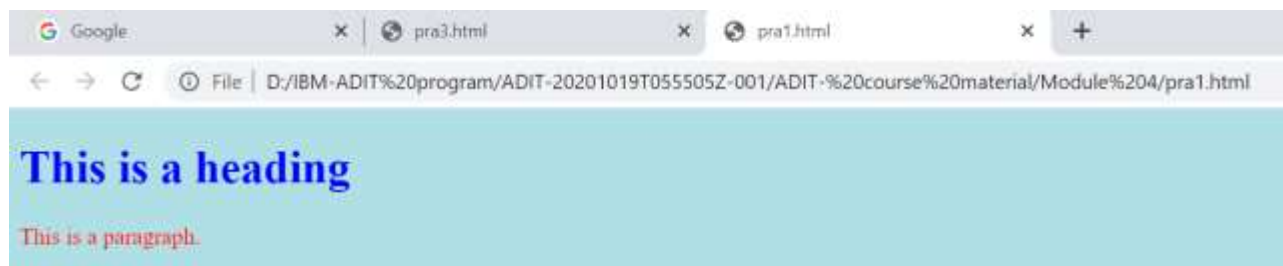
<p>This is a paragraph.</p>

</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](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](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>

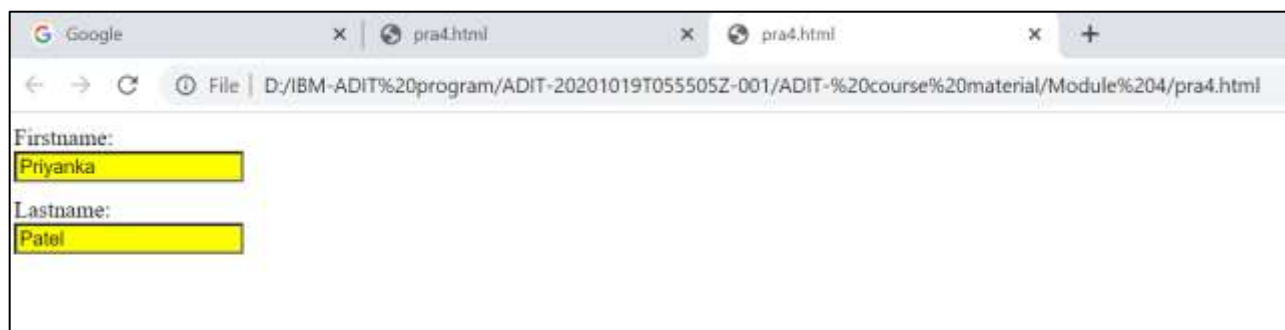
<style>

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](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>
```

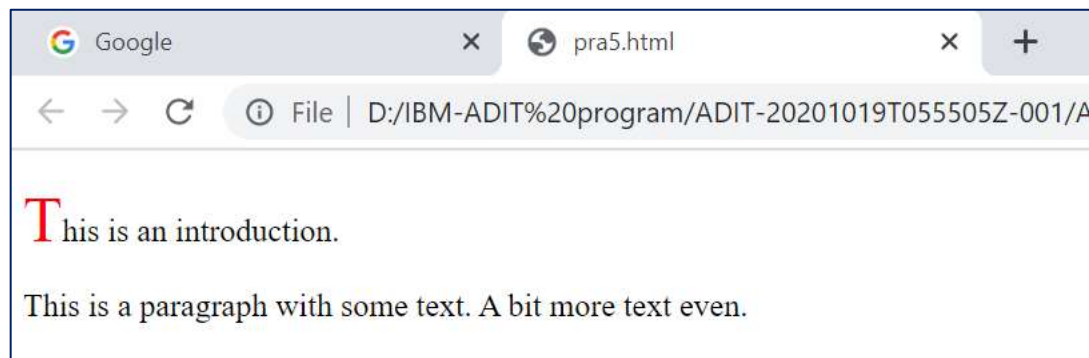
```
<style>
```

```
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](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

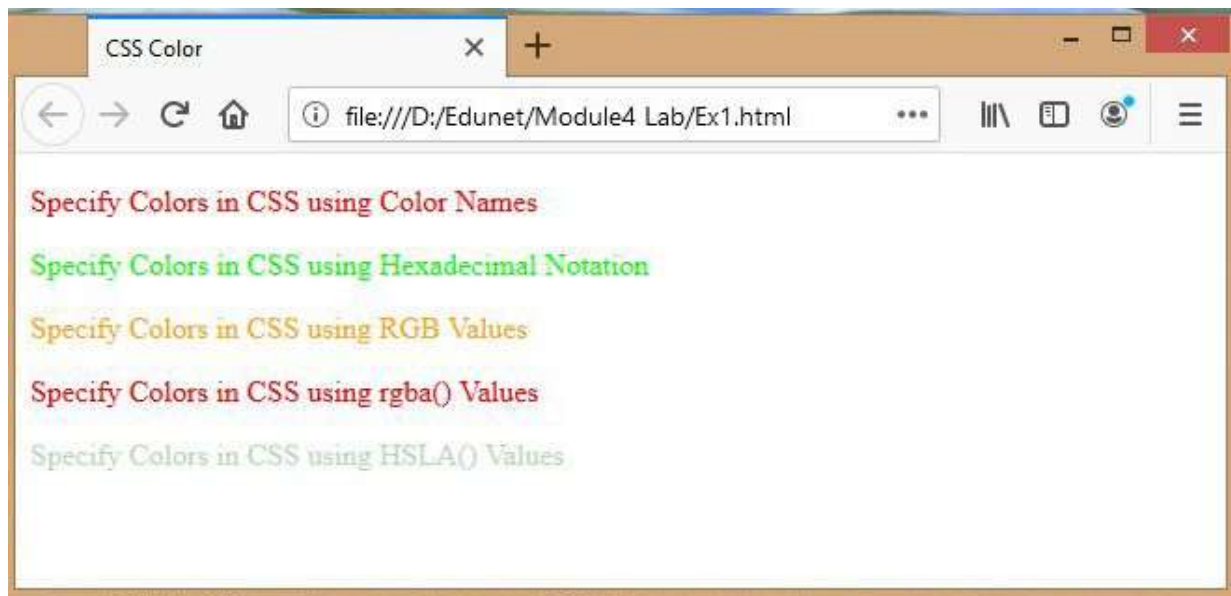
### List of Hardware/Software requirements:

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>
  <div id="col">Color Name</div>
  <div id="hex">Hexadecimal Color code</div>
  <div id="rgb">RGB()</div>
  <div id="rgba">RGBA()</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

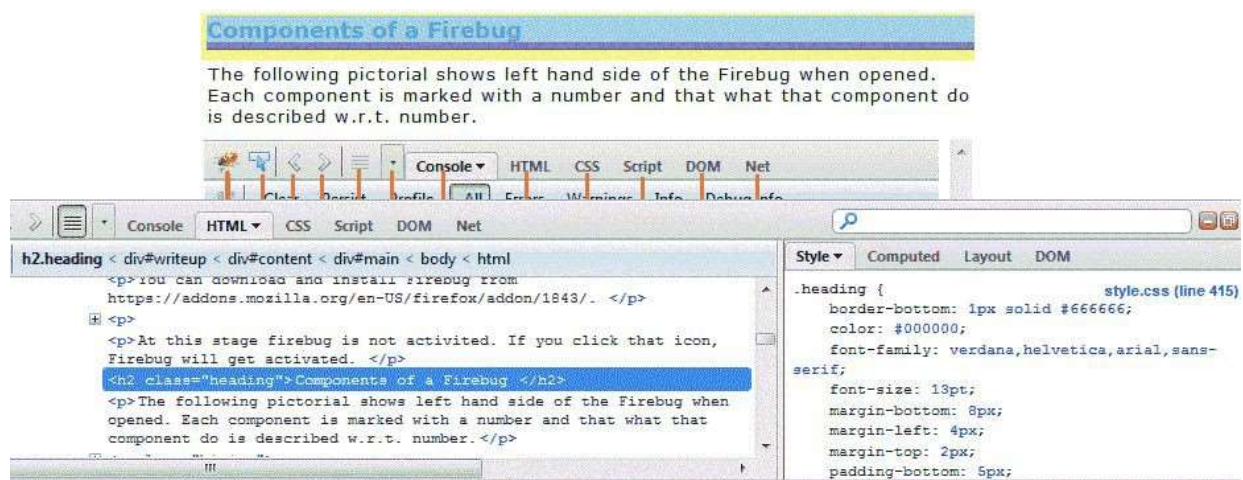
**Duration:** 1 hour

### 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):

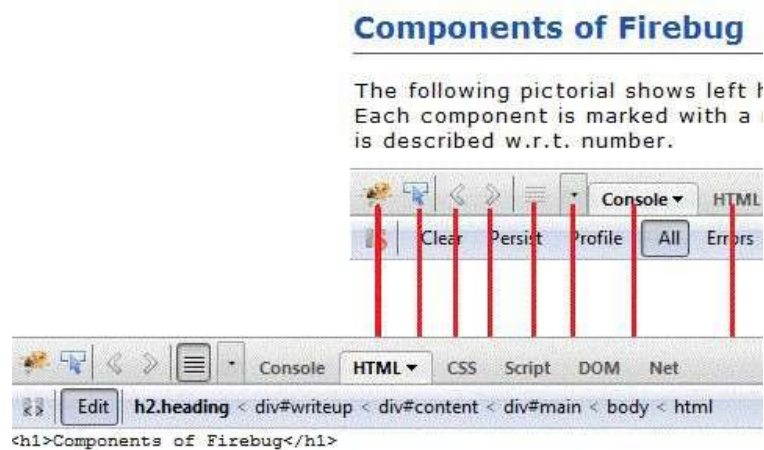
- Right click on the element which you want to inspect and click on the **Inspect Element**.



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



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



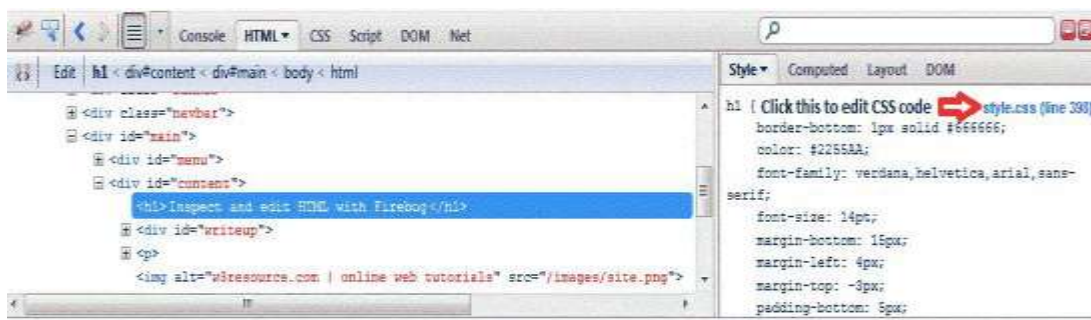
As soon as you change the code, you can see the effect live. You can copy the code and then simply paste it replacing the original code and save to make the effect permanent.

## 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 simply 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](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.unol1 {
```

---

```
        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

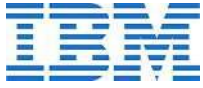
**Duration:** 1 Hrs

### 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;
```

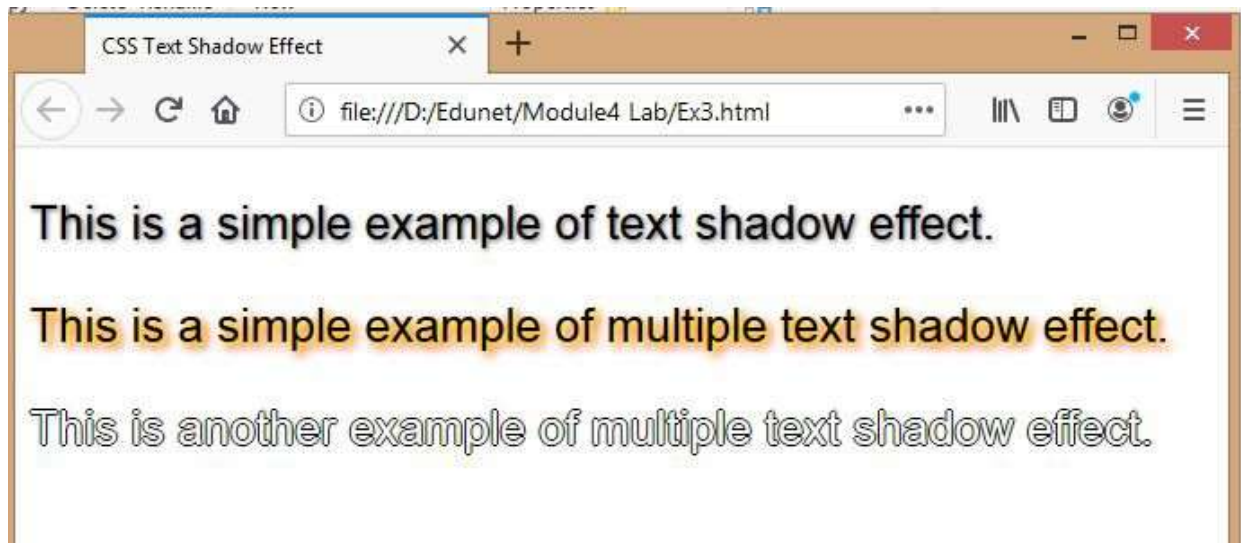


---

```
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>

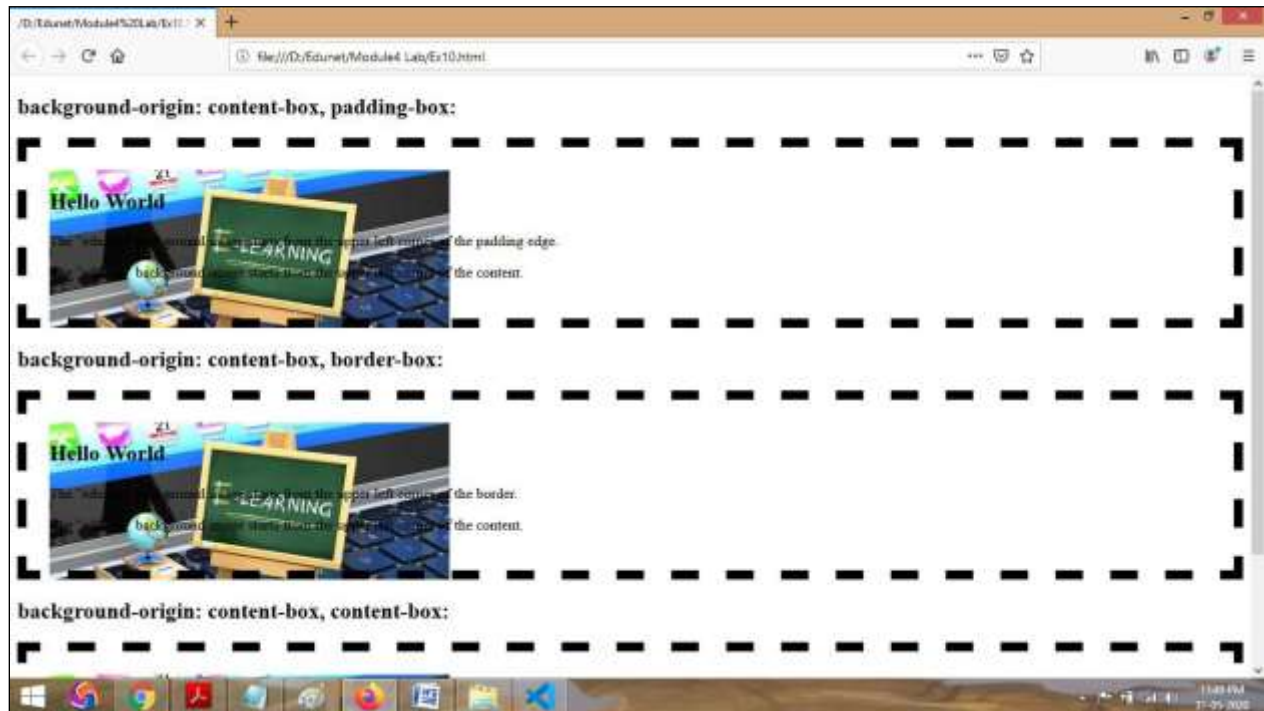
</div>
<h2>background-origin: content-box, border-box:</h2>
<div id="example2">
  <h2>Hello World</h2>
  <p>The "edu.jpg" background image starts from the upper left corner of the
border.</p>

  <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 c ontent.</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;
```

```
}

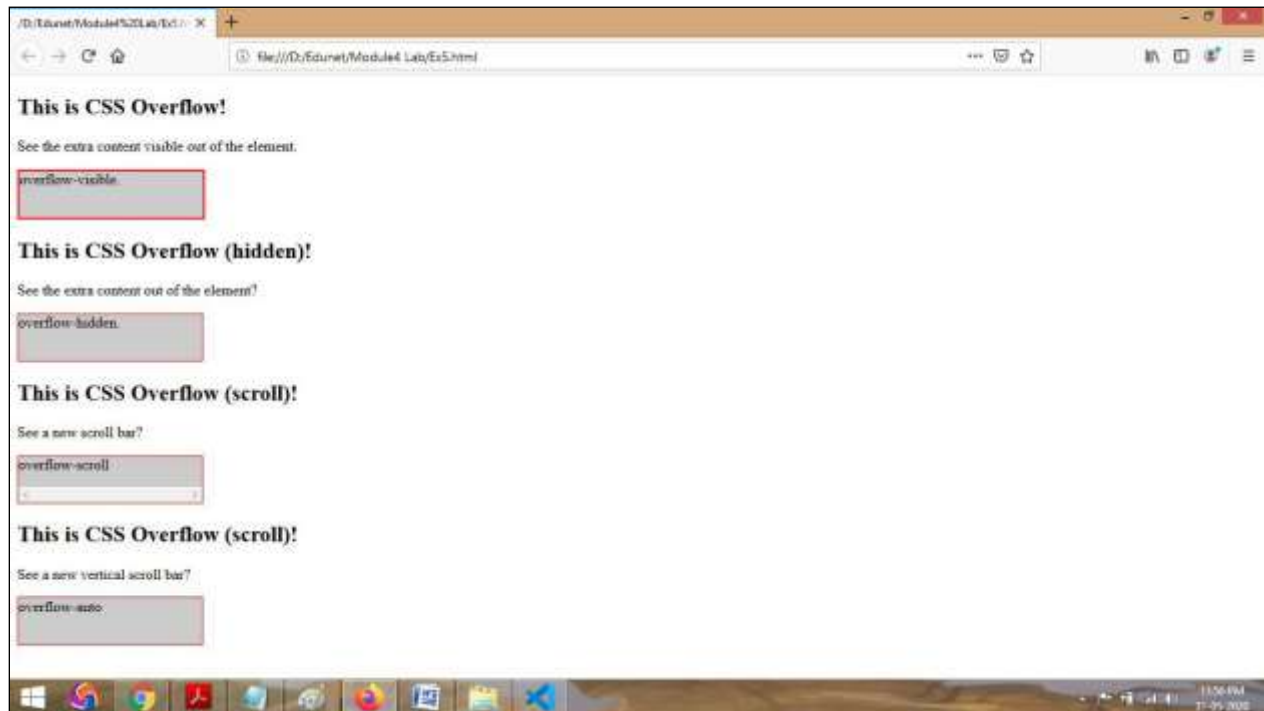
#overflow-scroll {
    background-color: #cccccc;
    width: 200px;
    height: 50px;
    border: 1px solid red;
    overflow: scroll;
}
#overflow-auto {
    background-color: #cccccc;
    width: 200px;
    height: 50px;
    border: 1px solid red;
    overflow: auto;
}
</style>
</head>

<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;



```

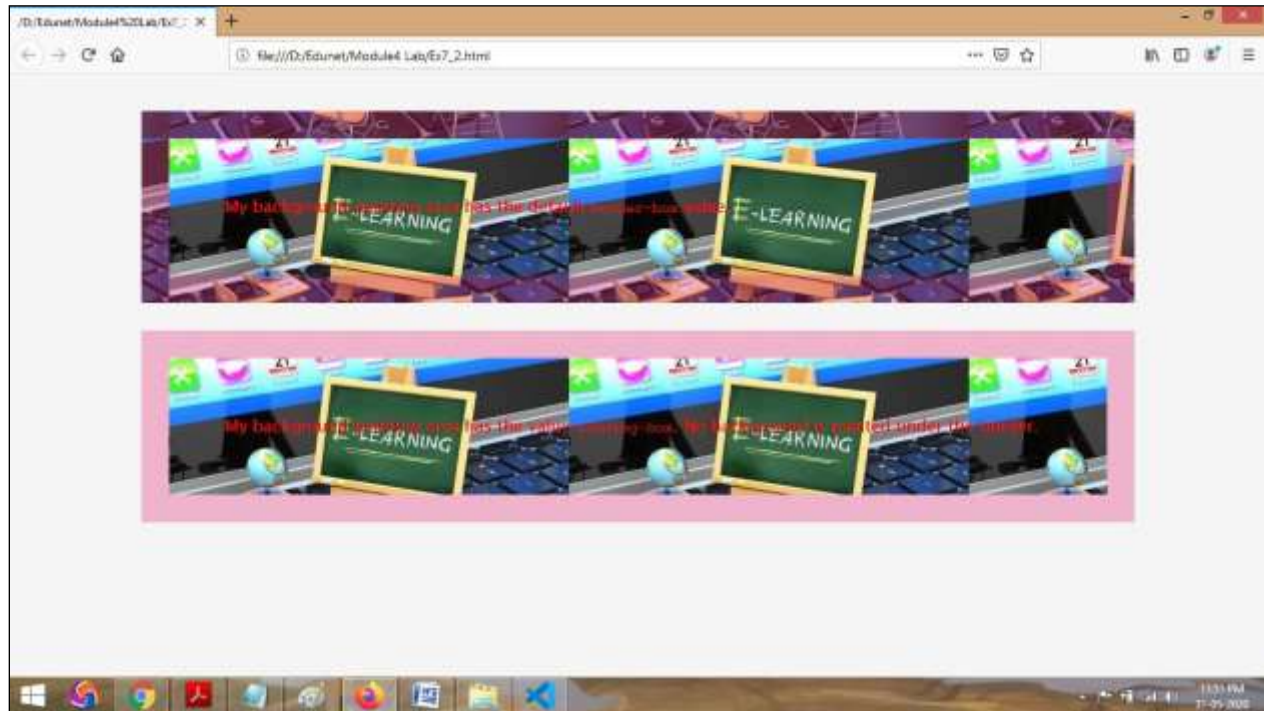
        border: 30px solid rgba(224, 30, 108, 0.3);
        background-image: url(edu.jpg);
    }
    .el-2 {
        background-clip: padding-box;
    }
    .el p {
        padding: 20px;
        margin: 0;
        font-size: large;
        font-family: 'Lucida Sans', 'Lucida Sans Regular', 'Lucida
Grande', '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">
```

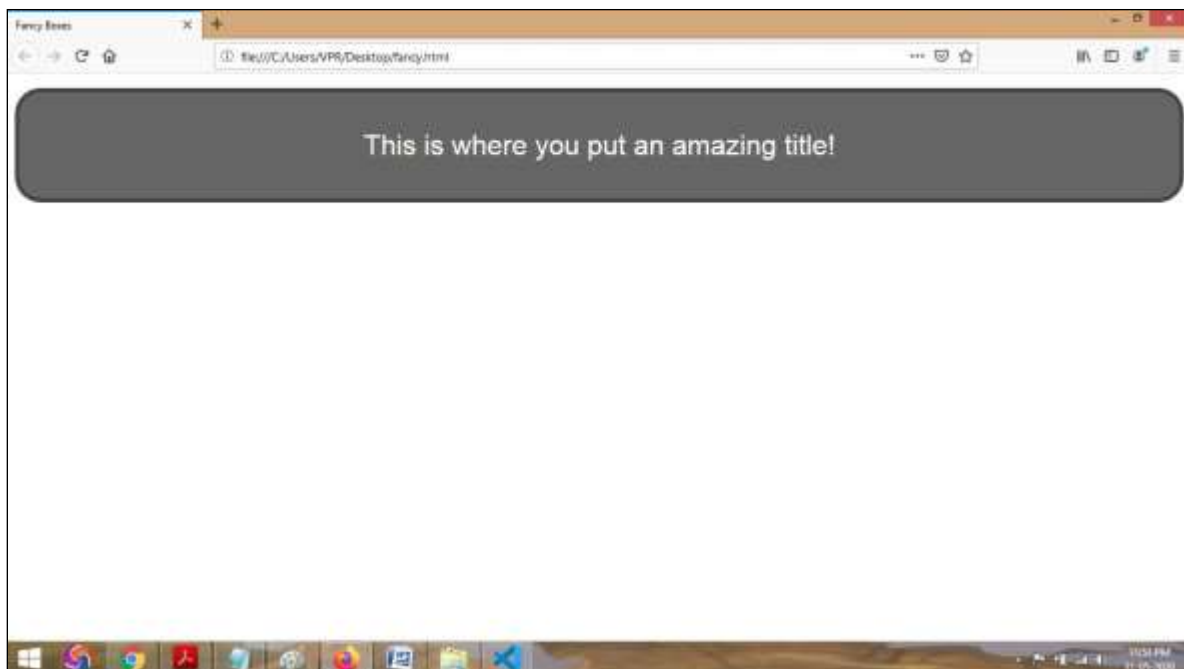
```
        <p class="fancy-heading">This is where you put an amazing title!</p>
```

```
    </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;
```

