MIT Vishwaprayag University

School of Computing

FULL STACK DEVELOPMENT ASSIGNMENTS

(HTML, CSS, JavaScript, React)

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Assignment 01 – Basic Programs

Aim: Basic HTML Tags.

Source Code

```
<html>
<head>
<title>WELCOME TO MY WEBSITE</title>
<body>
    <h1>Welcome Zaid</h1>
    <h1>This is heading tag<h1><br>
    <b>Bold tag</b><br>
    <strong>strong tag</strong><br>
    <i>Italic text</i><br>
    <em>Emphasized tag</em><br>
    <u>Underlined tag</u><br>
    <img src="image.jpg" alt="My Image"><br>
    <P>This is paragraph</P><br>
</body>
</head>
</html>
```

Output

Welcome Zaid

This is heading tag

Bold tag
strong tag
Italic text
Emphasized tag
Underlined tag
My Image

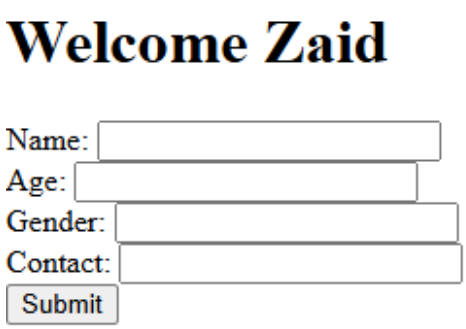
This is paragraph

Aim: Portfolio.

Source Code

```
<!DOCTYPE html>
<html>
<head>
<title>Portfolio for Students </title>
</head>
<body>
    <h1>Welcome Zaid</h1>
    Name: <input type="text" name="name"><br>
    Age: <input type="text" name="Age"><br>
    Gender: <input type="text" name="Gender"><br>
    Contact: <input type="text" name="contact"><br>
    <input type="submit" value-submit>
</body>
</html>
```

Output



Aim

Design an HTML page to create a simple **Student Survey Form**.

Source Code

```
<!DOCTYPE html>
<html>
    <head>
        <img src="download.jpg"width="400"height="400">
        <body>
            <h1>Welcome Zaid</h1>
            <h1>Student Survey</h1>
            Name:<input type="text"name="name"><br>
            Age:<input type="text"name="age"><br>
            Gender:<input type="text"name="Gender"><br>
            Contact:<input type="text"name="contact"><br>

            Favourite Subject:
            <select name="subjects"><br>
            <option value="node js">node js</option>
            <option value="react js">react js</option>
            <option value="C++">C++</option><br>
            </select><br>

            <input type="submit"value="submit">
        </body>
    </head>
</html>
```

Output

Welcome Zaid

Student Survey

Name:
Age:
Gender:
Contact:
Favourite Subject: node js
submit

Assignment 02 – Forms with all Different Attribute.

Aim: Create an HTML page for a **Student Registration Form**

Source Code

```
<!DOCTYPE html>
<html>

<head>
    <title>Student Registration</title>

</head>

<body>

    <h1>Student Registration</h1>

    <h1>Welcome Zaid</h1>
    <div class="container">
        <form>
            <label>name</label>
            <input type="text" id="name"><br>
            <label>email id</label>
            <input type="email" id="email"><br>
            <label>mobile</label>
            <input type="text" id="mobile"><br><br>
            <b>contact </b><br>
            <input type="radio" value="email">
            <label>email</label><br>
            <input type="radio" value="phone">
            <label>phone</label><br><br>
            <b>Do you want to subscribe newsletter?</b><br>
            <input type="checkbox" value="yes">
            <label>yes</label>
            <input type="checkbox" value="no">
            <label>no</label><br><br>
            <input type="submit" value="Submit">

        </form>
    </div>

</body>

</html>
```

Output


Student Registration
Welcome Zaid
name
email id
mobile
contact
email
phone
Do you want to subscribe newsletter?
yes
no
Submit