---

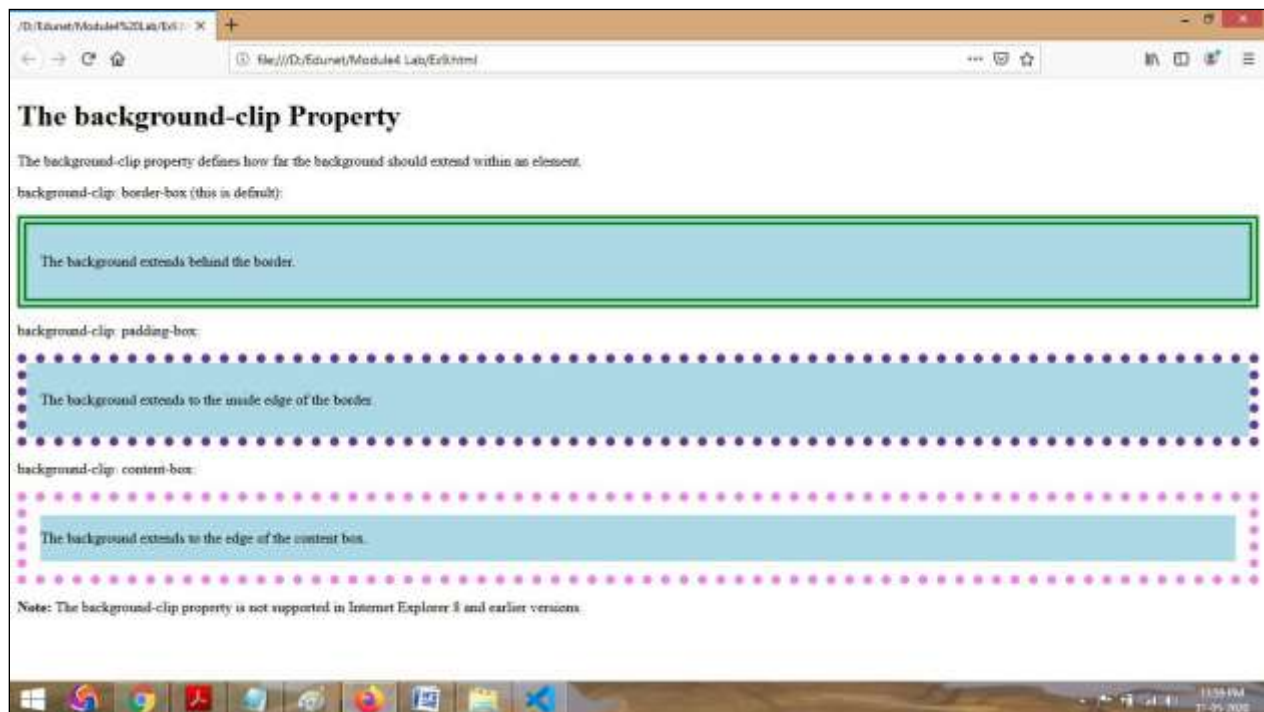
```
}
```

```
#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:



### 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.
</li>
</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;}

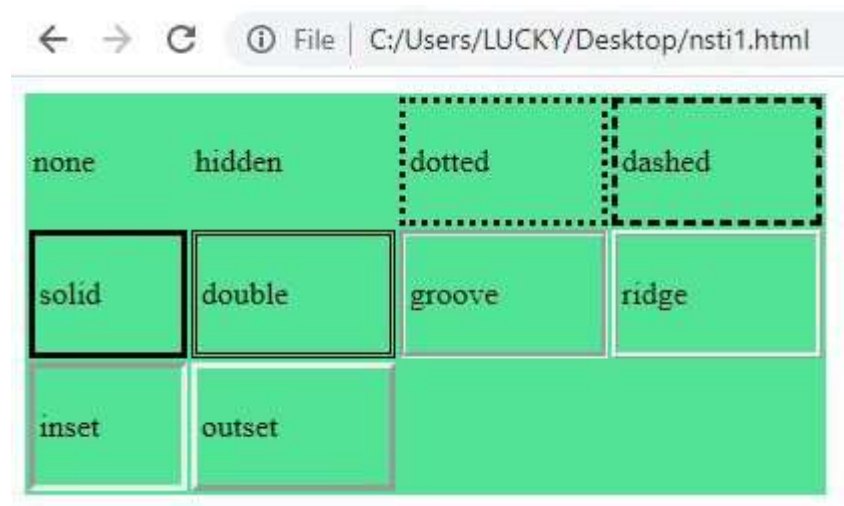
.b5 {border-style:solid;}
.b6 {border-style:double;}
.b7 {border-style:groove;}
.b8 {border-style:ridge;}
.b9 {border-style:inset;}
.b10 {border-style:outset;}
</style>
</head>
<body>
<table>
<tr>
<td class="b1">none</td>
<td class="b2">hidden</td>
<td class="b3">dotted</td>
<td class="b4">dashed</td>
</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.w3schools.com/css/css_border.asp)
- <https://www.html.am/html-codes/tables/table-border.cfm>
- [https://www.w3schools.com/css/css\\_border.asp](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>

---

Philip Cramer
Germany

|  |
| Laughing Bacchus Winecellars |
| Yoshi Tannamuri |
| Canada |
|  |
| Magazzini Alimentari Riuniti |
| Giovanni Rovelli |
| Italy |
|  |
| North/South |
| Simon Crowther |
| UK |
|  |
| Paris spécialités |
| Marie Bertrand |
| France |
|  |

</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
Laughing Bacchus Winecellars	Yoshi Tannamurt	Canada
Magazzini Alimentari Riuniti	Giovanni Rovelli	Italy
North/South	Simon Crowther	UK
Paris spécialités	Marie Bertrand	France

## References:

- [https://www.w3schools.com/css/css\\_table.asp](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

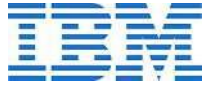
solid; padding:

10px;

box-shadow: 5px 5px blue, 10px 10px red, 15px 15px green;

}

#example2 {
```



---

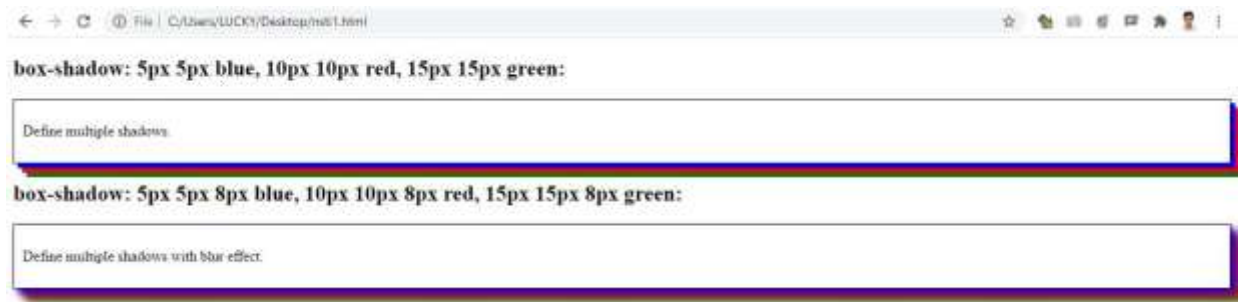
border: 1px solid;



---

```
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/cssref/css3_pr_box-shadow.asp)
- [https://www.w3schools.com/css/css3\\_shadows.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;}

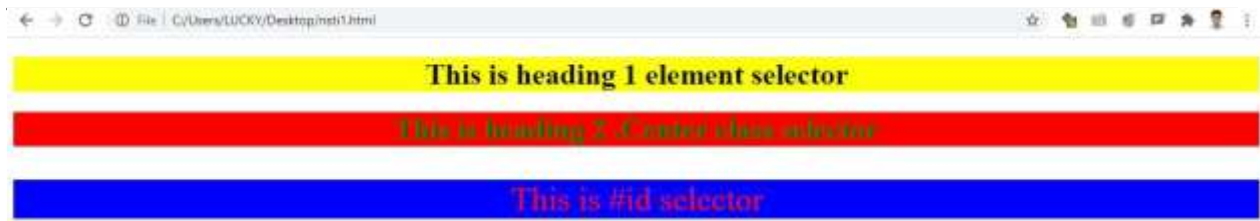
/*Class Selector*/

.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](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 <span>a span element</span> which is blue, as span elements are set to be.

```
</div>
```

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

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

```
</div>
```

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

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

```
</div>
```

```
</body>
```

```
</html>
```

### Output/Results snippet:



### References:

- [https://stackoverflow.com/questions/641217/css-control-inheritance-inheriting-other-cont rol-styles](https://stackoverflow.com/questions/641217/css-control-inheritance-inheriting-other-cont-rol-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>



<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](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](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:



### References:

- [https://www.w3schools.com/css/css3\\_multiple\\_columns.asp](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:****References:**

- [https://www.w3schools.com/cssref/pr\\_gen\\_content.asp](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](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;
        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>
```

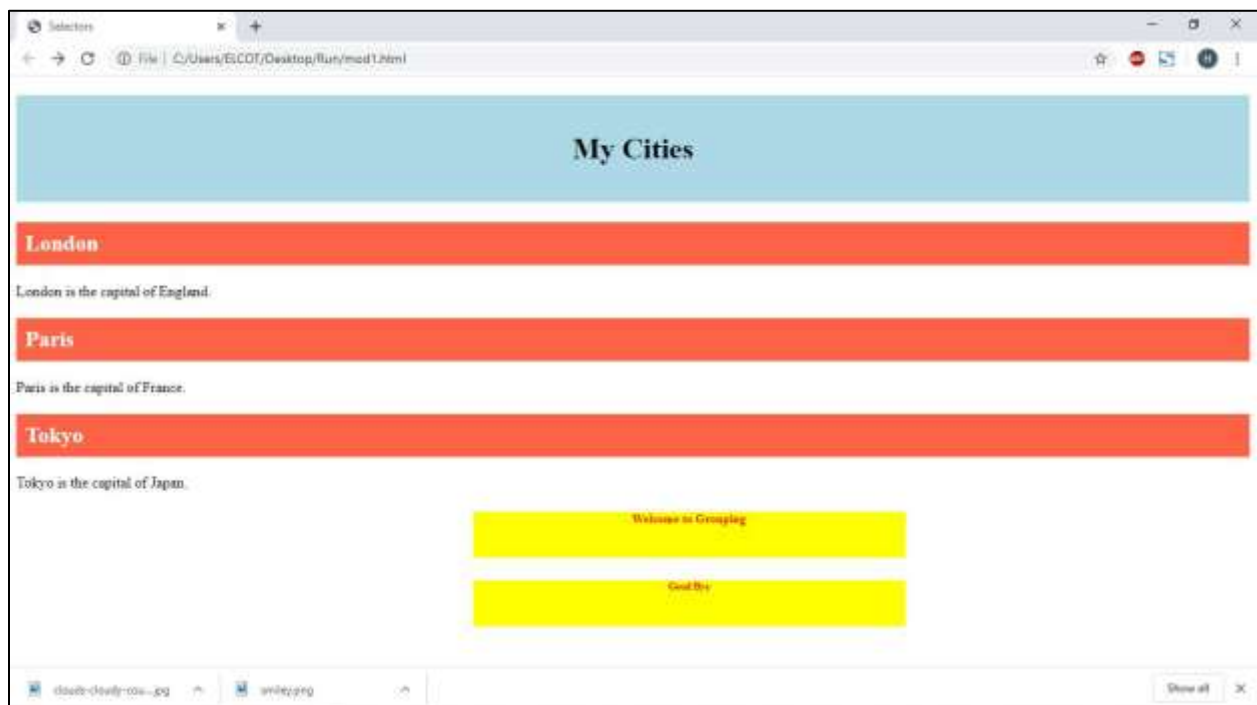
```
<h6>Good Bye</h6>
```

```
</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](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 -->

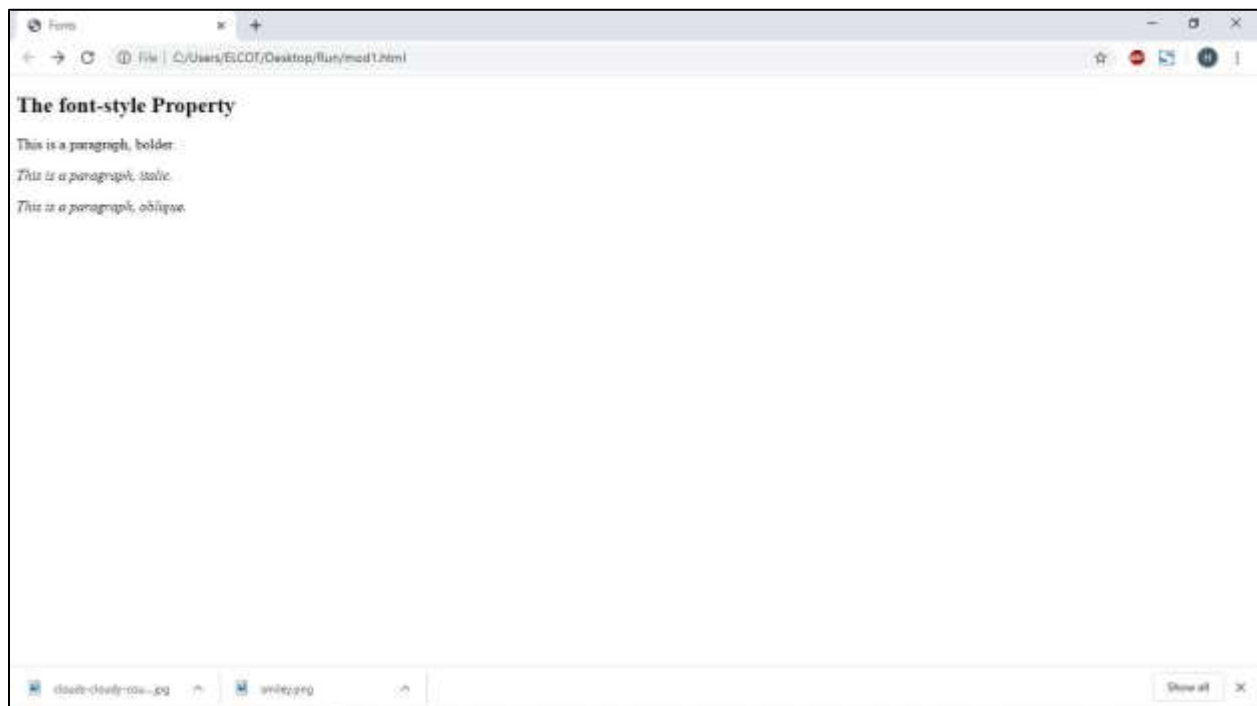
    <body>                                <!-- Document Body Starts -->

        <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](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" */
```

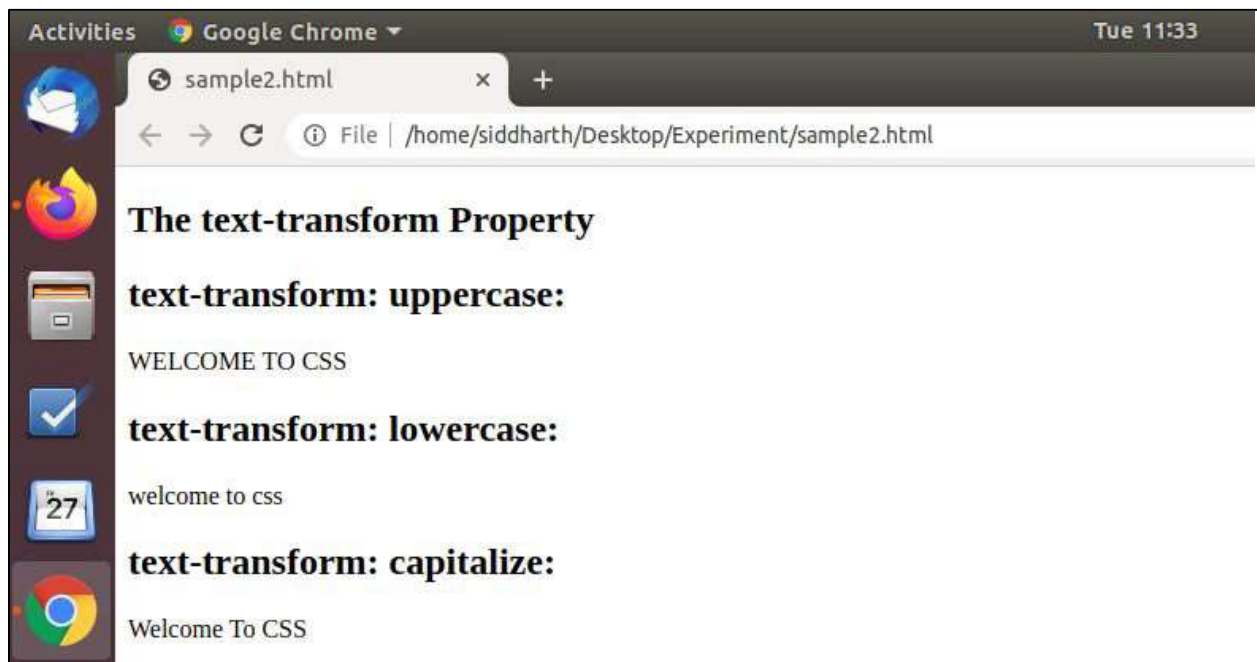
```
div.b {
```

```
    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.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;

      }

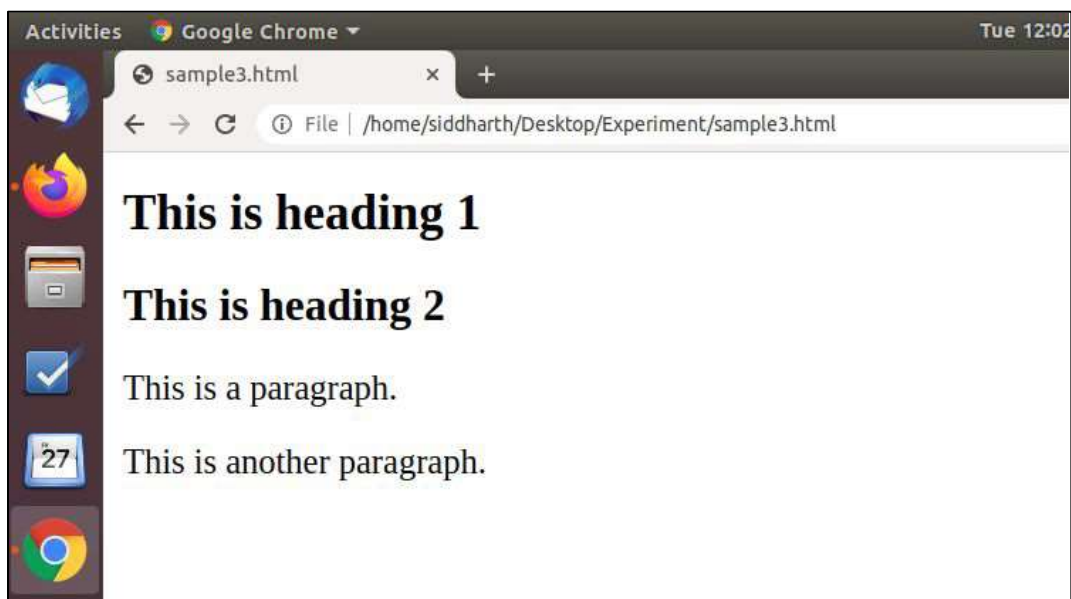
      /*setting the font size of the paragraph*/

      p {
```

```
        font-size: 14px;
    }
</style>
</head>
<body>
    <h1>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.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; }
```

---

```
/*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.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;
    }

    /*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>

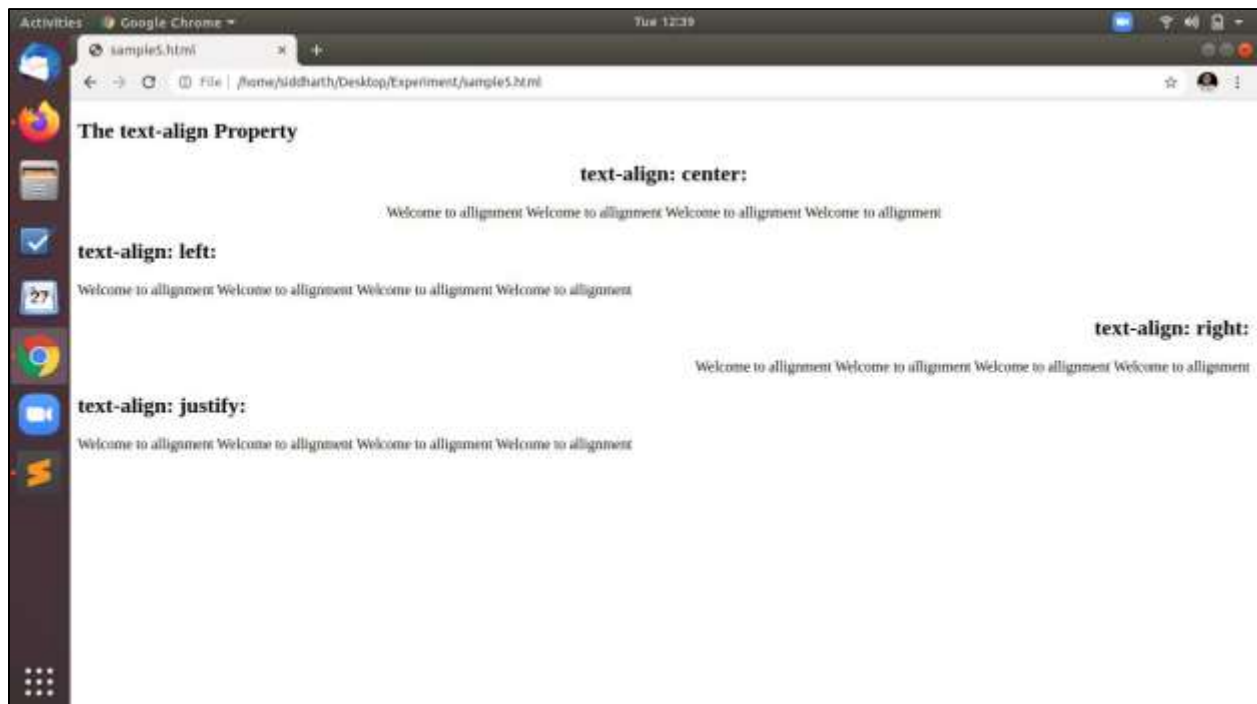
</div>

</body>

</html>
```

## Output/Results snippet

Alignment of the divisions with text-align property.



**References:**

- [https://www.w3schools.com/html/html\\_intro.asp](https://www.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: #feffd8; }

      /*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.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.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; }

        /*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.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 -->*

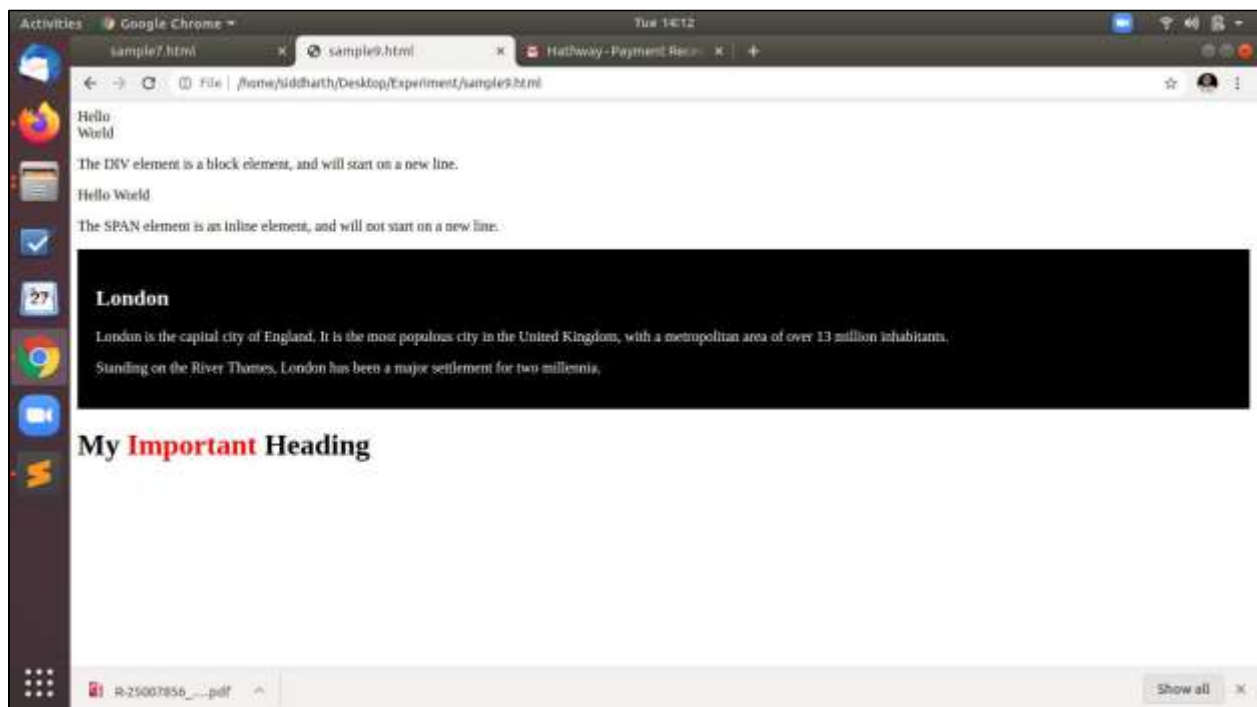
<h1>My <span style="color:red">Important</span> Heading</h1>

</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.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;
```

```
}

/*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>
<th>Last Name</th>
<th>Points</th>
</tr>
<tr>
<td>Peter</td>
<td>Griffin</td>
<td>$100</td>
</tr>
<tr>
<td>Lois</td>
<td>Griffin</td>
<td>$150</td>
</tr>
<tr>
<td>Joe</td>
<td>Swanson</td>
<td>$300</td>
</tr>
<tr>
<td>Cleveland</td>
<td>Brown</td>
<td>$250</td>
```

```
</tr>
```

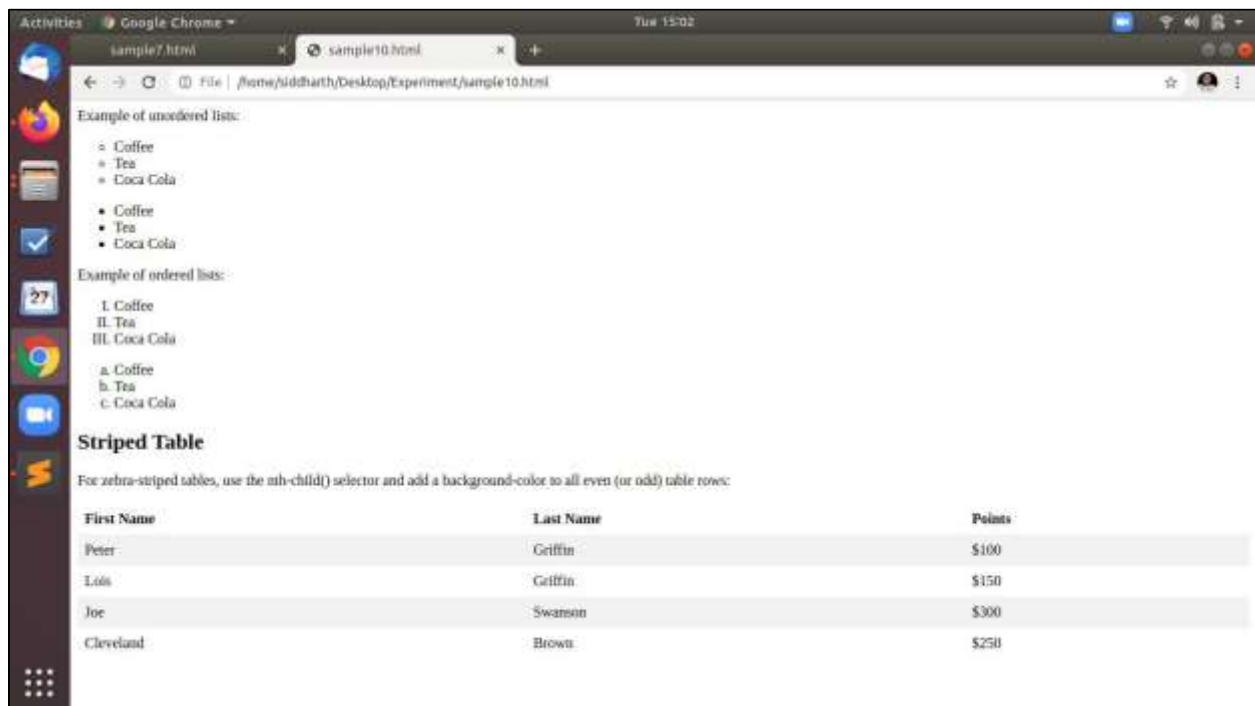
```
</table>
```

```
</body>
```

```
</html>
```

## Output/Results snippet

Designing of List and Tables using CSS.



## References:

- [https://www.w3schools.com/html/html\\_intro.asp](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>

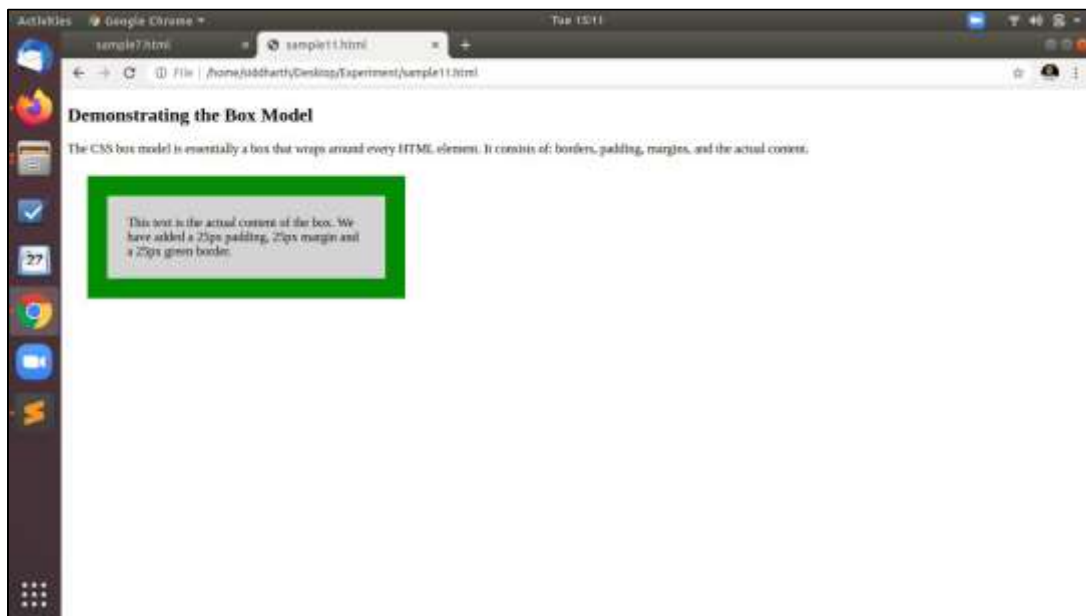
<div>This text is the actual content of the box. We have added a 25px padding, 25px margin and a 25px green border. </div>

</body>

</html>

### Output/Results snippet

Created a Box with border and color.



### References:

- [https://www.w3schools.com/html/html\\_intro.asp](https://www.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

eeeefggkkrss

taking geeksforgeeks as a string

eeeefggkkrss



## 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(' ');
        var newarray1 = [];

        for(var x = 0; x < array1.length; x++){

            newarray1.push(array1[x].charAt(0).toUpperCase()+array1[x].slice(1));
        }

        return newarray1.join(' ');
    }

    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();

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 arr1.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];

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.

- 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.

**Learning outcome:** Able to understand JavaScript

**Duration:** 3 Hours

### List of Hardware/Software requirements:

- Windows/Ubuntu OS
- Text Editors- Notepad++, VS Code, Sublime Text, etc.
- 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));

    }

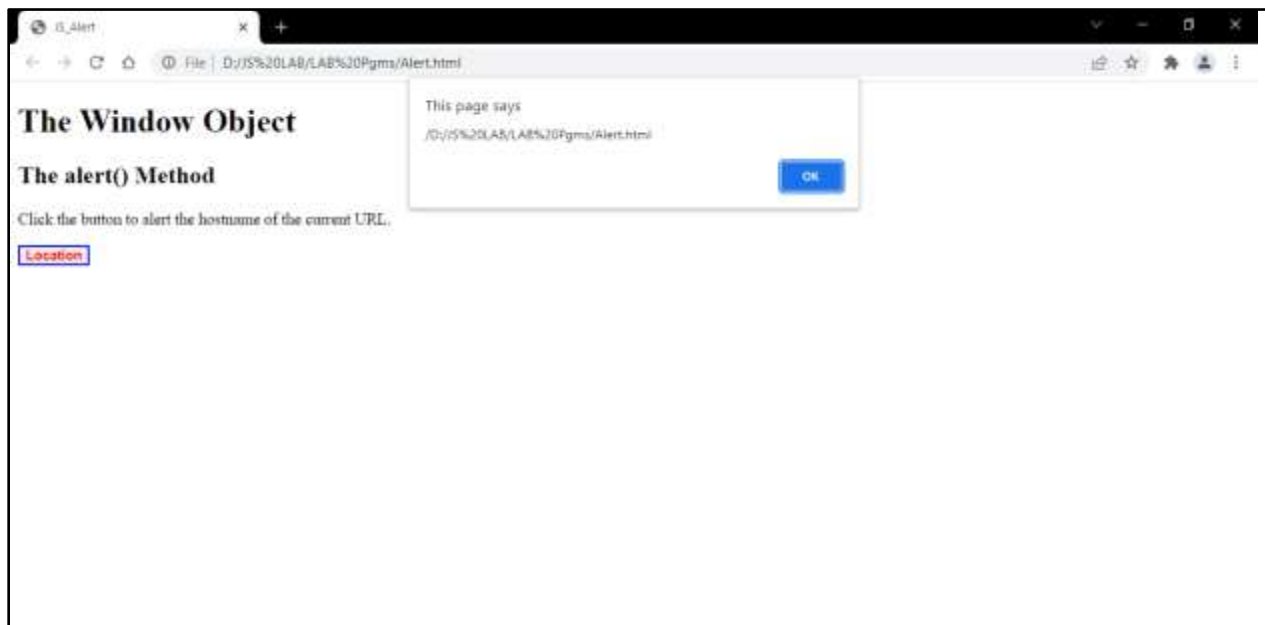
    let button=document.getElementById("inp");

    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>
```

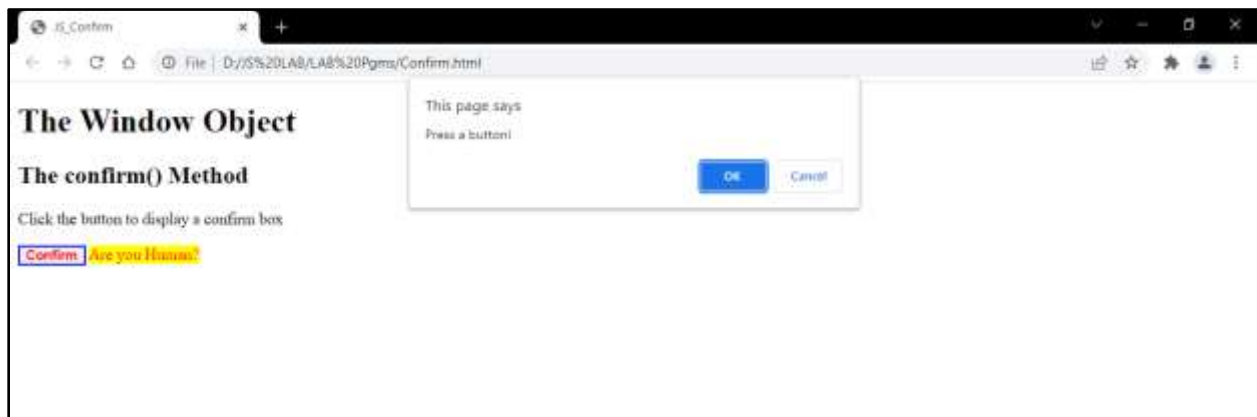
```
//Javascript Ends
```

```
</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");

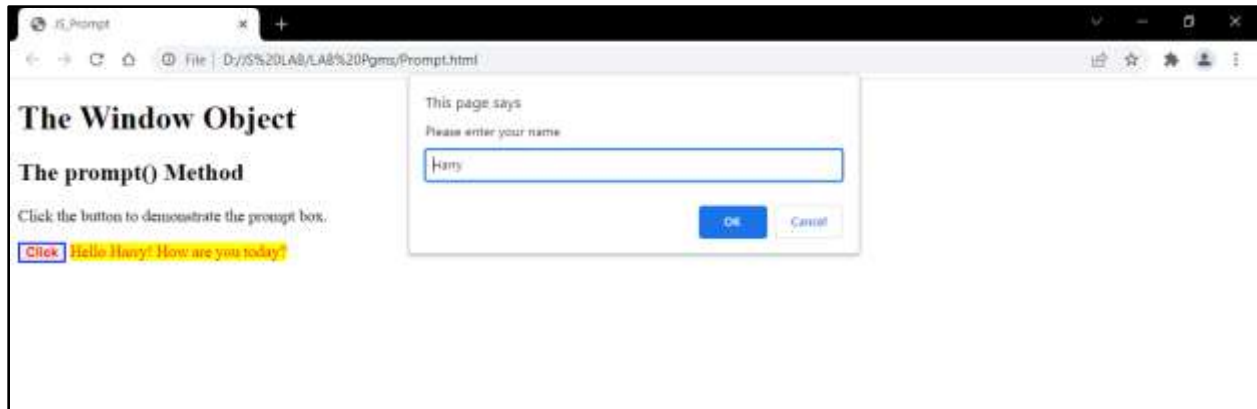
button.onclick=dispname;

</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:
```

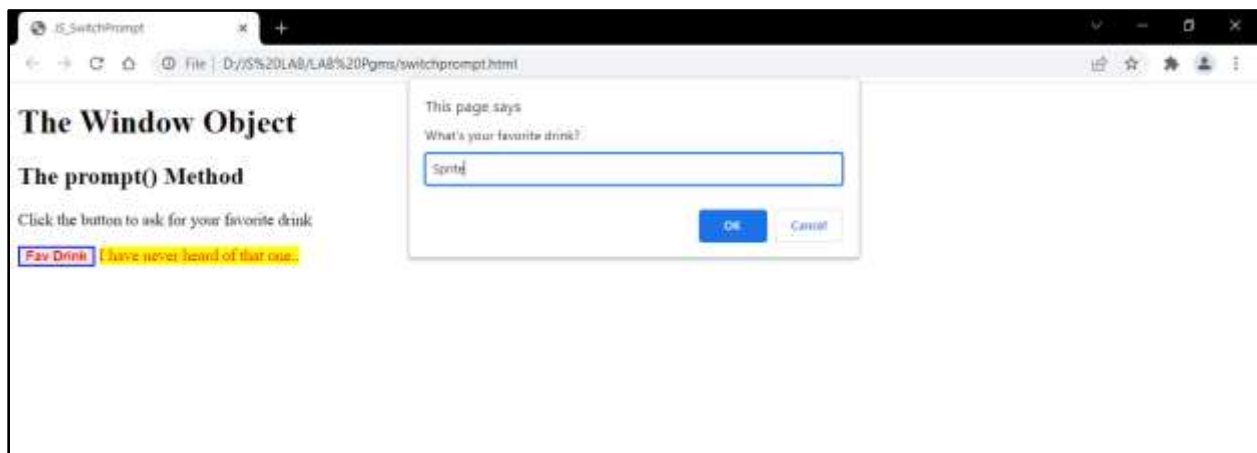
```
text = "I have never heard of that one..";
```

```
}
```

```
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_alert.asp)
- [https://www.w3schools.com/jsref/met\\_win\\_prompt.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 -->
```

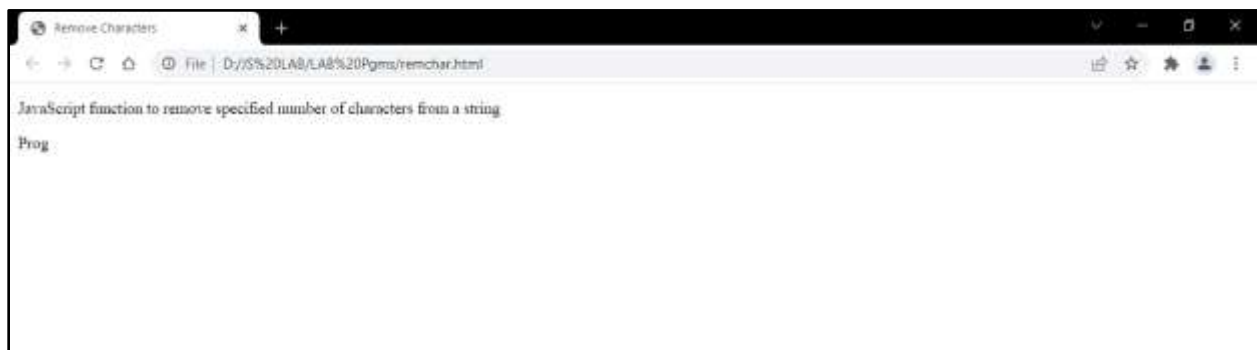
```
    <p>JavaScript function to remove specified number of characters from a string</p>>
```

```
<!--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

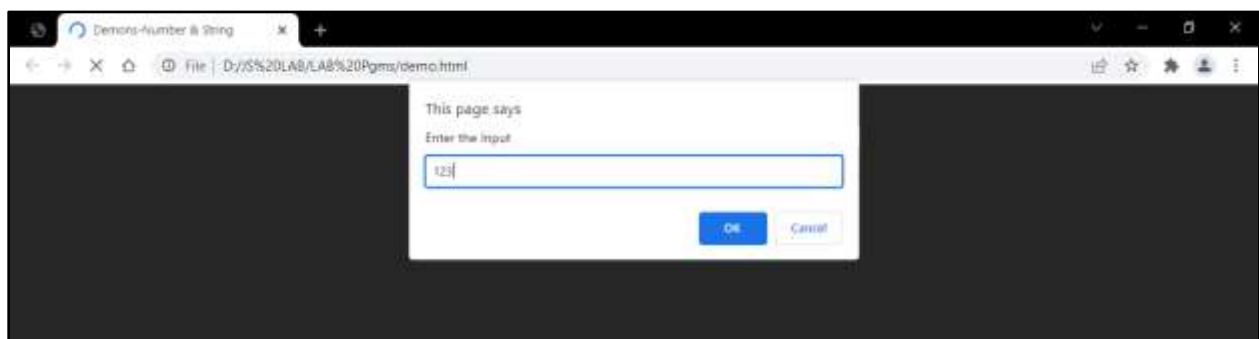
{

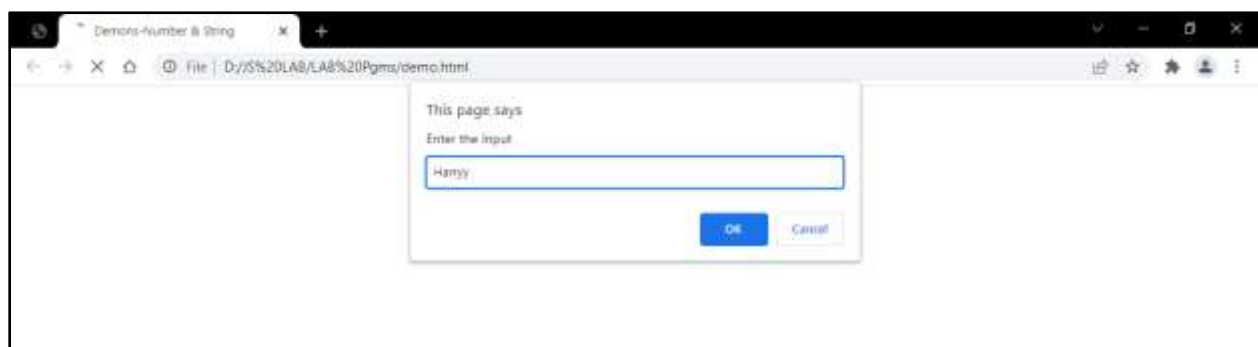
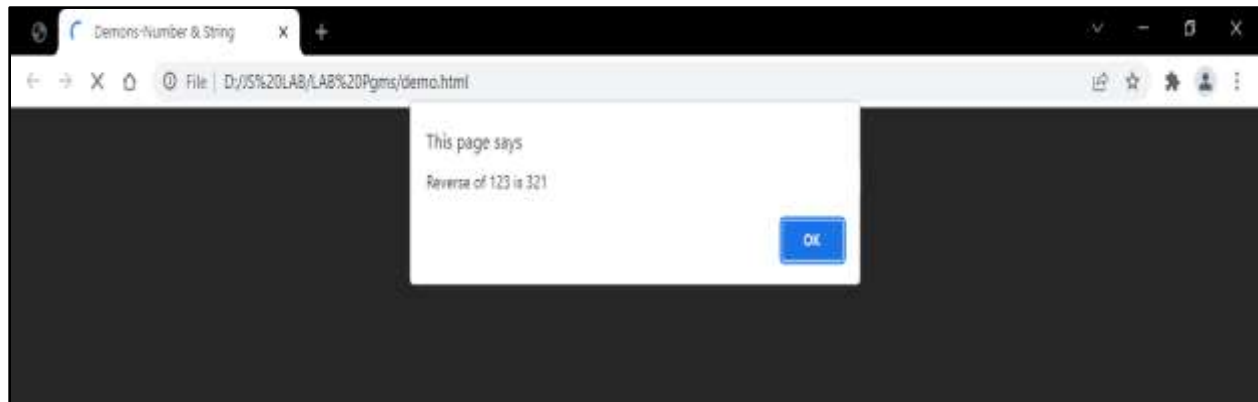
for(var i = 0; i<str.length; i++)

{

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%;
```

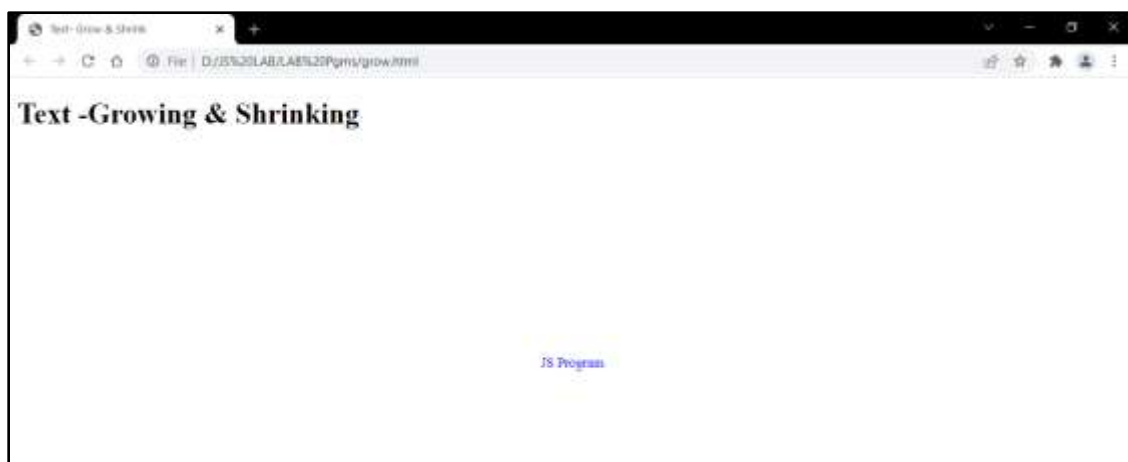
```
left: 50%;
```

```
transform: translate(-50%, -50%);
```

```
    }  
    </style>  
</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>
```