Assignment 03 – HTML Select Element

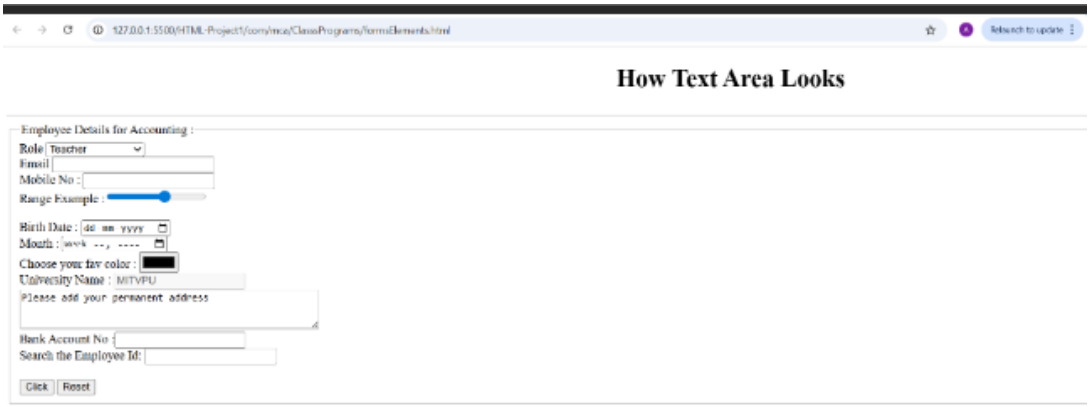
Aim: Write a program for HTML Selector Elements.

Source Code

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <h1>This is example of textarea looks like</h1>
    <form>
    <fieldset>
         <h1>Welcome Zaid</h1>
        <input type="search" value="search" id="search1"><input type="button"
           name="button" value="Search" ><br><br>
        Role
        <select name="roles" >
            <option value="Deisnger">Designer</option>
            <option value="Tester">Tester</option>
            <option value="DevOps">DevOps</option>
            <option value="Engineer">Engineer</option>
        </select><br>
        <legend>Employee Details for accounting</legend>

        <textarea rows="3" cols="50">Please add your permnanat address</textarea
           ><br><br>
        Bank Account No : <input type="password" name="baccount"><br><br>
        Email
        <input type="email" name="email"><br><br>
        Mobile No
        <input type="number" name="number"><br><br>
        Date
        <input type="date" name="date"><br><br>
        Month
        <input type="month" name="month"><br><br>
        WeekDays
        <input type="week" name="week"><br><br>
        Range
        <input type="range" min="5" max="10"><br><br>
        Color
        <input type="color" name="color"><br><br>
        Class
        <input type="text" name="en" value="MCA-I 2025" disabled><br><br>
        <input type="button" onclick="alert('your Details is submitted
           successfully')" value="click">
        <input type="reset" >
```

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

Output



Assignment 04 – CSS Selectors & Menu Driver Application

Aim : Demonstrate different **CSS selectors**.

source code

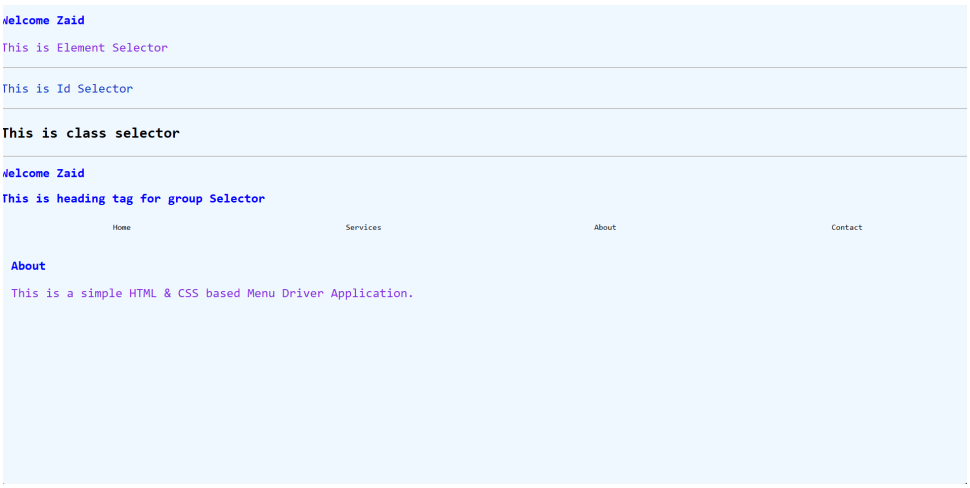
```
Assignment 04
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Selector Example</title>
<style>
    p {
        font-size: 25px;
        color: blueviolet;
    }
    #heading {
        font-family: Consolas;
        color: rgb(19, 61, 201);
        font-size: 25px;
    }
    .section {
        font-family: "Times New Roman", Times, serif;
        font-size: 25px;
    }
    * {
        background-color: aliceblue;
        font-family: Consolas;
    }
    h1, h2 {
        color: blue;
        font-size: 25px;
    }
</style>
</head>
<body>
<p>This is Element Selector</p><hr>
<p id="heading">This is Id Selector</p><hr>
<div class="section">
    <h3>This is class selector</h3><hr>
</div>
<h1>Welcome Zaid </h1>
<h2>This is heading tag for group Selector</h2>
</body>
</html>
```

Menu Driver Application (HTML + CSS + JS)

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Menu Driver Application</title>
<style>
    body {
        font-family: 'Segoe UI', Tahoma, Geneva, Verdana, sans-serif;
        margin: 0;
        padding: 0;
    }
    nav {
        background-color: #333;
    }
    nav ul {
        list-style-type: none;
        margin: 0;
        padding: 0;
        display: flex;
    }
    nav ul li {
        flex: 1;
    }
    nav ul li a {
        display: block;
        text-align: center;
        padding: 12px;
        color: white;
        text-decoration: none;
    }
    nav ul li a:hover {
        background: #ff9800;
    }
    section {
        display: none;
        padding: 20px;
    }
    .active {
        display: block;
    }
</style>
</head>
<body>
<nav>
    <ul>
        <li><a href="#" onclick="Showsection('home')">Home</a></li>
        <li><a href="#" onclick="Showsection('services')">Services</a></li>
        <li><a href="#" onclick="Showsection('about')">About</a></li>
```

```
        <li><a href="#" onclick="Showsection('contact')">Contact</a></li>
    </ul>
</nav>
<section id="home" class="active">
    <h2>Welcome Zaid!</h2>
    <p>Select any option from the menu above.</p>
</section>

<section id="services">
    <h2>Services</h2>
    <p>Perform simple operations here.</p>
</section>
<section id="about">
    <h2>About</h2>
    <p>This is a simple HTML & CSS based Menu Driver Application.</p>
</section>
<section id="contact">
    <h2>Contact</h2>
    <p>Email: support@example.com</p>
</section>
<script>
    function Showsection(id) {
        let section = document.querySelectorAll("section");
        section.forEach(sec => sec.classList.remove("active"));
        document.getElementById(id).classList.add("active");
    }
</script>
</body>
</html>
```