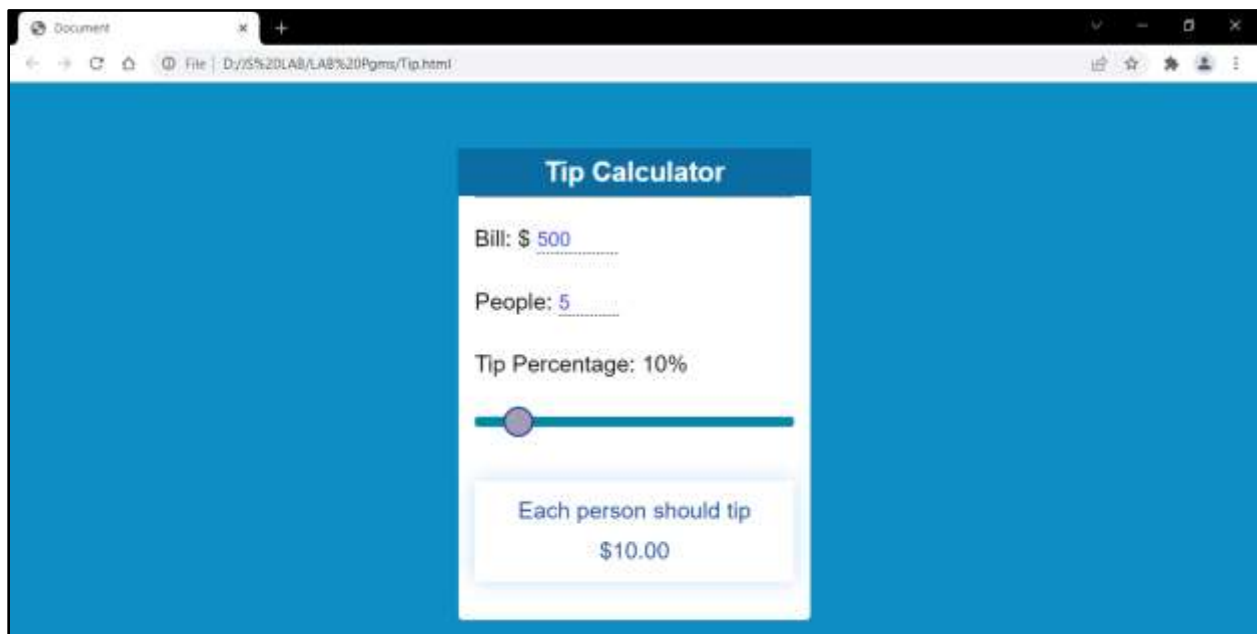
```
//Javascript Ends
```

```
</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 -->

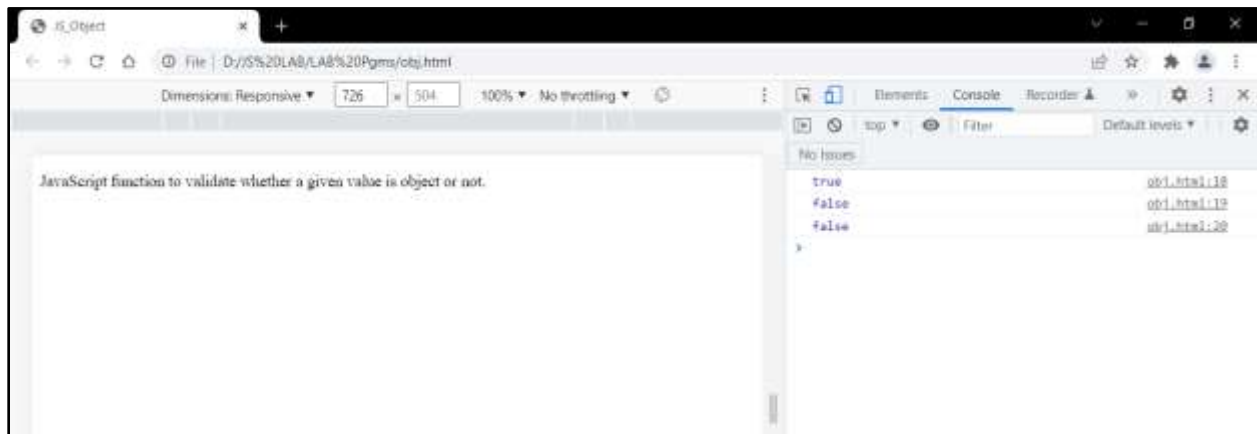
    <p>JavaScript function to validate whether a given value is object or not.</p>

    <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>
```

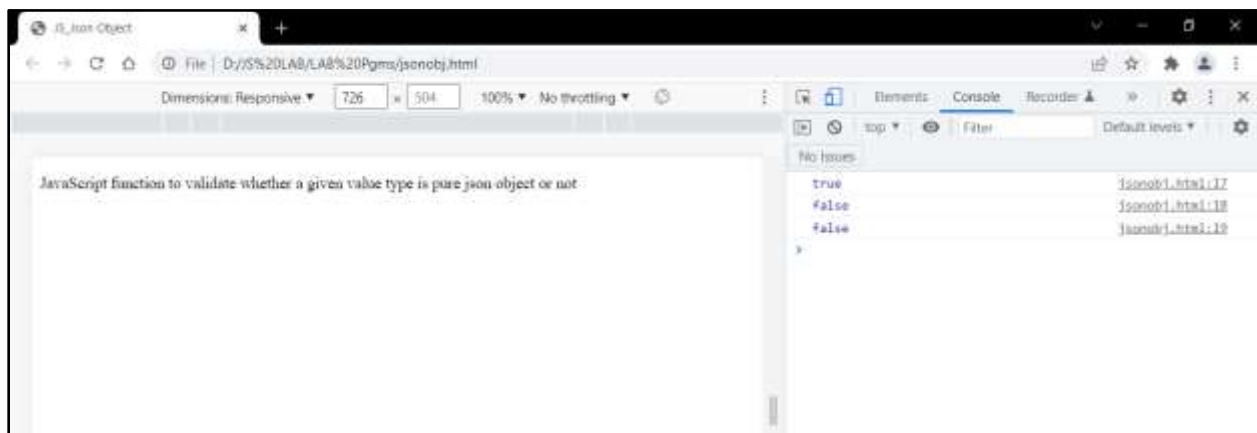
```
    <script>
```

```
//Javascript Starts
```

```
    function is_json(value)
```

```
{  
    return toString.call(value) === '[object Object]';  
}  
  
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(/[ ]{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
```

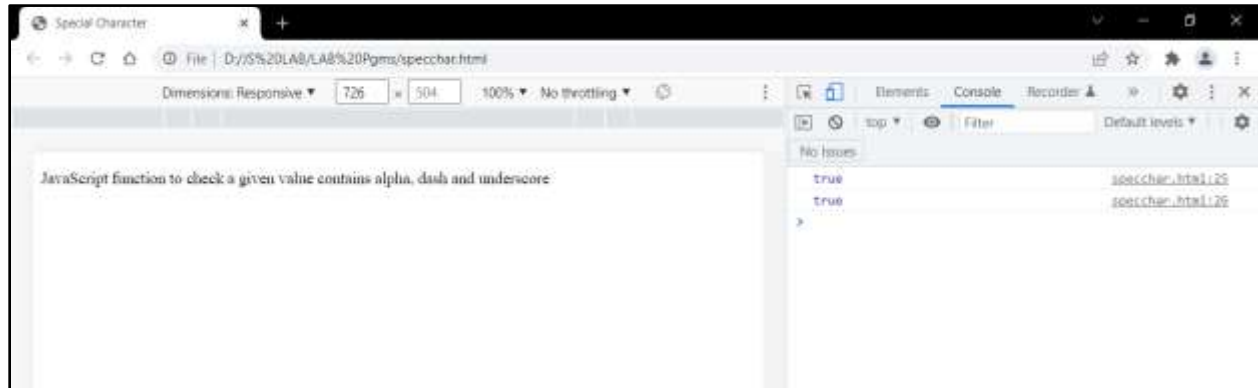
---

```
function is_alphaDash(str)
{
    regexp = /^[a-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-z0-9]+([\-\\.]{1}[a-z0-9]+)*\.[a-z]{2,6}$/i;

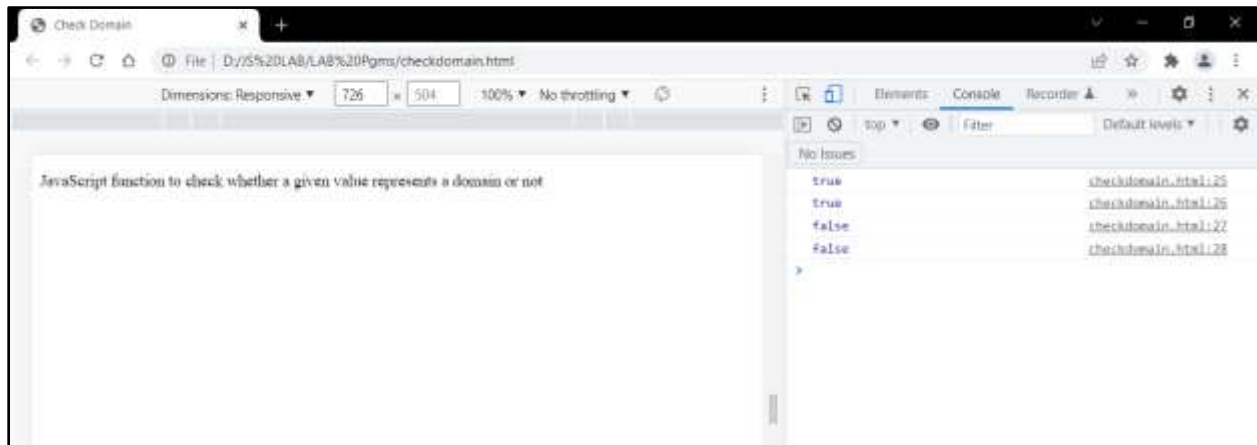
    if (regexp.test(str))
    {
        return true;
    }
    else
    {
        return false;
    }
}

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]+) *[^]*?>/;

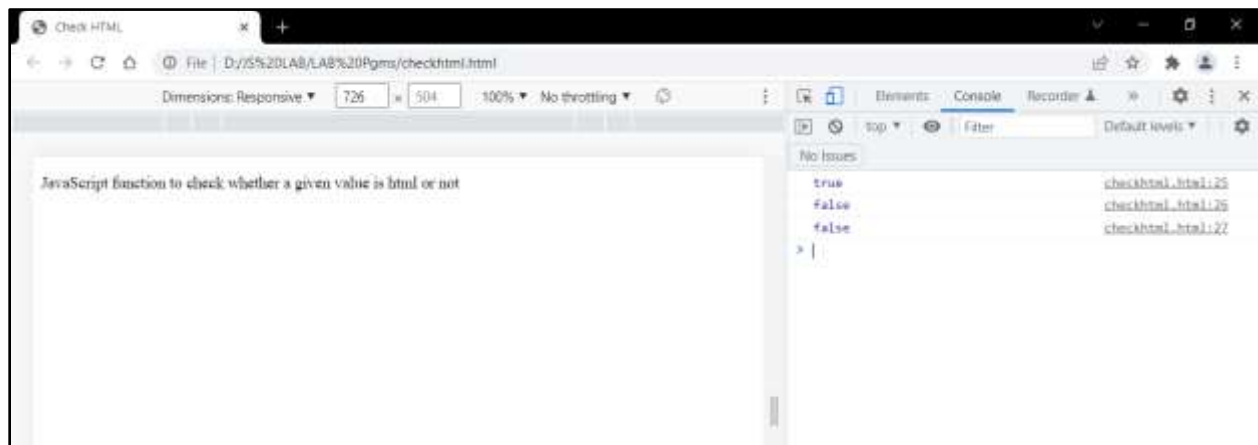
  if (regexp.test(str))
  {
    return true;
  }
  else
  {
    return false;
  }
}

console.log(is_html('<h1>'));
console.log(is_html(''));
console.log(is_html('.selector'));
</script>
</body>
</html>
```

//Javascript Ends

<!-- Document Body Ends -->



**Output:****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"></scri
pt>
</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>
</nav>
<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">

<h2>HTML</h2>

<p>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>

<p><a href="https://www.tutorialrepublic.com/html-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>CSS</h2>

<p>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>

<p><a href="https://www.tutorialrepublic.com/css-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>JavaScript</h2>

<p>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>

<p><a href="https://www.tutorialrepublic.com/javascript-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>Bootstrap</h2>

<p>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>

<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>

</div>

</footer>

</div>

</body>

</html>
```

**Output/Results snippet:**



## Learn to Create Websites

In today's world internet is the most popular way of connecting with the people. At [tutorialrepublic.com](http://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>
```

```
<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>

<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 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 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">
      
      class="mb-2"
      alt=""
    <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>
</div>
```

```
</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 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-
DfXdz2htPH0lsSSs5nCTpuj/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-  
fQybjgWLrvvRgtW6bFIB7jaZrFsaBXjsOMm/tB9LTS58ONXgqbR9W8oWht/amnpF"  
  crossorigin="anonymous"></script>
```

```
</body>
```

```
</html>
```

**Output/Results snippet:**

Bootstrap Responsive Webpage

[Home](#)
[Link](#)
[Dropdown](#)
[Disabled](#)

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

Share your concern here

Submit

## References:

1. <https://www.geeksforgeeks.org/create-a-single-page-responsive-website-using-bootstrap/>
2. [https://getbootstrap.com/ \(v4.6\)](https://getbootstrap.com/ (v4.6))
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-
DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew+OrCXaRkfj"

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

- 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

- 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="sha384zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfd

KlfG/eSrtxUkn" 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</h3>

    <button type="button" name="click" id="click">Click me</button>

  <div>

    <p> REPLACE_ME </p>

    <p> Hi </p>
```

```
<p> REPLACE_ME </p>

<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="sha384DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+Ibb
VYUew+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

Click me  
 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="sha384zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfd
KlIfG/eSrtxUkn" 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="sha384zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfd
KlfG/eSrtxUkn" 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>

<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="sha384DfXdz2htPH0lsSSs5nCTpuj/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](https://www.w3schools.com/jquery/tryit.asp?filename=tryjquery_eff_show_hide)
2. [https://www.w3schools.com/jquery/html\\_replacewith.asp](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\\_fade\\_in](https://www.w3schools.com/jquery/tryit.asp?filename=tryjquery_eff_fadeout_fade_in)
5. <https://sebhastian.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="sha384zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/eSrtxUkn" 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="sha384DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew+OrCXaRkfj"
```

```
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

**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="sha384zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG
/eSrtxUkn" 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="sha384DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew
+OrCXaRkfj"

crossorigin="anonymous"></script>
```

```
<script>

    $('a.printPage').click(function(){

window.print();

return false;

    });

</script>

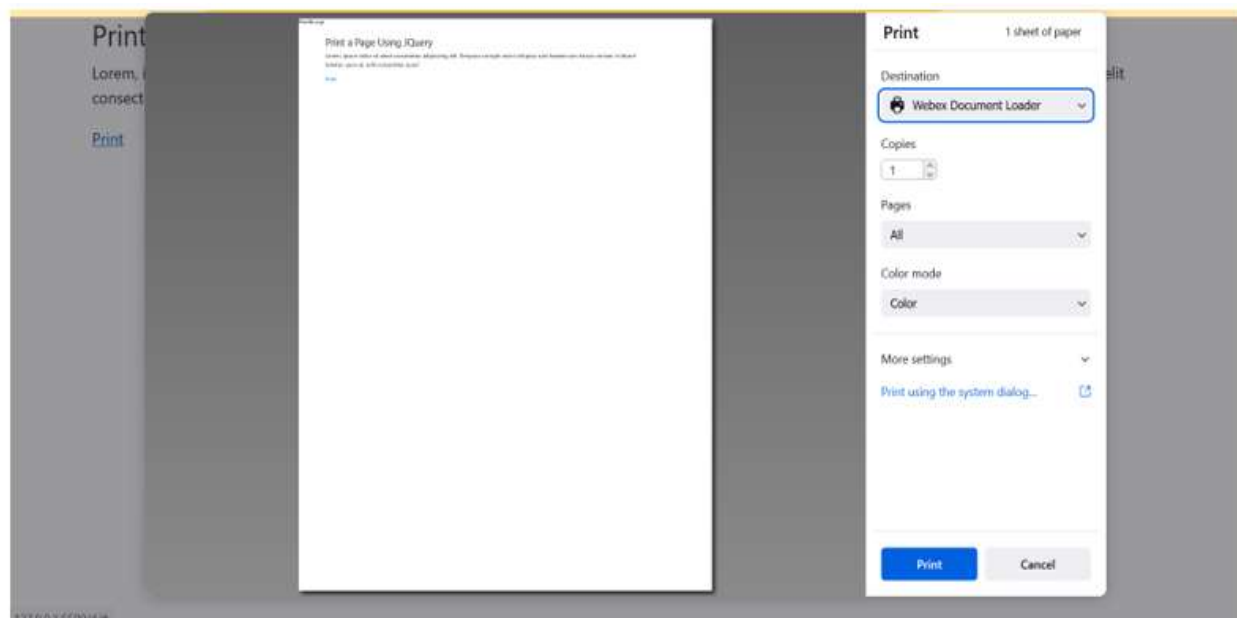
</body>

</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="sha384zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG

/eSrtxUkn" 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="sha384DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew
+OrCXaRkfj"
    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 quasi!

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](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="sha384zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG

/eSrtxUkn" 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 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="sha384zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG
/eSrtxUkn" crossorigin="anonymous">
  <style>
    p {
```

```
        margin: 5px;

        font-size: 15px;

        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="sha384DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew
+OrCXaRkfj"
        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="sha384zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG
/eSrtxUkn" 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="sha384DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+Ibb
    VYUew+OrCXaRkfj"
    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="sha384zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG  
/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="sha384DfXdz2htPH0lsSSs5nCTpuj/zy4C+OGpamoFVy38MVBnE+IbbVYUew  
+OrCXaRkfj"
```

```
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](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="sha384zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG/eSrtxUkn" 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>
<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.

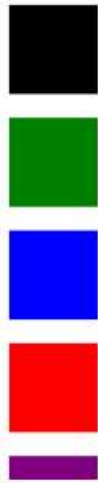
Click to fade in boxes with a delay



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](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="sha384zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuq
    KfdKlIfG/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-zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuq
    KfdKlIfG/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.



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.

**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="sha384zCbKRCUGaJDkqS1kPbPd7TveP5iyJE0EjAuZQTgFLD2ylzuqKfdKlfG
        /eSrtxUkn" 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:

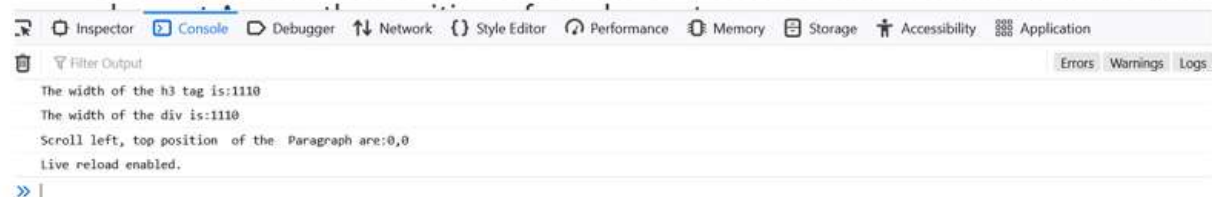
Find the widths and heights of various elements. Get the scroll top and left of an element. Access the position of an element.



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](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):

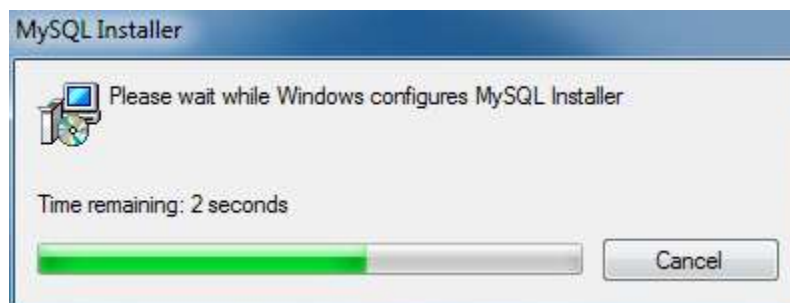
If you want to install MySQL on the Windows environment, using MySQL installer is the easiest way.

To download MySQL installer, go to the following link <http://dev.mysql.com/downloads/installer/>. There are two installer files:

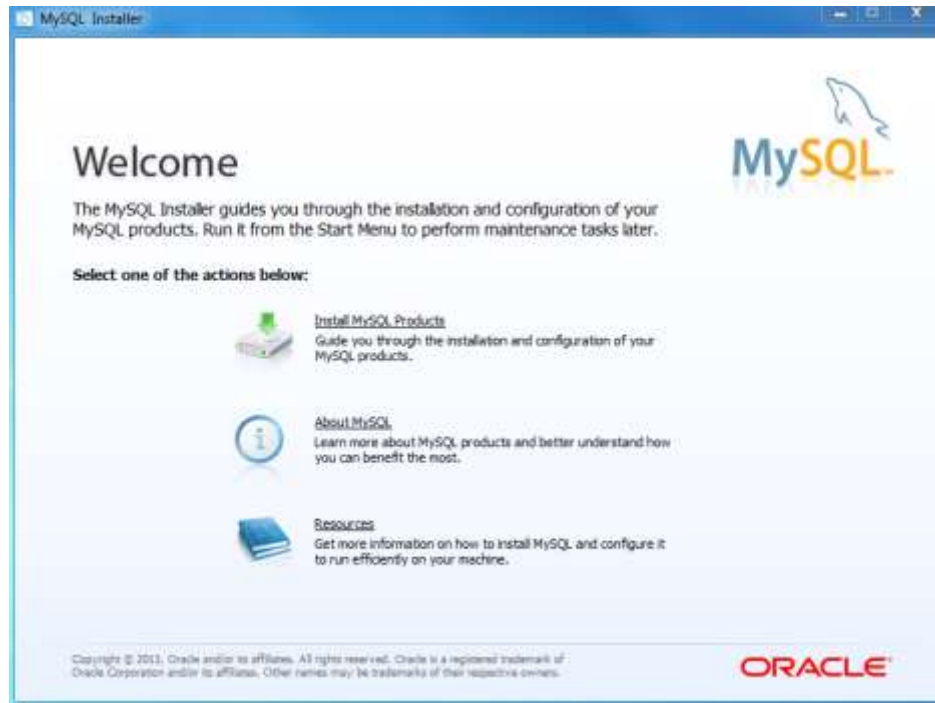
- If you are connecting to the internet while installing MySQL, you can choose the online installation version `mysql-installer-web-community-<version>.exe`.
- In case you want to install MySQL offline, you can download the `mysql-installer-community-<version>.exe` file.

### Install MySQL via MySQL Installer

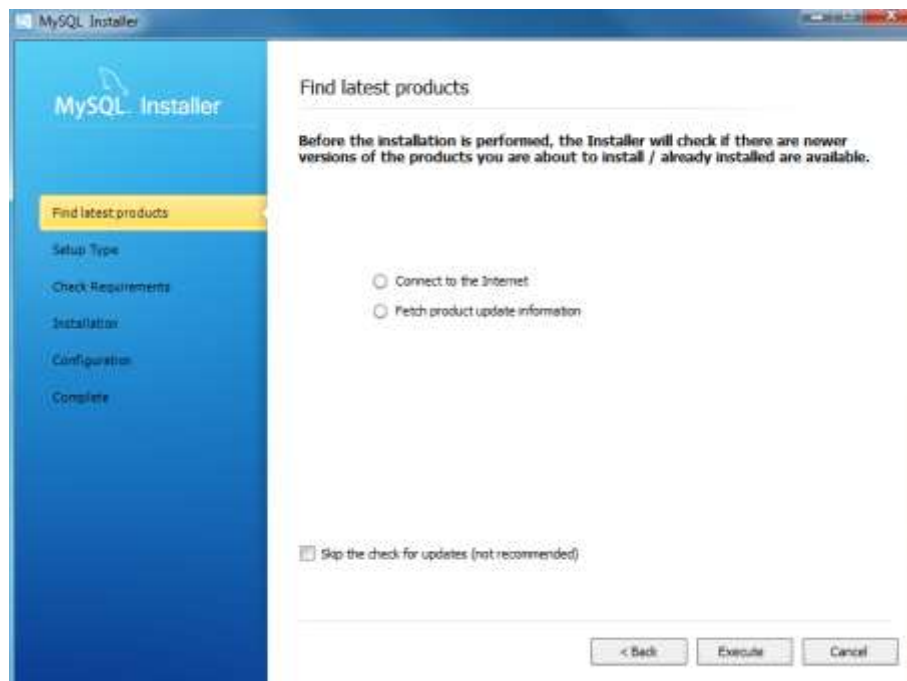
To install MySQL using the MySQL installer, double-click on the MySQL installer file and follow the steps below:



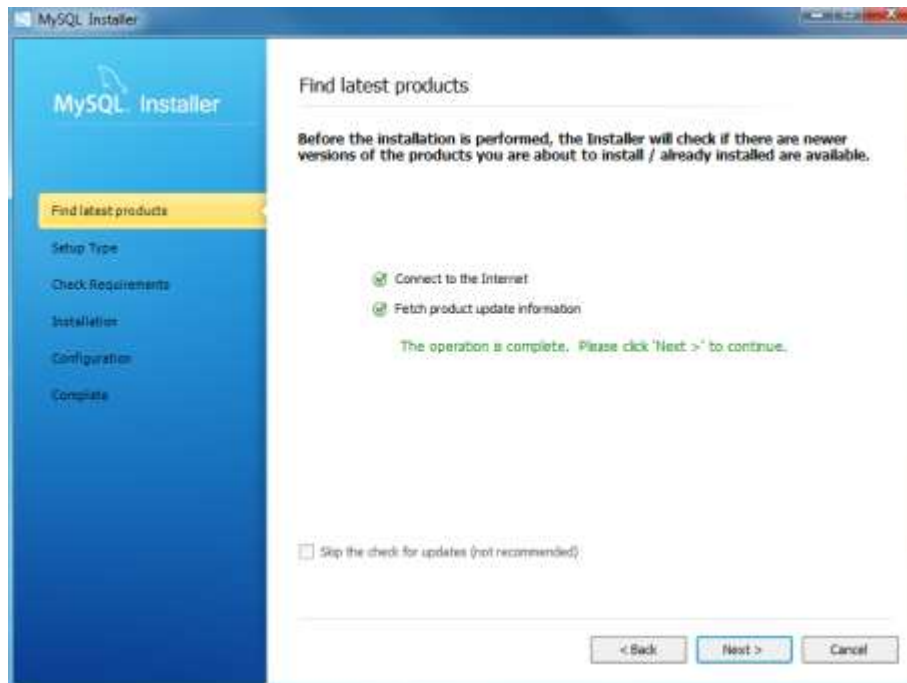
## Install MySQL Step 1: Windows configures MySQL Installer



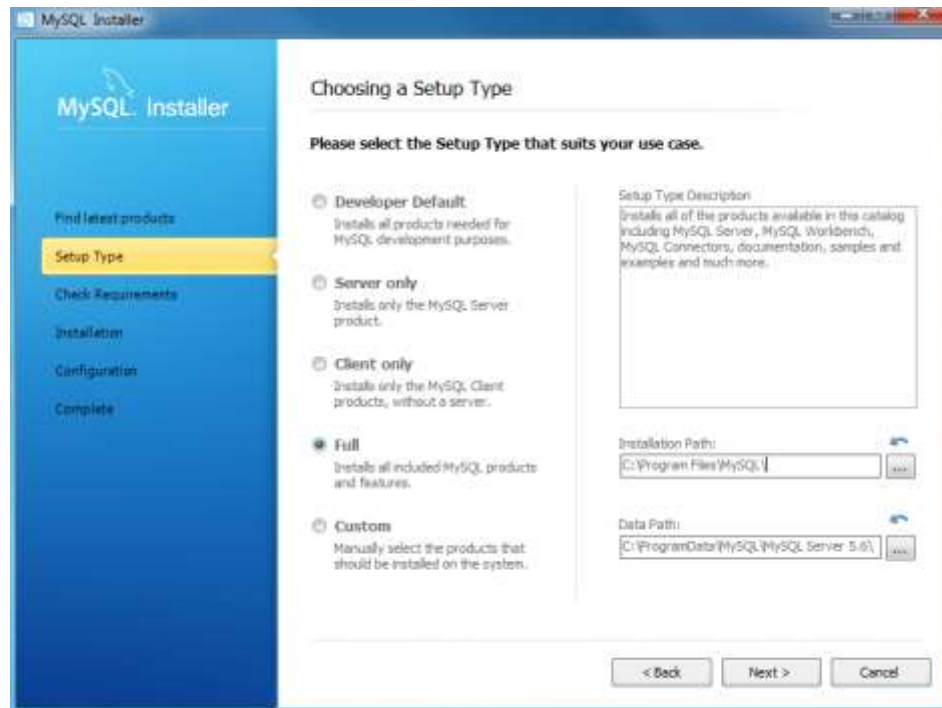
Install MySQL Step 2 – Welcome Screen: A welcome screen provides several options. Choose the first option: Install MySQL Products



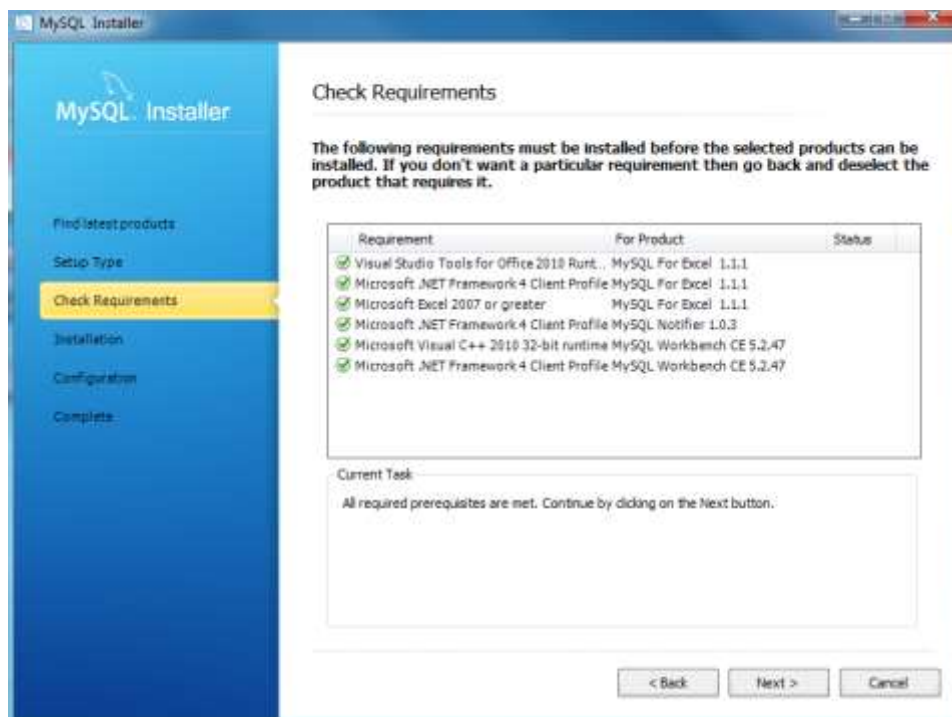
Install MySQL Step 3 – Download the latest MySQL products: MySQL installer checks and downloads the latest MySQL products including MySQL server, MySQL Workbench, etc.



Install MySQL Step 4: Click the Next button to continue

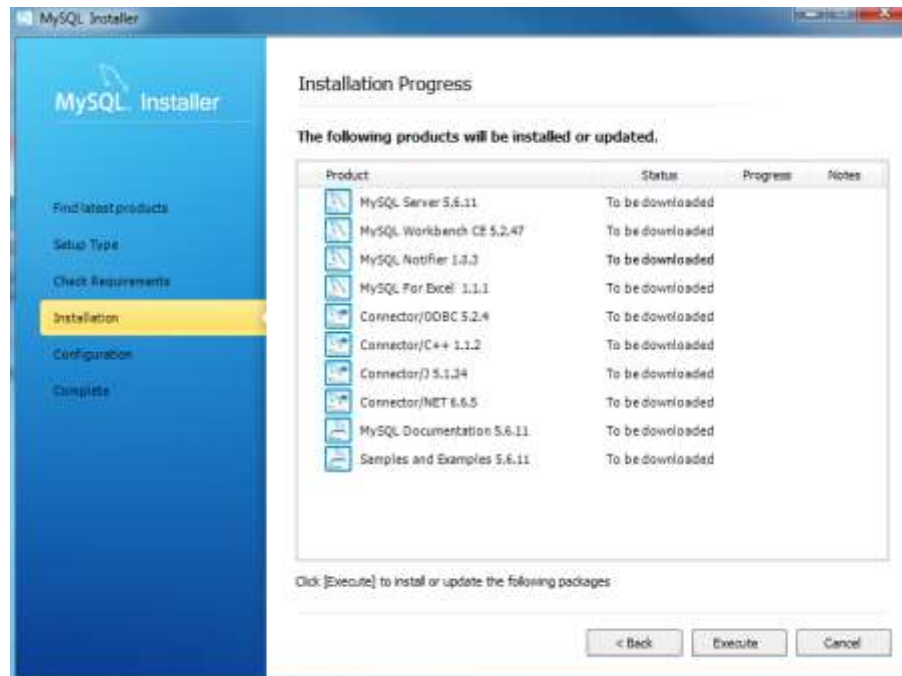


Install MySQL Step 5 – Choosing a Setup Type: there are several setup types available. Choose the Full option to install all MySQL products and features.

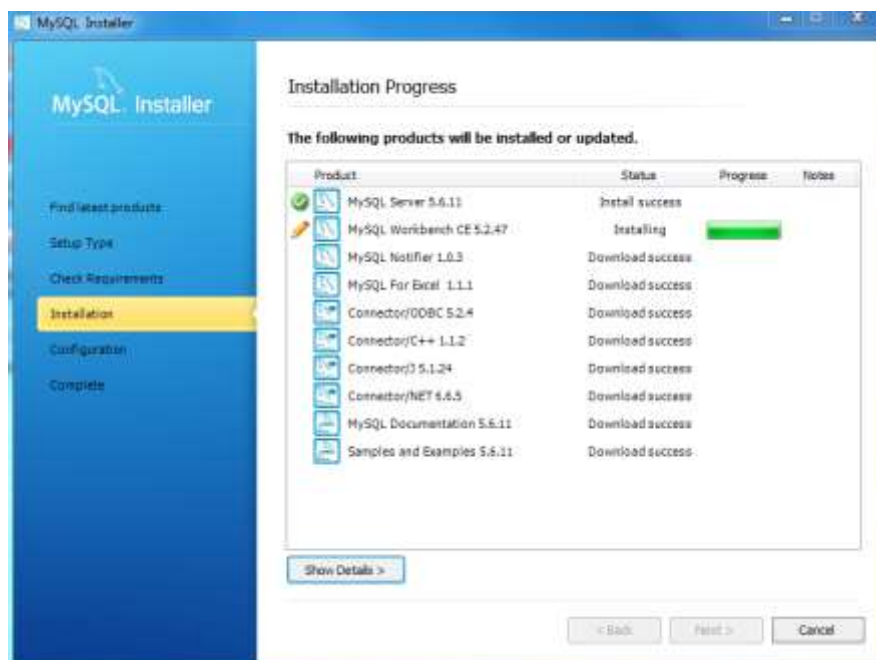




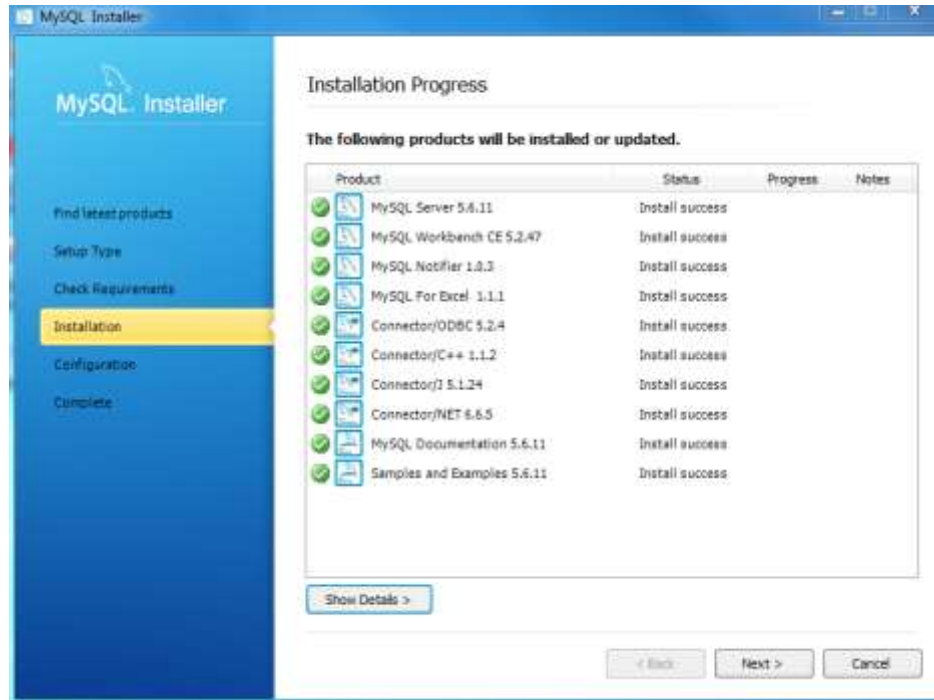
## Install MySQL Step 6 – Checking Requirements



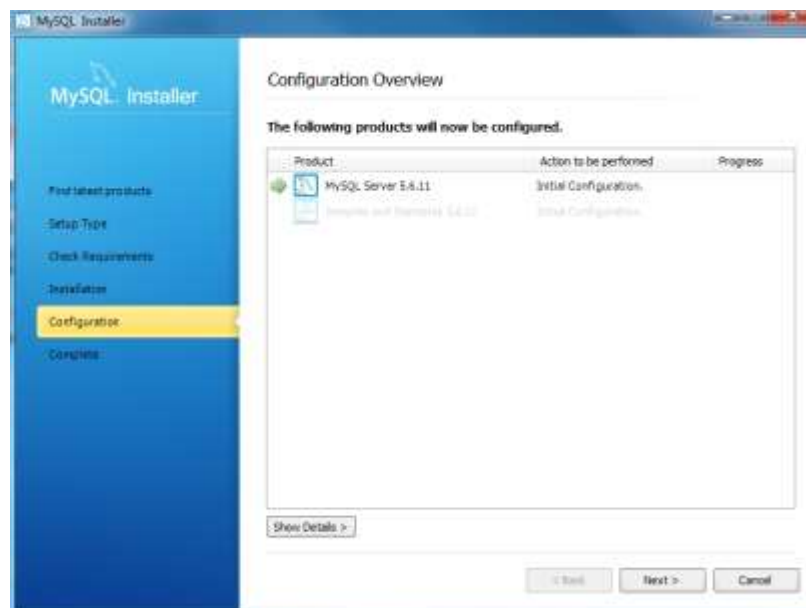
Install MySQL Step 7 – Installation Progress: MySQL Installer downloads all selected products. It will take a while, depending on which products you selected and the speed of your internet connection.



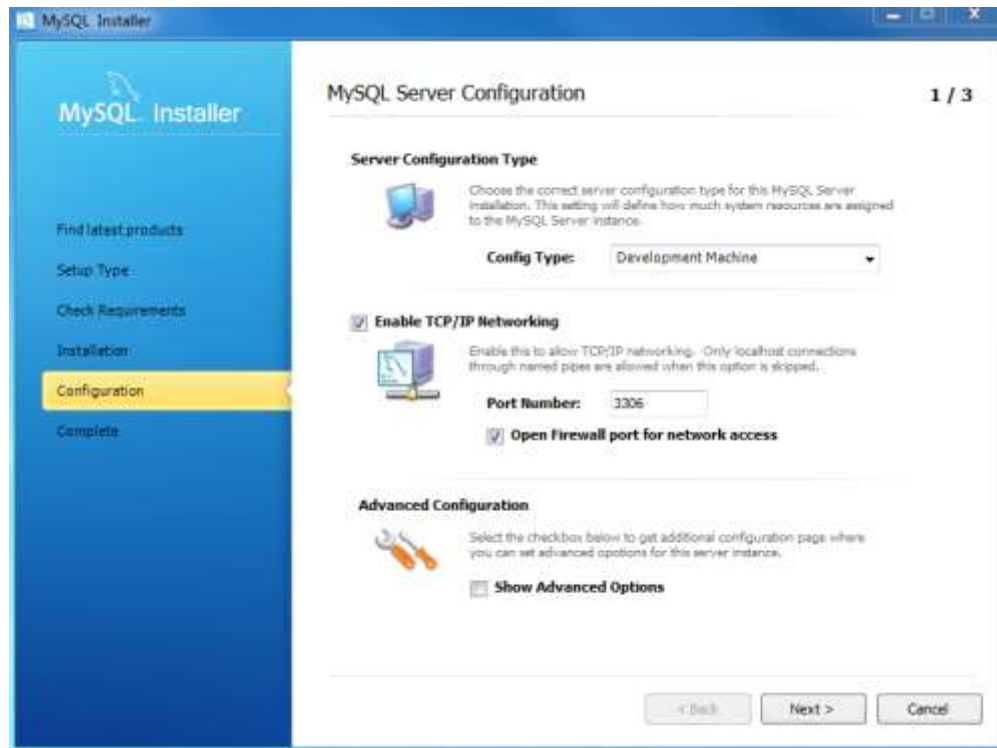
Install MySQL Step 7 – Installation Progress: downloading Products in progress.



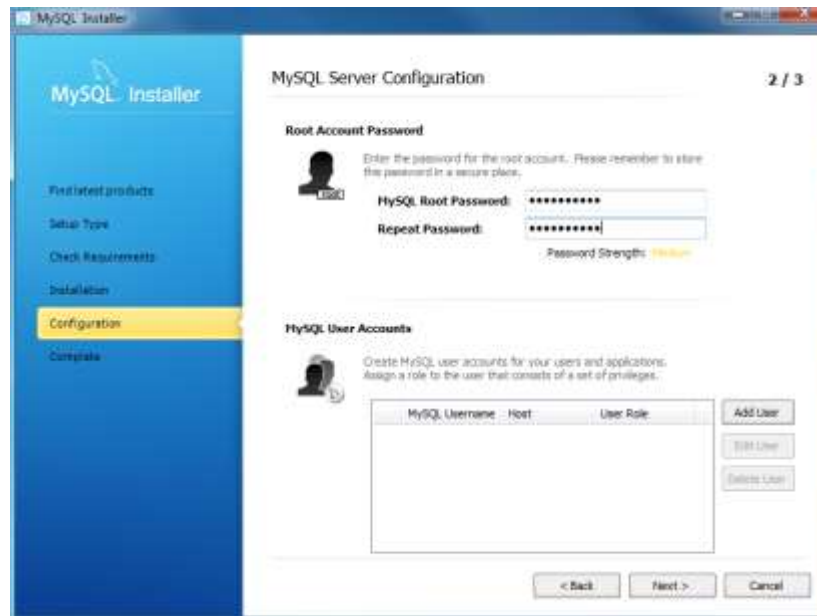
Install MySQL Step 7 – Installation Progress: Complete Downloading. Click the **Next** button to continue...



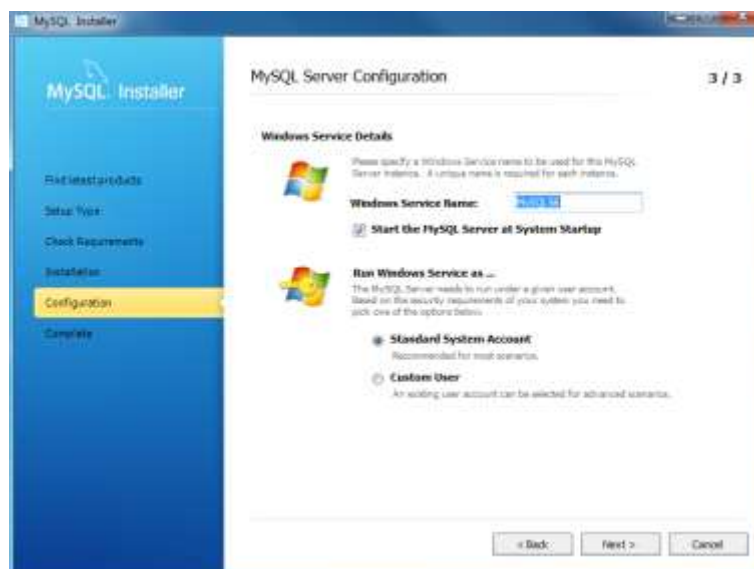
Install MySQL Step 8 – Configuration Overview. Click the Next button to configure MySQL Database Server



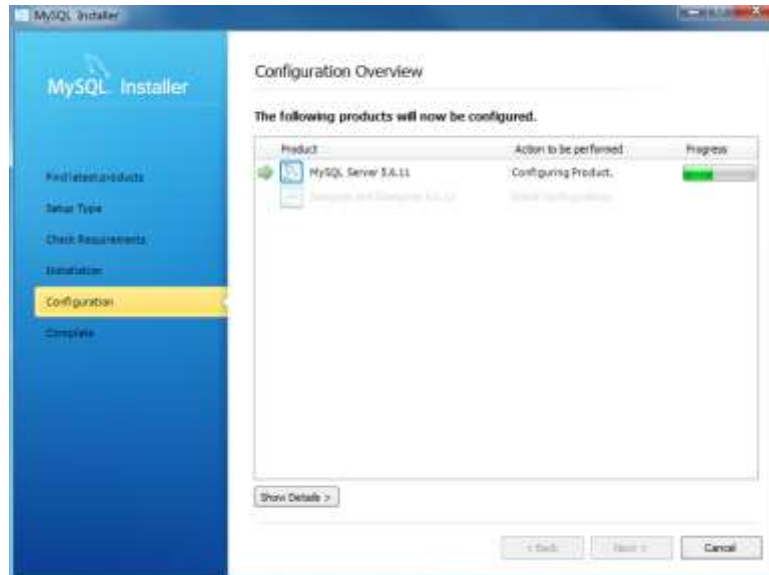
Install MySQL Step 8.1 – MySQL Server Configuration: choose Config Type and MySQL port (3006 by default) and click Next button to continue.



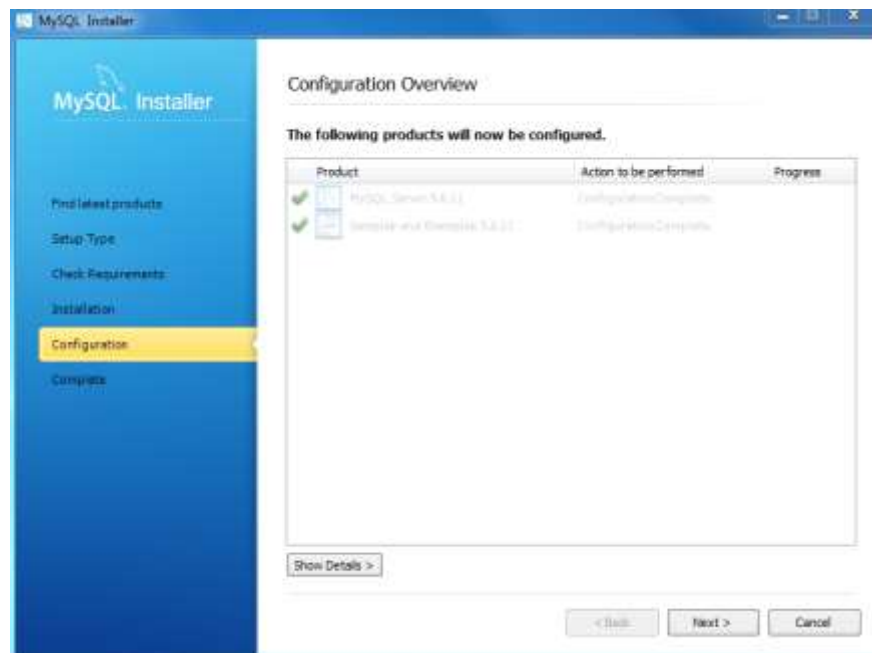
Install MySQL Step 8.1 – MySQL Server Configuration: choose a password for the root account. Please note the password download and keep it securely if you are installing MySQL database server on a production server. If you want to add a more MySQL user, you can do it in this step.



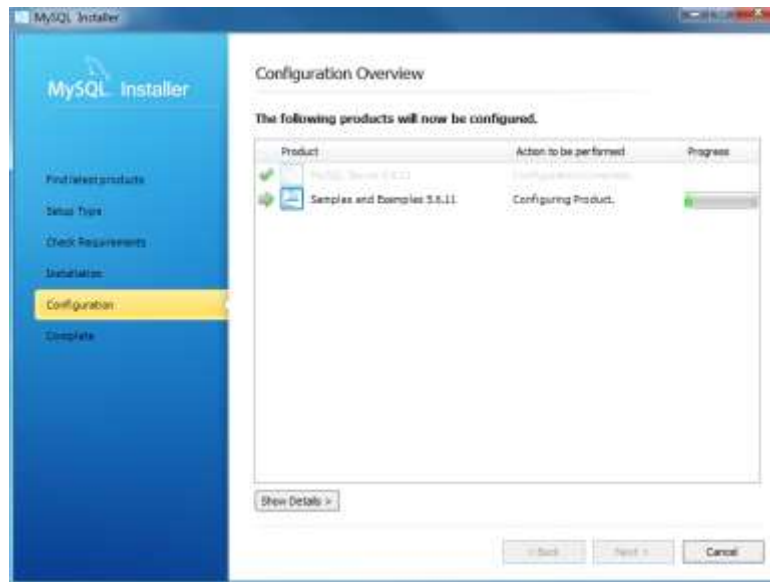
Install MySQL Step 8.1 – MySQL Server Configuration: choose Windows service details including Windows Service Name and account type, then click Next button to continue.



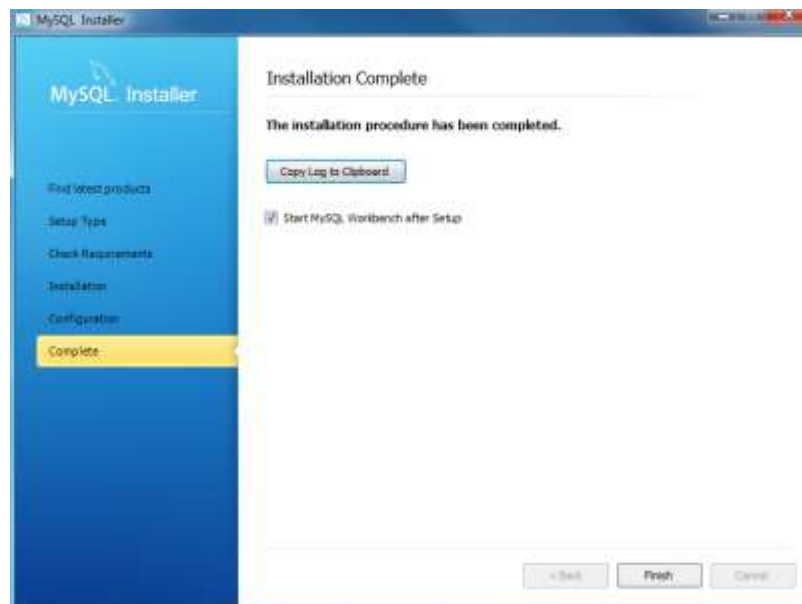
Install MySQL Step 8.1 – MySQL Server Configuration – In Progress: MySQL Installer is configuring MySQL database server. Wait until it is done and click the Next button to continue.



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.



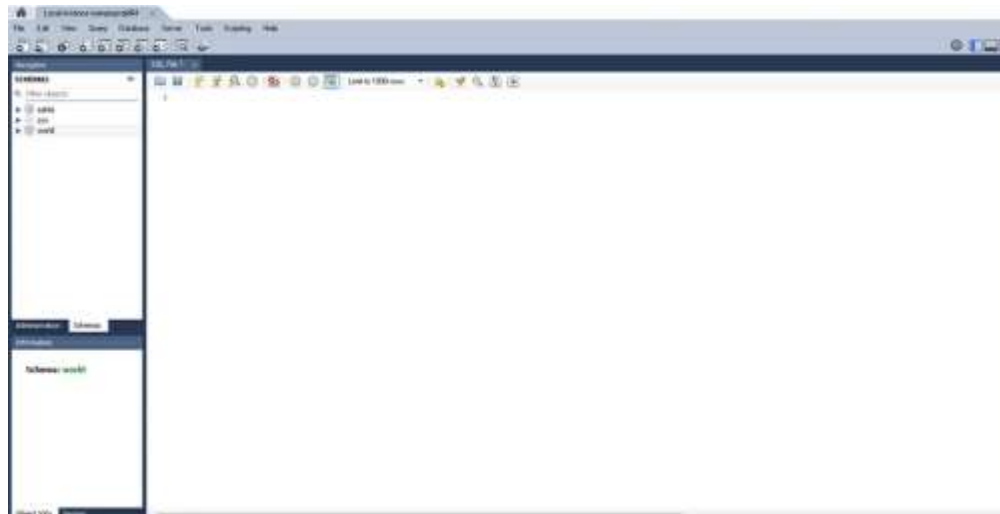
Install MySQL Step 9 – Installation Completes: the installation completes. Click the **Finish** button to close the installation wizard and launch the MySQL Workbench.

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

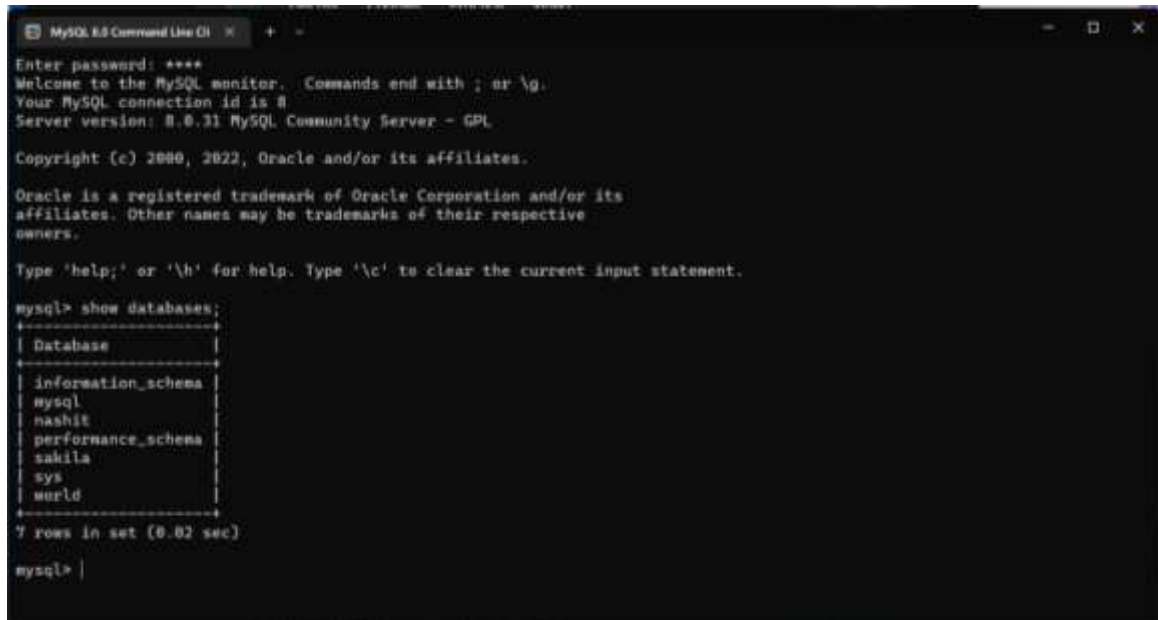


## 2. Enter your password



3. To check all the existing databases, use command

**show databases;**



```
MySQL 8.0 Command Line Client
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 CL  +  -  
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 CL  +  -  
  
+-----+  
| 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 Client
mysql> show databases;
+-----+
| Database |
+-----+
| 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 (0.00 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 @ 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 @ 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](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

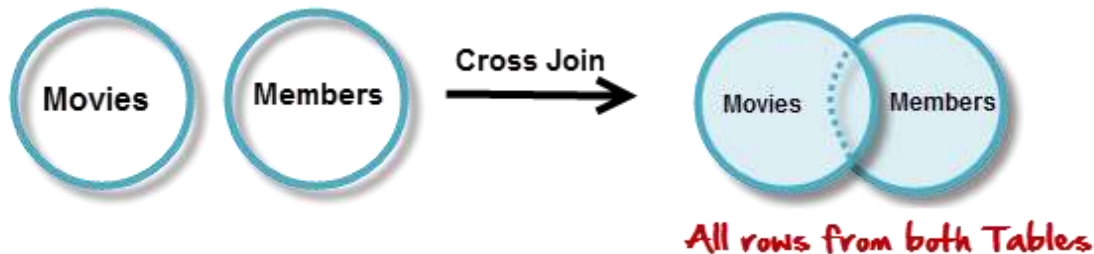
## Types of joins

### 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

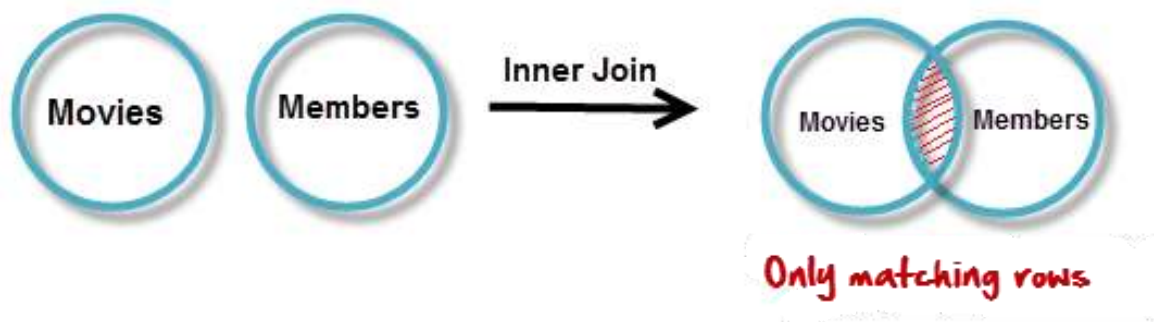
6	Safe House(2012)	Action	6	Lee	Pong	10
7	GIA	18+	1	Adam	Smith	1
7	GIA	18+	2	Ravi	Kumar	2
7	GIA	18+	3	Susan	Davidson	5
7	GIA	18+	4	Jenny	Adrianna	8
7	GIA	18+	6	Lee	Pong	10
8	Deadline(2009)	18+	1	Adam	Smith	1
8	Deadline(2009)	18+	2	Ravi	Kumar	2
8	Deadline(2009)	18+	3	Susan	Davidson	5
8	Deadline(2009)	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 being 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
-------	------------	-----------

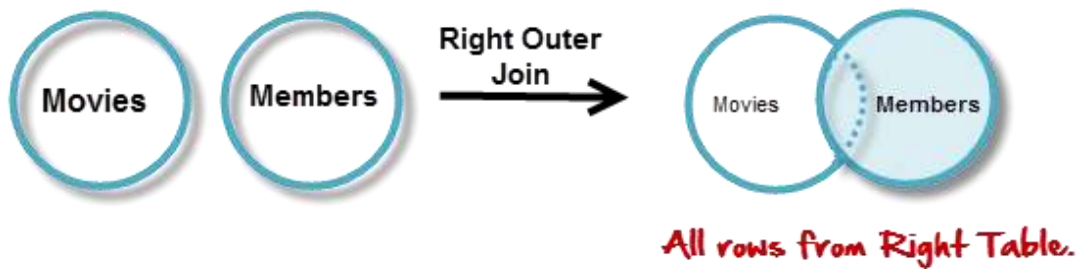
ASSASSIN'S CREED: EMBERS	Adam	Smith
Real Steel(2012)	Ravi	Kumar
Safe (2012)	Susan	Davidson
Deadline(2009)	Jenny	Adrianna
Marley and me	Lee	Pong
Alvin and the Chipmunks	NULL	NULL
The Adventures of Tin Tin	NULL	NULL
Safe House(2012)	NULL	NULL
GIA	NULL	NULL
The Dirty Picture	NULL	NULL

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  |
+-----+-----+-----+-----+
8 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

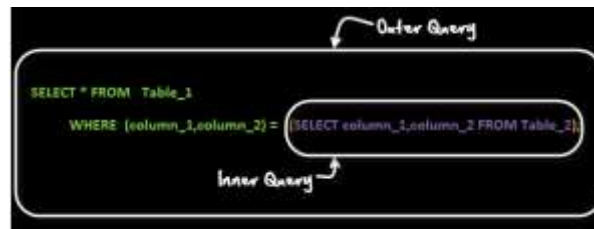
### List of Hardware/Software requirements:

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.

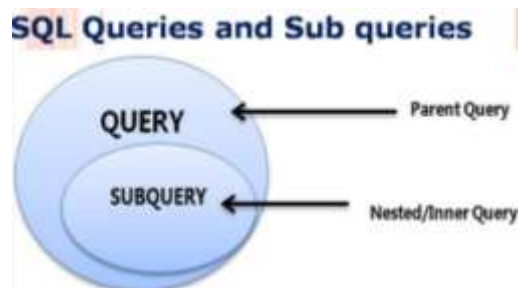
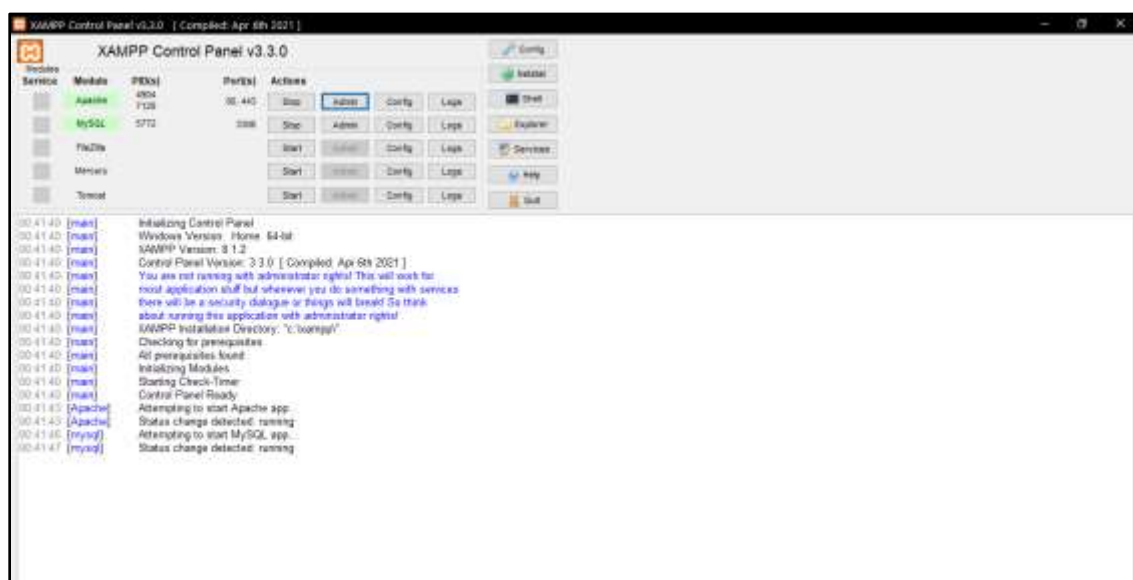
Multirow subqueries return either:

- ✓ One column with multiple rows (i.e. a list of values), or
- ✓ Multiple columns with multiple rows (i.e. tables).

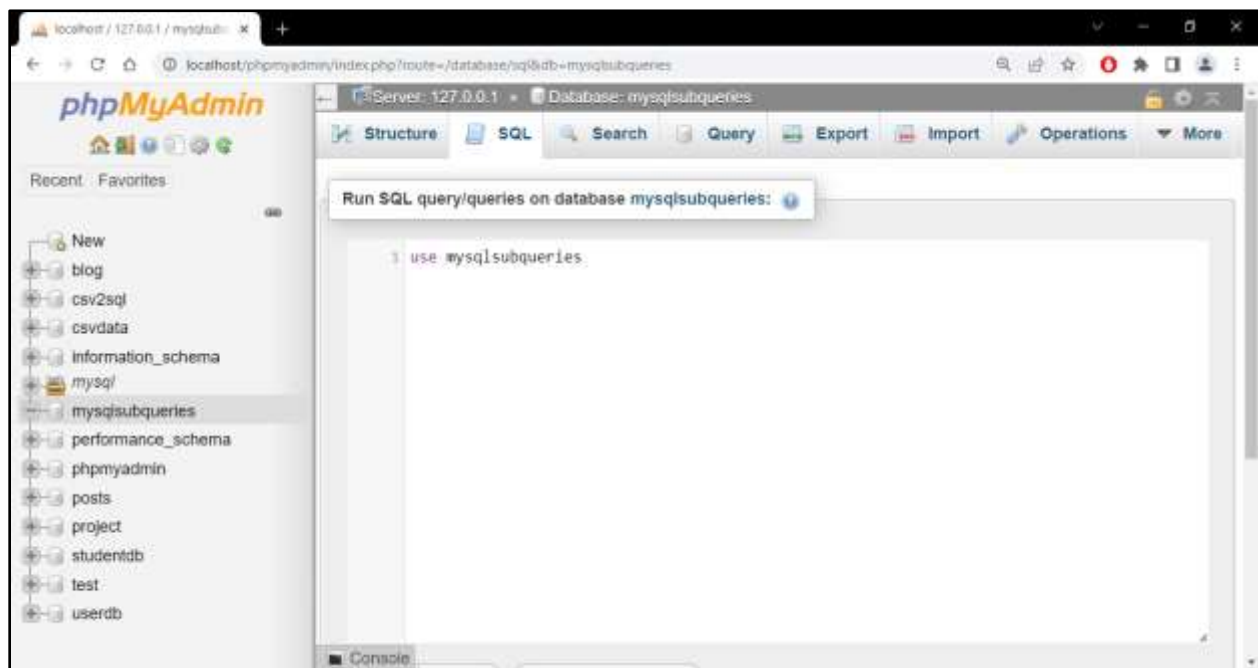
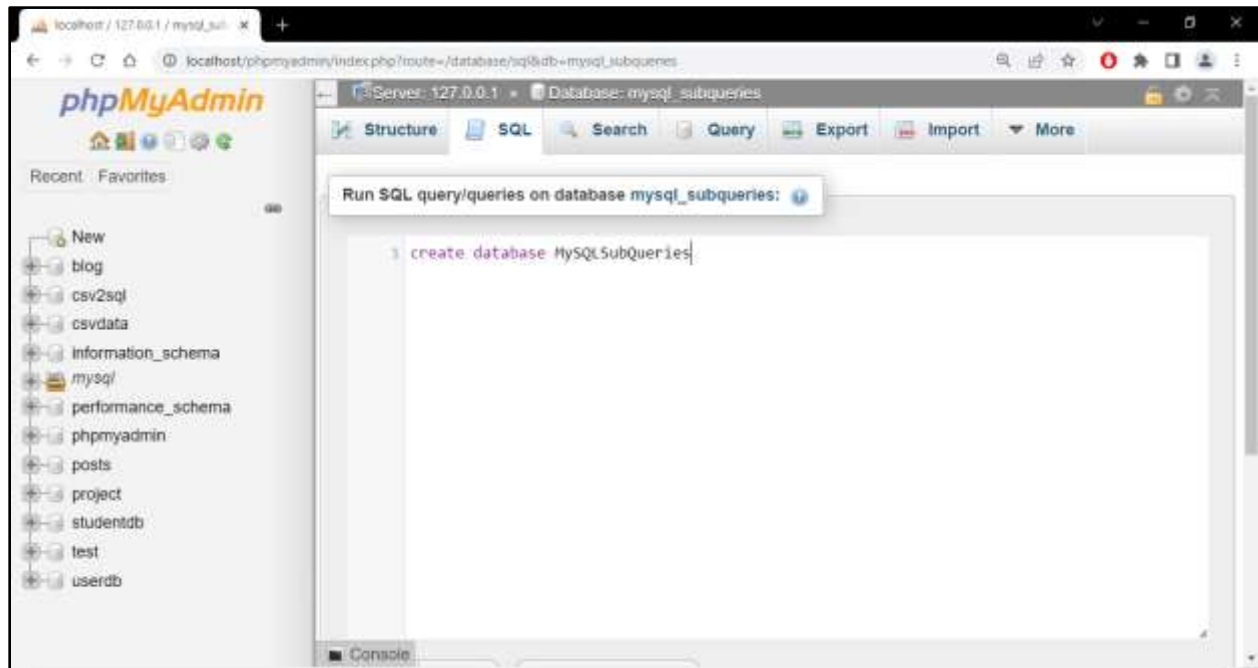
- ✓ Correlated subqueries, where the inner query relies on information obtained from the outer query.

**Syntax:**

```
SELECT <columns>  
FROM <table>  
WHERE <column> <operator>  
(SELECT <columns>  
FROM <table>  
)
```

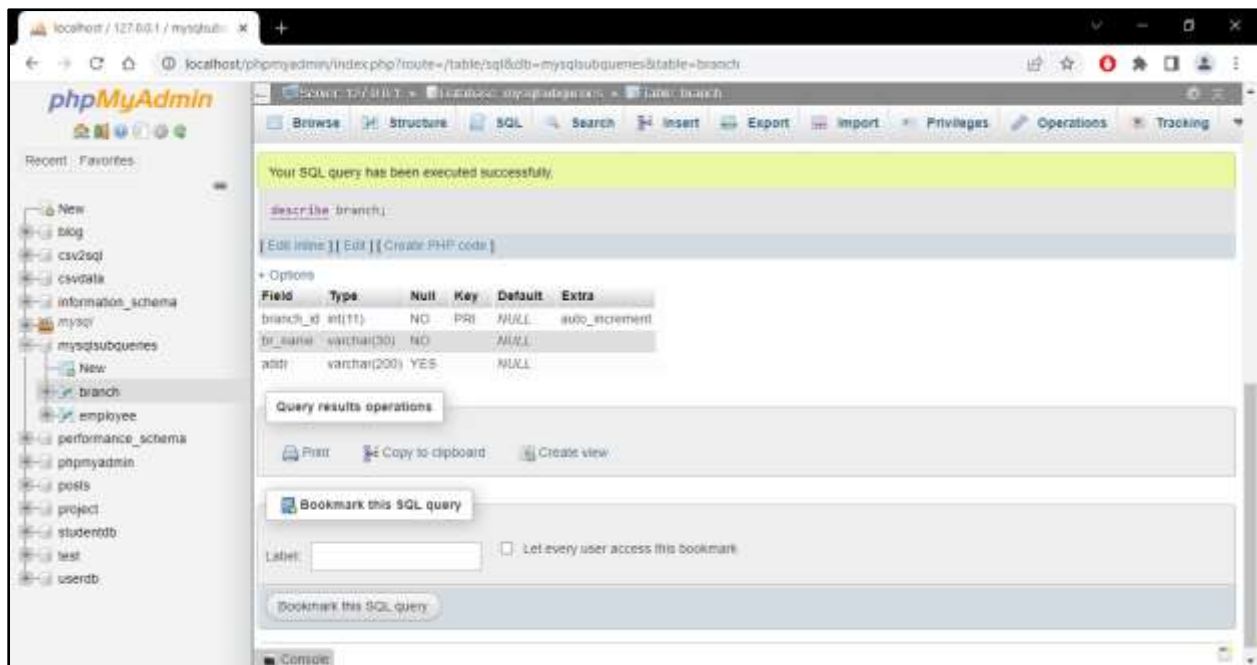
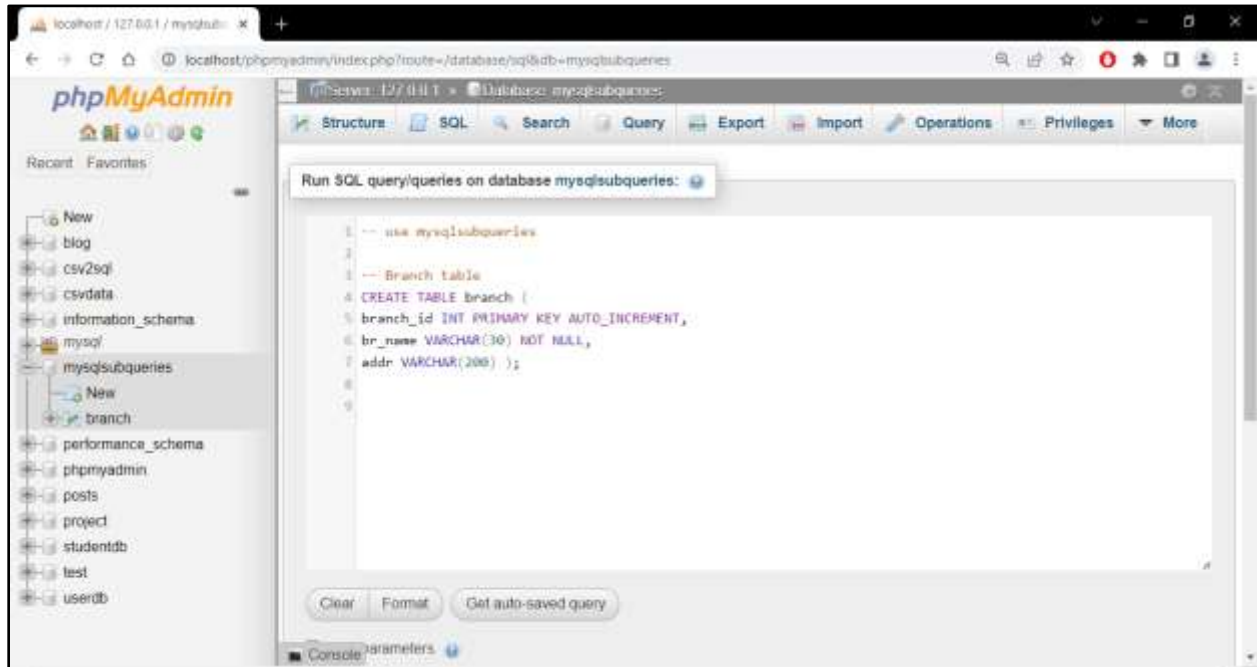
**Step 1: Open Xampp with PhpmyAdmin / MySQL Command Prompt**

## Step 2: Create and Use the database



**Step 3: Create Table:**

✓ Branch



## ✓ Employee

The screenshot shows the phpMyAdmin interface with the 'branch' table selected in the 'mysqlsubqueries' database. The SQL query editor contains the following code:

```
1 CREATE TABLE employee (
2   emp_id INT PRIMARY KEY AUTO_INCREMENT,
3   emp_name 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 );
9
```

The interface includes a sidebar with a database tree, a top navigation bar with tabs like 'Browse', 'Structure', 'SQL', 'Search', 'Insert', 'Export', 'Import', 'Privileges', and 'More'. Below the query editor are buttons for 'SELECT \*', 'SELECT', 'INSERT', 'UPDATE', 'DELETE', 'Clear', and 'Format'.

The screenshot shows the phpMyAdmin interface after the SQL query has been executed successfully. A yellow message box states: "Your SQL query has been executed successfully." Below this, the command `describe employee;` is shown. The 'Options' section displays the table structure for 'employee'.

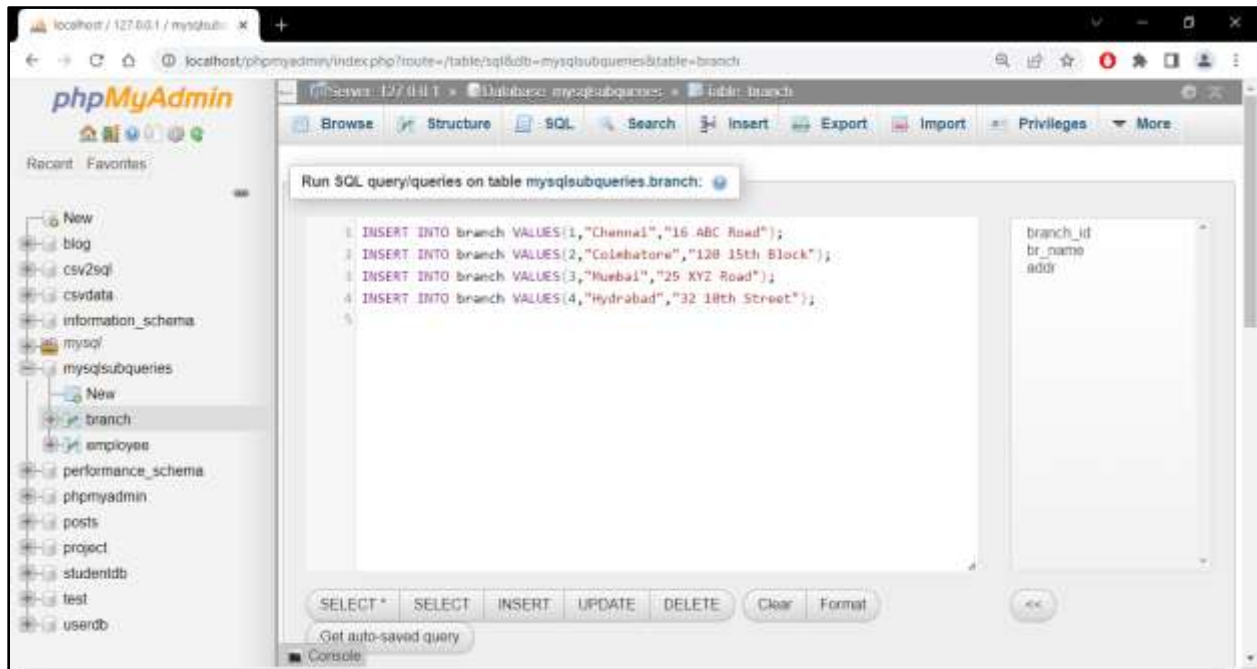
Field	Type	Null	Key	Default	Extra
emp_id	int(11)	NO	PR	NULL	auto_increment
emp_name	varchar(30)	NO		NULL	
job_desc	varchar(20)	YES		NULL	
salary	int(11)	YES		NULL	
branch_id	int(11)	YES	MUL	NULL	

Below the table structure, there are buttons for 'Query results operations' (Print, Copy to clipboard, Create view) and a 'Bookmark this SQL query' section with a label input field and a checkbox for 'Let every user access this bookmark'.



**Step 4: Insert the Records in Branch and Employee tables**

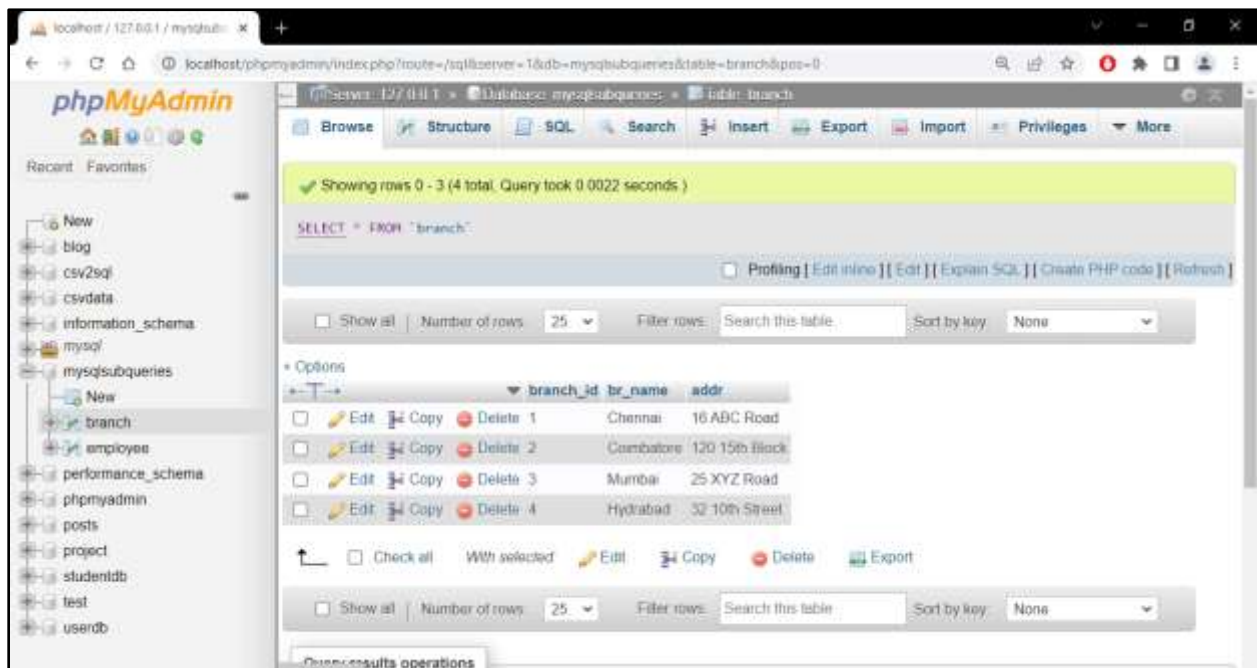
Branch Table:



The screenshot shows the phpMyAdmin interface with the 'branch' table selected in the 'mysqlsubqueries' database. The SQL query editor contains the following INSERT statements:

```
1 INSERT INTO branch VALUES(1,"Chennai","16 ABC Road");
2 INSERT INTO branch VALUES(2,"Coimbatore","12B 15th Block");
3 INSERT INTO branch VALUES(3,"Mumbai","25 XYZ Road");
4 INSERT INTO branch VALUES(4,"Hydrabad","32 10th Street");
```

The table structure on the right shows columns: branch\_id, br\_name, and addr.

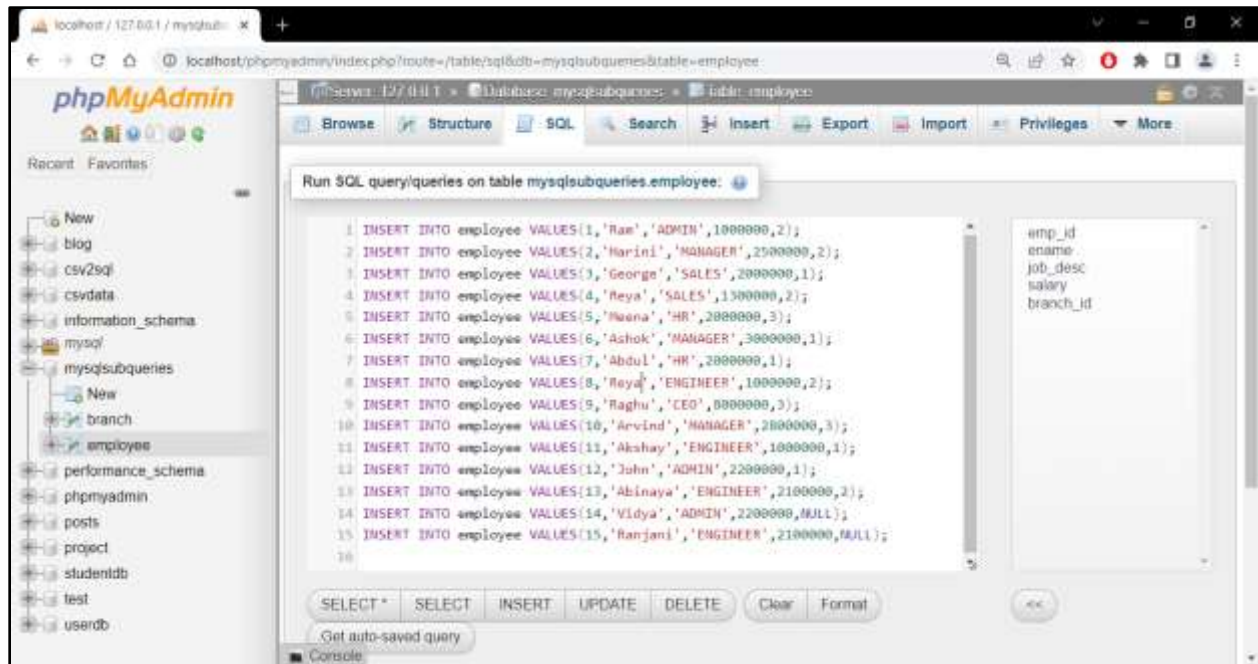


The screenshot shows the phpMyAdmin interface displaying the 'branch' table with 4 records. The status bar indicates 'Showing rows 0 - 3 (4 total. Query took 0.0022 seconds)'. The table structure shows columns: branch\_id, br\_name, and addr.

branch_id	br_name	addr
1	Chennai	16 ABC Road
2	Coimbatore	12B 15th Block
3	Mumbai	25 XYZ Road
4	Hydrabad	32 10th Street

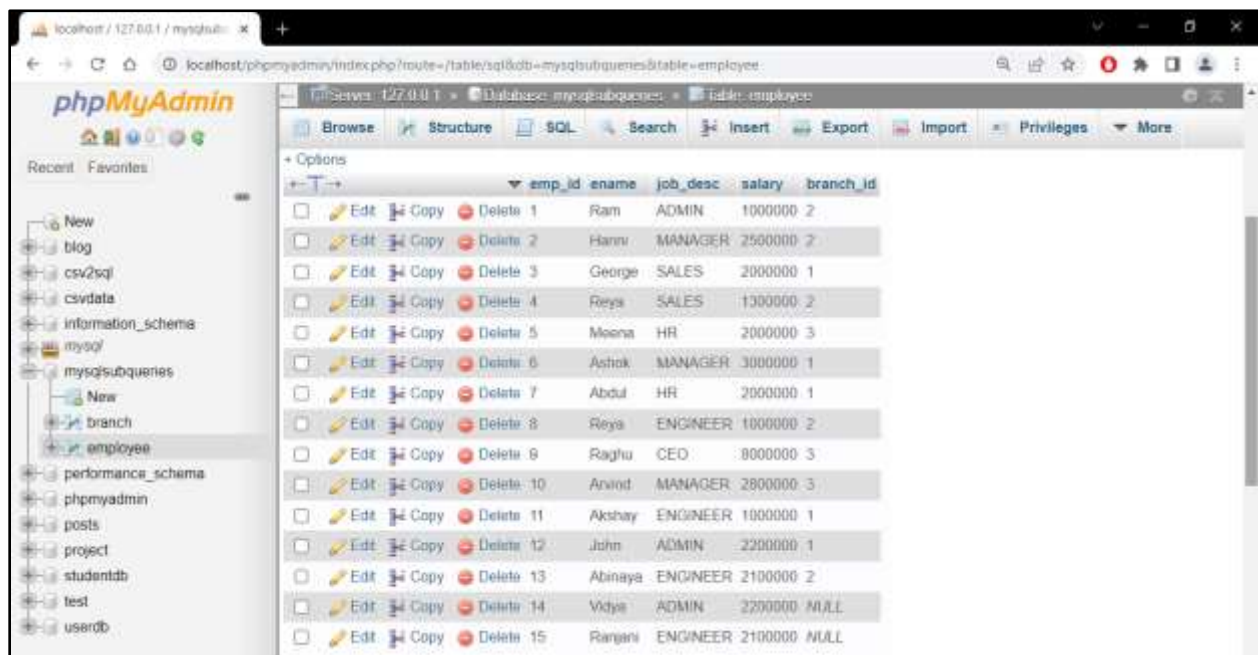


Employee table:



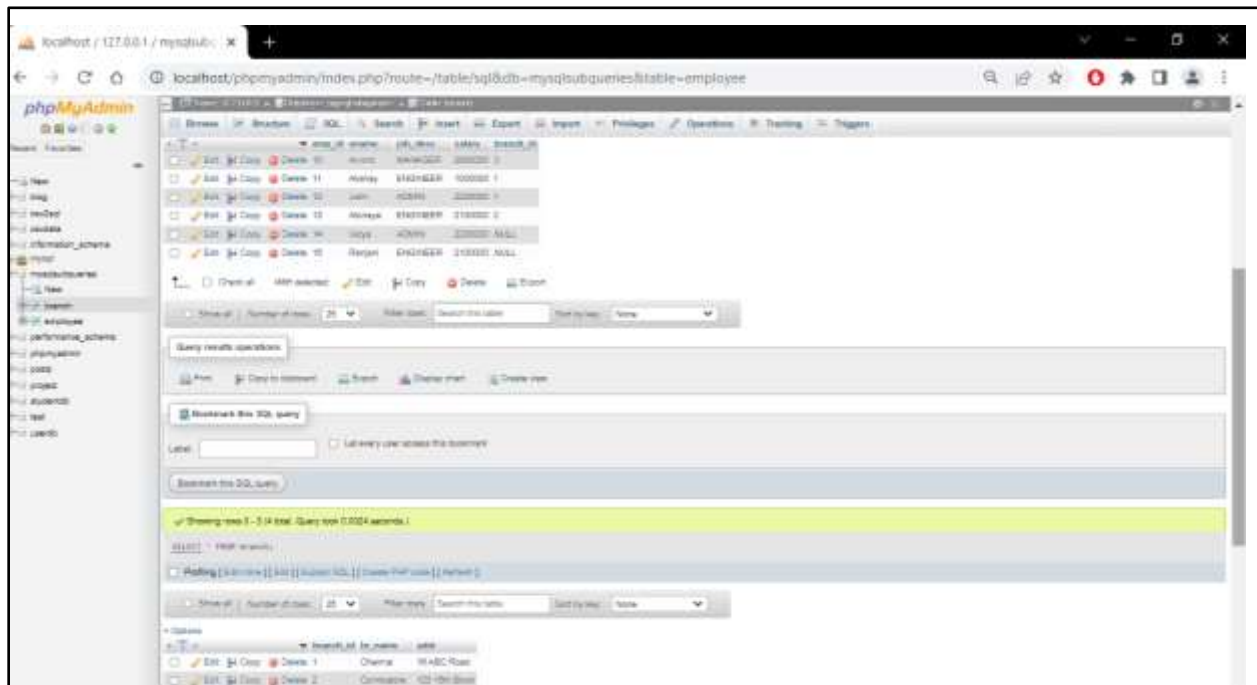
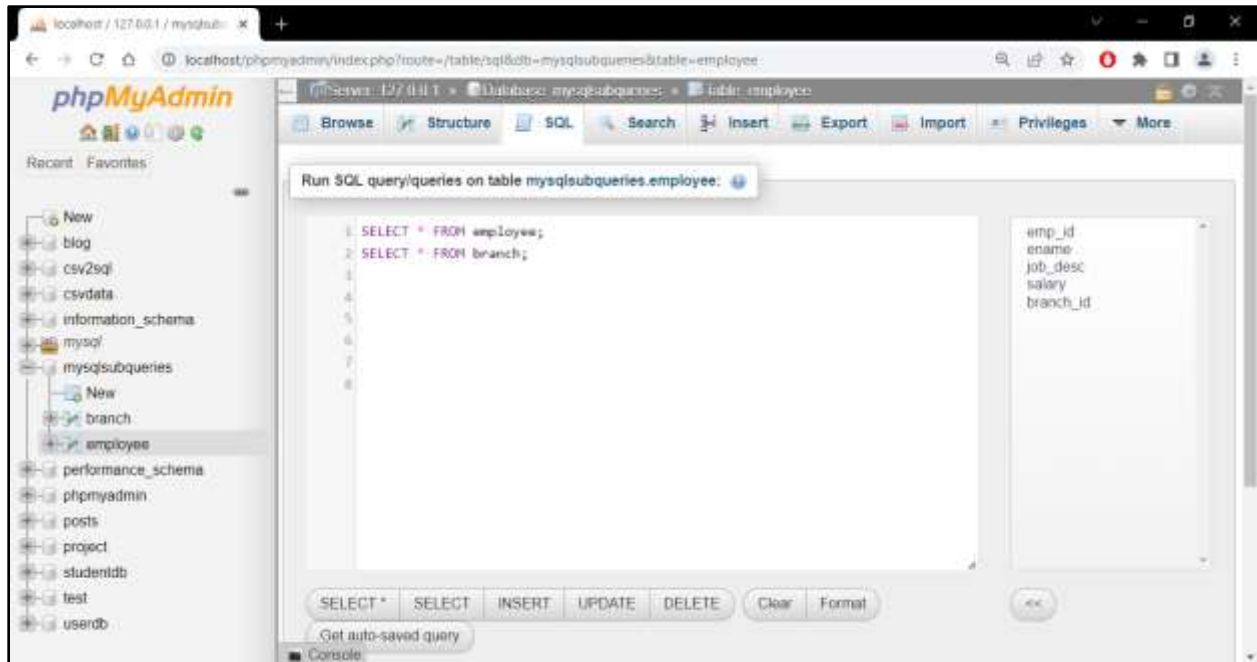
The screenshot shows the phpMyAdmin interface with the 'employee' table selected in the 'mysqlsubqueries' database. The 'SQL' tab is active, displaying a series of 15 INSERT statements to populate the table. The table structure is visible on the right, showing columns: emp\_id, ename, job\_desc, salary, and branch\_id.

```
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,'Raghu','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);
```



The screenshot shows the phpMyAdmin interface with the 'employee' table selected. The 'Structure' tab is active, displaying the table's columns and data. The table structure is visible on the right, showing columns: emp\_id, ename, job\_desc, salary, and branch\_id. The data is displayed in a table format with 15 rows.

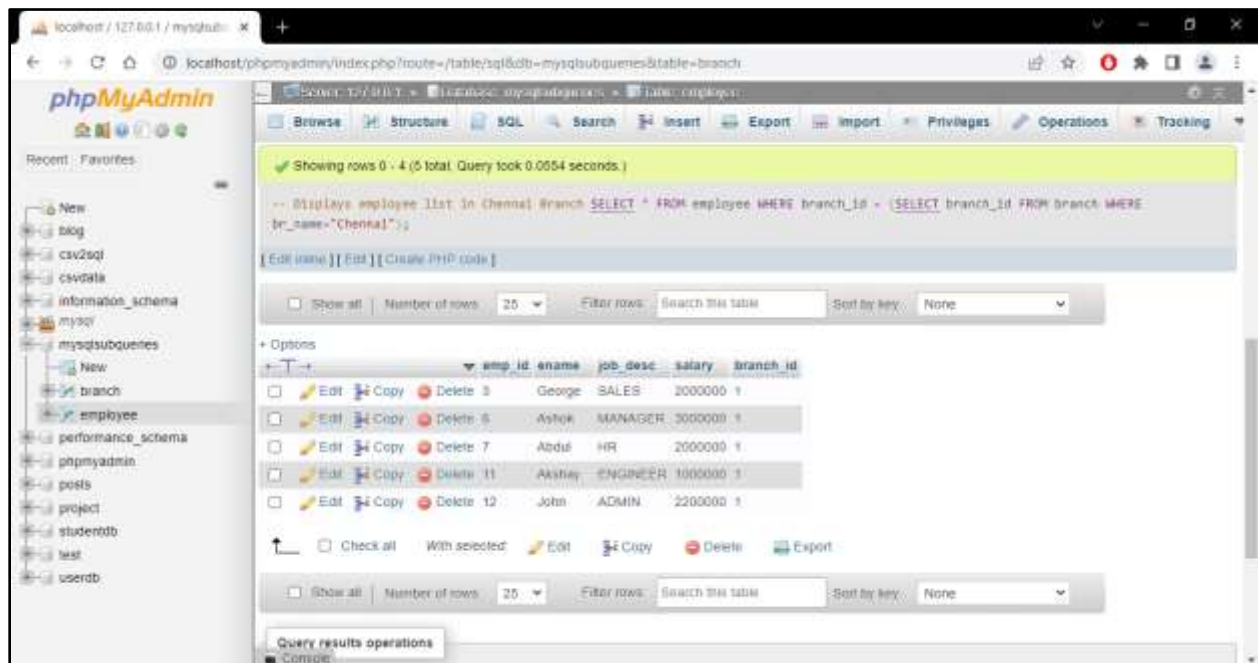
emp_id	ename	job_desc	salary	branch_id
1	Ram	ADMIN	1000000	2
2	Harini	MANAGER	2500000	2
3	George	SALES	2000000	1
4	Reya	SALES	1300000	2
5	Meena	HR	2000000	3
6	Ashok	MANAGER	3000000	1
7	Abdul	HR	2000000	1
8	Reya	ENGINEER	1000000	2
9	Raghu	CEO	8000000	3
10	Arvind	MANAGER	2800000	3
11	Akshay	ENGINEER	1000000	1
12	John	ADMIN	2200000	1
13	Abinaya	ENGINEER	2100000	2
14	Vidya	ADMIN	2200000	NUL
15	Ranjani	ENGINEER	2100000	NUL



**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");
```

**Step 6: SubQ 2: Displays the employees with min & maximum salary**

-- Displays the employees with min salary

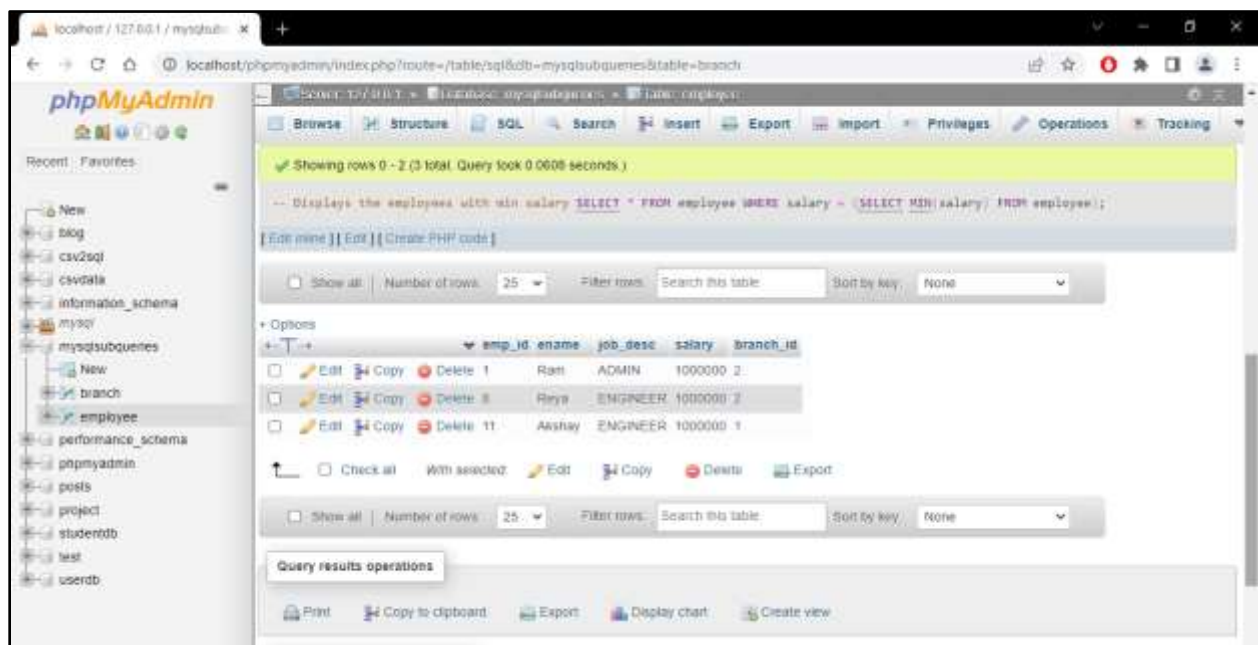
```
SELECT * FROM employee
WHERE salary = (SELECT MIN(salary)
FROM employee);
```

-- Displays the employees with maximum salary

```
SELECT * FROM employee
```

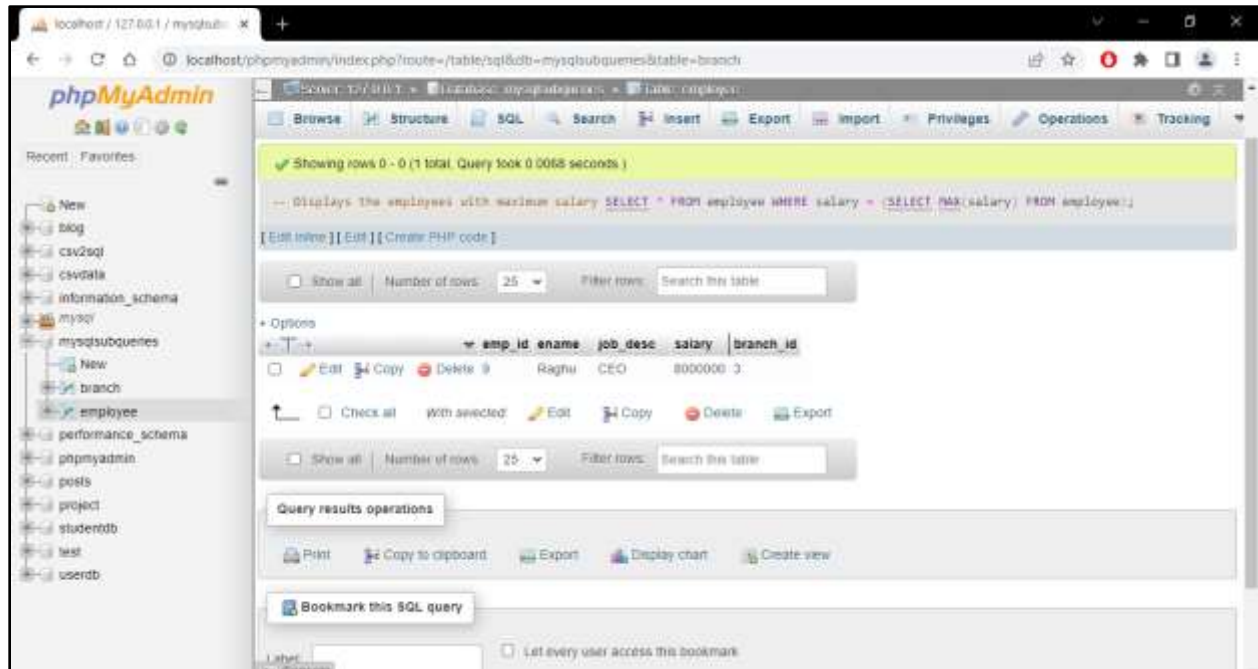
```
WHERE salary = (SELECT MAX(salary)
```

```
FROM employee);
```



The screenshot shows the phpMyAdmin interface for a MySQL database. The 'employee' table is selected, and the query results are displayed. The query executed is: `SELECT * FROM employee WHERE salary = (SELECT MAX(salary) FROM employee);`. The results show 3 rows, all with a salary of 1000000.

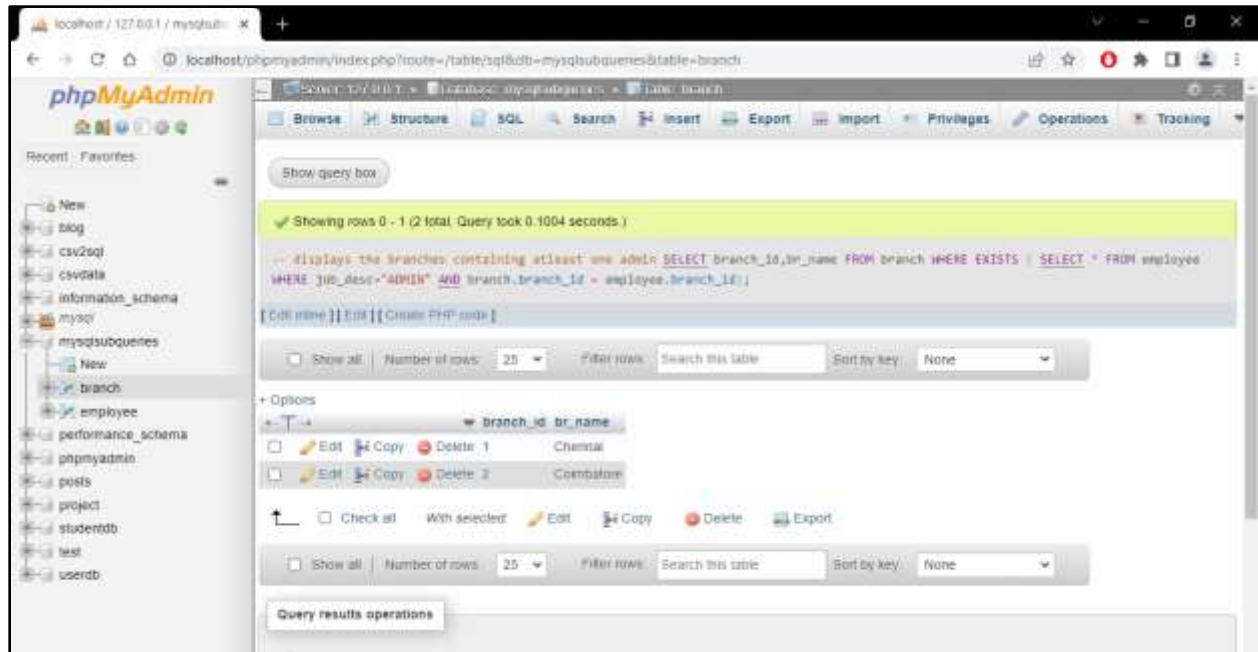
emp_id	ename	job_desc	salary	branch_id
1	Ram	ADMIN	1000000	2
8	Riya	ENGINEER	1000000	2
11	Aishw	ENGINEER	1000000	1



**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);
```

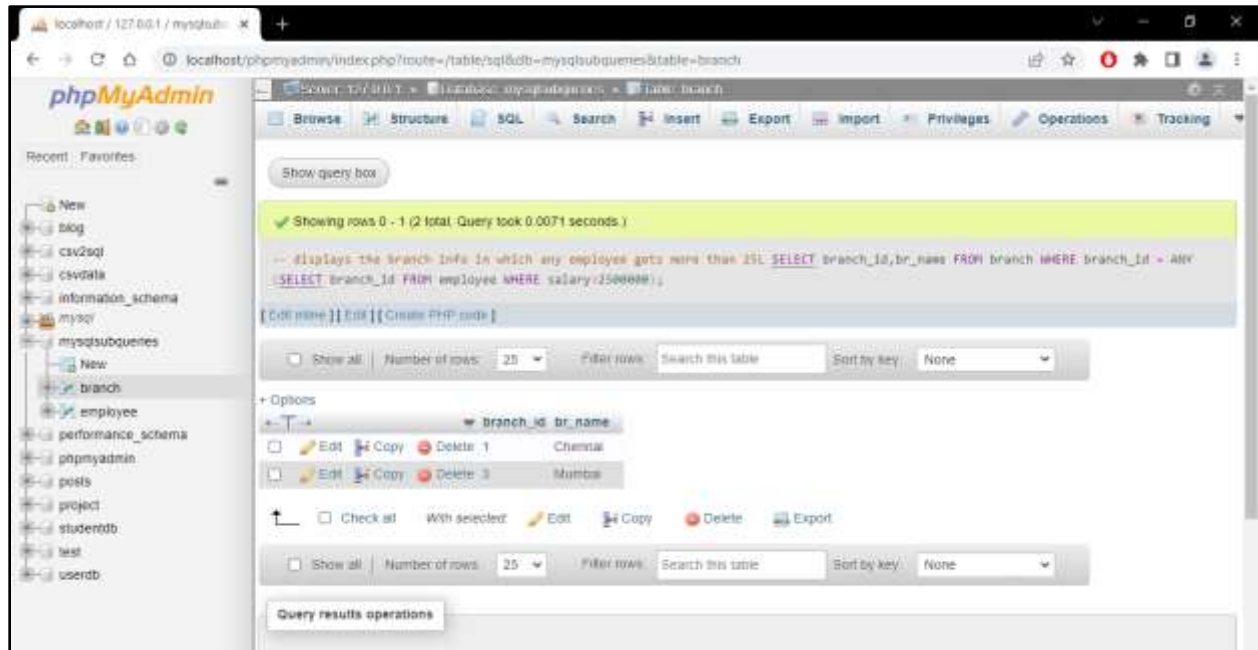


**Step 8:** SubQ 4: Displays the branch info in which any employee gets more than 25L

-- 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);
```





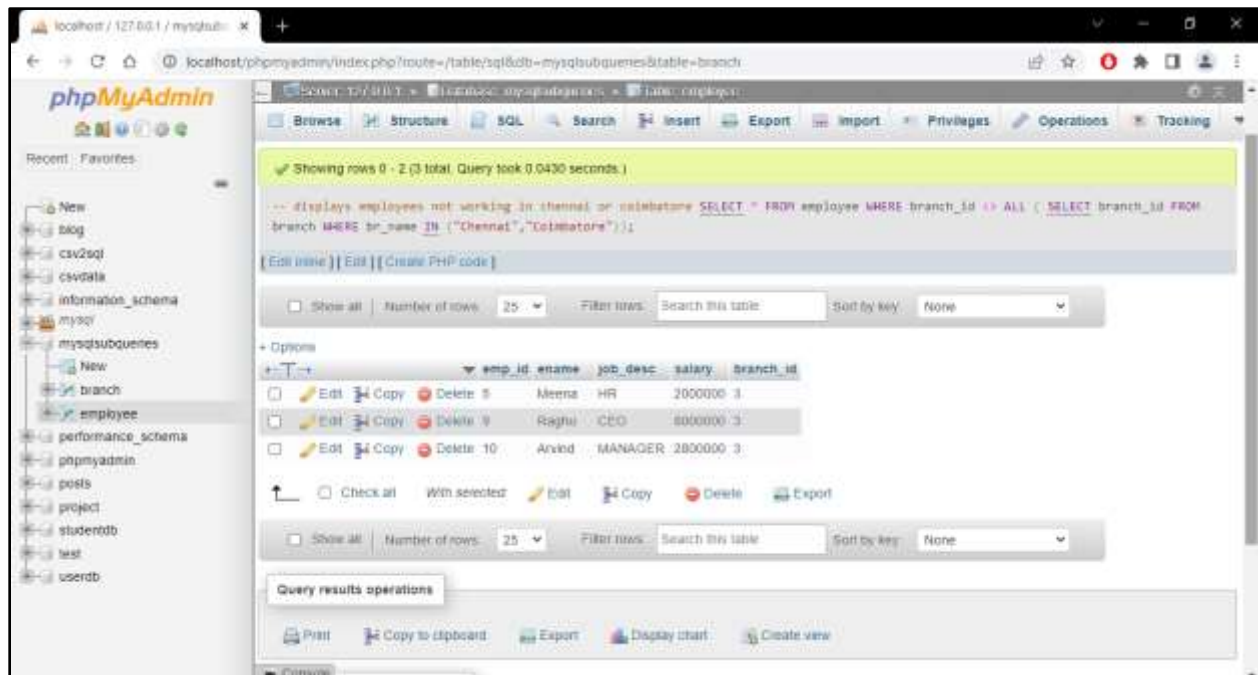
**Step 9:** SubQ 5: Displays employees not working in chennai or coimbatore

-- 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"));
```

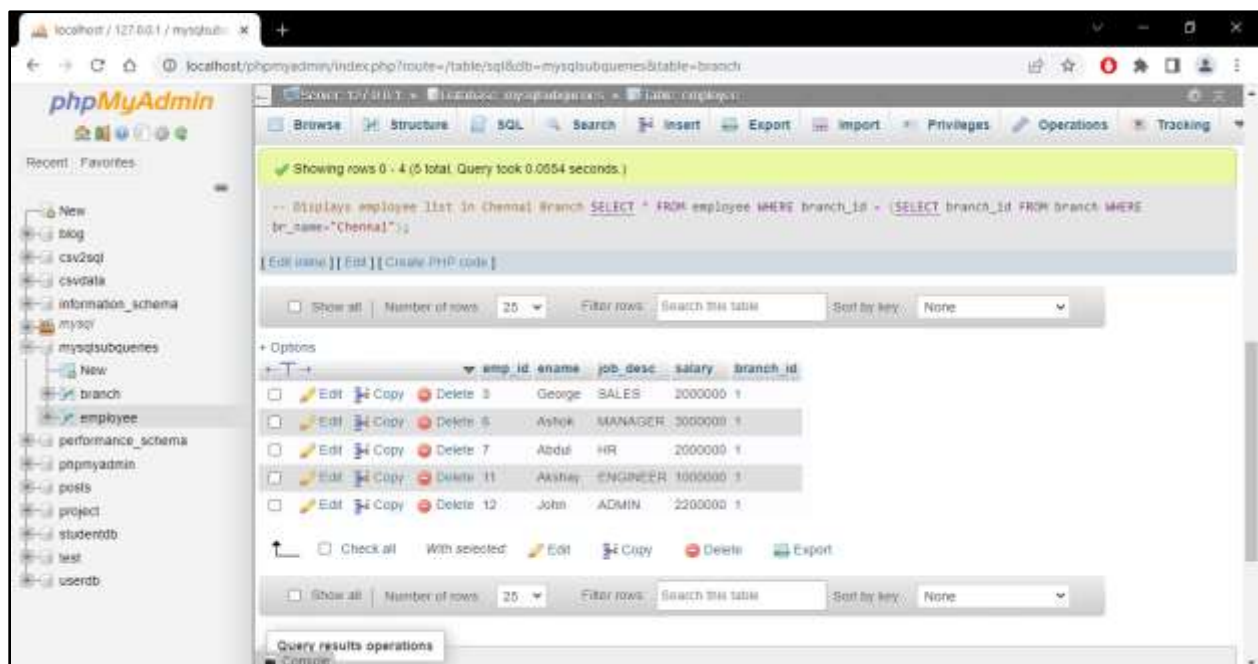


The screenshot shows the phpMyAdmin interface with the 'employee' table selected. The table contains 3 rows of data. The SQL query displayed is: `-- displays employees not working in chennai or coimbatore SELECT * FROM employee WHERE branch_id <> ALL ( SELECT branch_id FROM branch WHERE br_name IN ('Chennai','Coimbatore'));`

emp_id	ename	job_desc	salary	branch_id
3	Meena	HR	2000000	3
9	Raghu	CEO	8000000	3
10	Anand	MANAGER	2800000	3

**Output/Results snippet:**

Displays employee list in Chennai Branch



The screenshot shows the phpMyAdmin interface with the 'employee' table selected. The table contains 5 rows of data. The SQL query displayed is: `-- 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
5	Ashok	MANAGER	3000000	1
7	Abdul	HR	2000000	1
11	Akshay	ENGINEER	1000000	1
12	John	ADMIN	2200000	1



Displays the employees with min/maximum salary

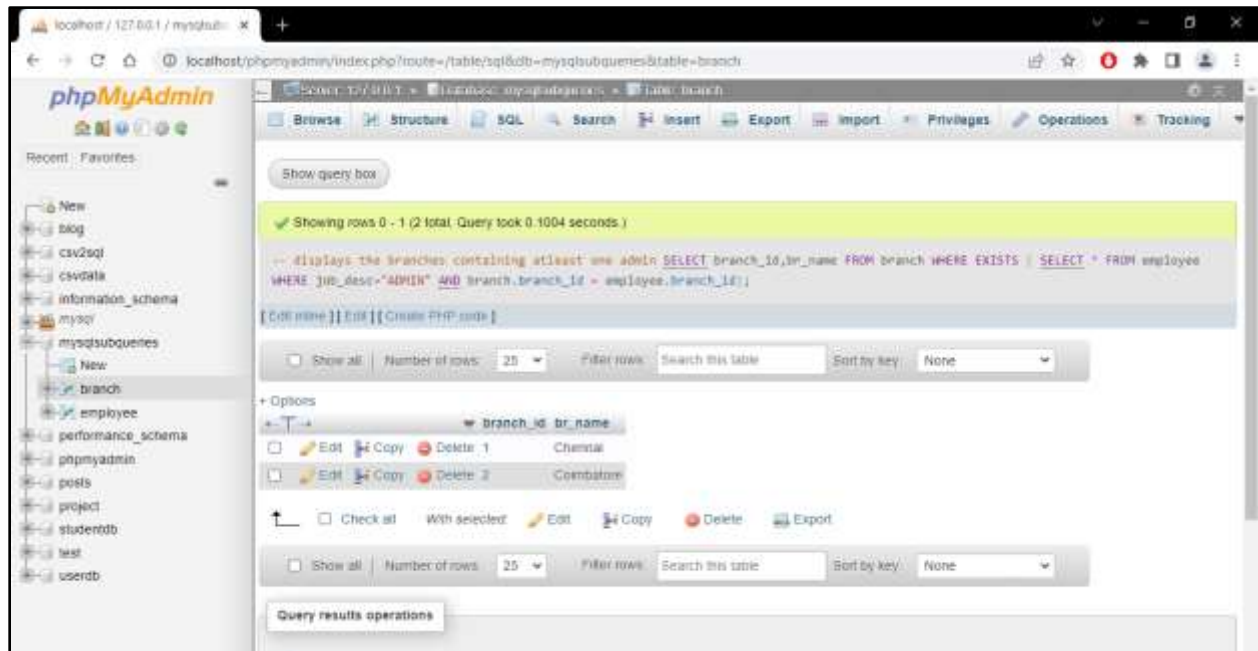
The screenshot shows the phpMyAdmin interface for a MySQL database. The left sidebar displays the database structure, including 'mysql', 'mysqlsubqueries', 'branch', and 'employee'. The main panel shows the 'employee' table with a query that filters for the minimum salary. The query is: `SELECT * FROM employee WHERE salary = (SELECT MIN(salary) FROM employee);`. The results show three rows: Ram (ADMIN, 1000000, 2), Riya (ENGINEER, 1000000, 2), and Akshay (ENGINEER, 1000000, 1).

emp_id	ename	job_desc	salary	branch_id
1	Ram	ADMIN	1000000	2
8	Riya	ENGINEER	1000000	2
11	Akshay	ENGINEER	1000000	1

The screenshot shows the phpMyAdmin interface for a MySQL database. The left sidebar displays the database structure, including 'mysql', 'mysqlsubqueries', 'branch', and 'employee'. The main panel shows the 'employee' table with a query that filters for the maximum salary. The query is: `SELECT * FROM employee WHERE salary = (SELECT MAX(salary) FROM employee);`. The results show three rows: Ram (ADMIN, 1000000, 2), Riya (ENGINEER, 1000000, 2), and Akshay (ENGINEER, 1000000, 1).

emp_id	ename	job_desc	salary	branch_id
1	Ram	ADMIN	1000000	2
8	Riya	ENGINEER	1000000	2
11	Akshay	ENGINEER	1000000	1

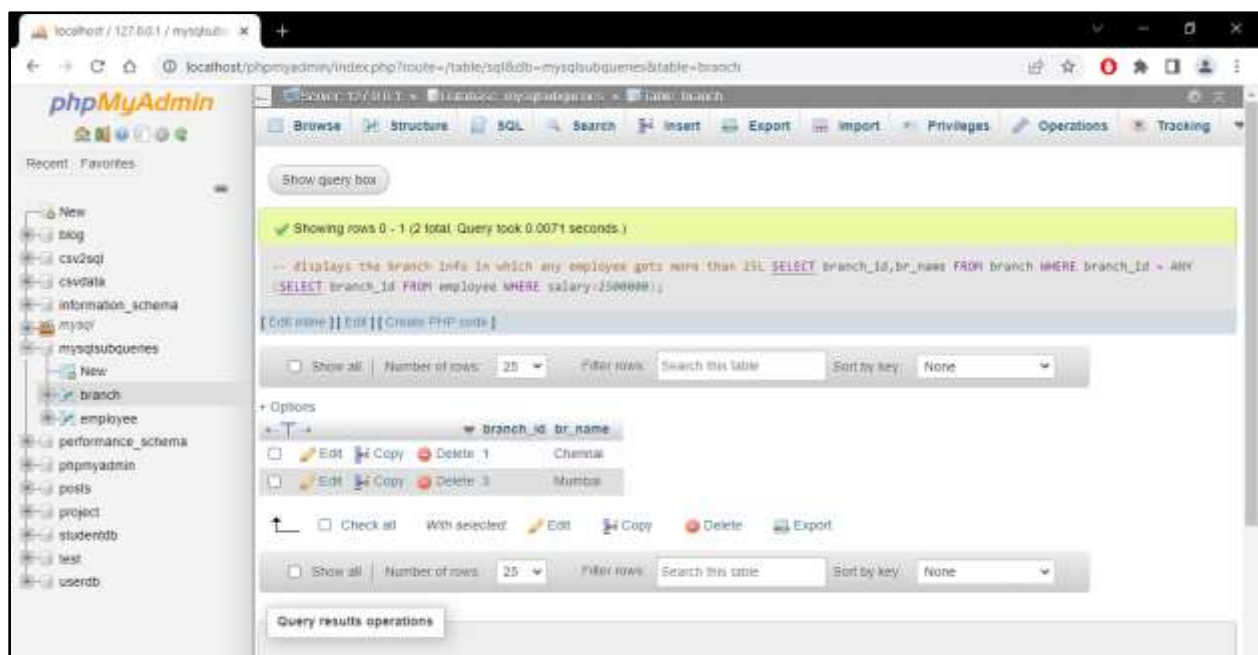
Displays the branches containing at least one admin



The screenshot shows the phpMyAdmin interface with the 'branch' table selected. The SQL query executed is: `-- 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 show two rows: 'Chemical' (branch\_id 1) and 'Combatoze' (branch\_id 2).

branch_id	br_name
1	Chemical
2	Combatoze

Displays the branch info in which any employee gets more than 25L



The screenshot shows the phpMyAdmin interface with the 'branch' table selected. The SQL query executed is: `-- 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 show two rows: 'Chemical' (branch\_id 1) and 'Mumbai' (branch\_id 3).

branch_id	br_name
1	Chemical
3	Mumbai

Displays employees not working in chennai or coimbatore

The screenshot shows the phpMyAdmin interface in a web browser. The left sidebar displays a database structure with 'mysqlsubqueries' selected. The main panel shows a SQL query: `-- 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"));`. The query results are displayed in a table with 3 rows. The table has columns: emp\_id, ename, job\_desc, salary, and branch\_id. The results are:

emp_id	ename	job_desc	salary	branch_id
8	Meena	HR	2000000	3
9	Raghu	CEO	8000000	3
10	Anand	MANAGER	2800000	3

The interface also includes a 'Query results operations' section with buttons for Print, Copy to clipboard, Export, Display chart, and Create view.