Output



Assignment 05 – Integrated CSS Application for Student Database

Aim: Create a **student database web page** using HTML tables and integrated CSS .

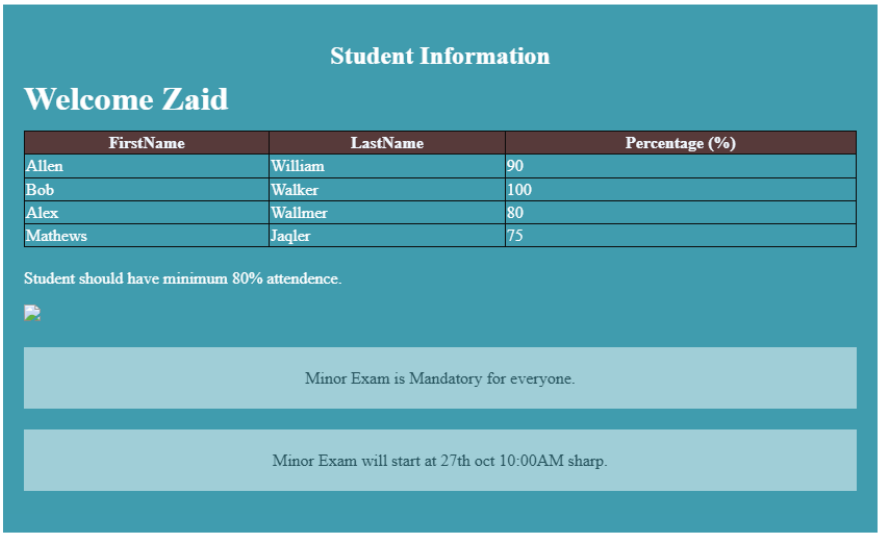
Source Code

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Integrated CSS Application for Student Database</title>
<style>
    body{
        font-family: 'Times New Roman', Times, serif;
        line-height: 120%;
    }
    .container{
        width: 90%;
        max-width: 800px;
        min-width: 400px;
        margin: 20px auto;
        padding: 20px;
        background: rgb(54, 151, 170);
        color: white;
        opacity: 0.95;
    }
    table{
        border-collapse: collapse;
        width: 100%;
        margin-bottom: 20px;
    }
    th, td{
        border: solid black 1px;
    }
    th{
        background-color: rgb(78, 47, 47);
        color: aliceblue;
    }
    tr:hover{
        background-color: #efdd88;
        opacity: 0.7;
    }
    .demo-img:hover{
        opacity: 0.5;
    }
    .custom-textSm{
        background-color: rgb(255,255,255);
        margin: 20px auto;
```

```
        padding: 20px;
        opacity: 0.5;
        color: rgb(0,0,0);
        font-style: bold;
        text-align: center;
    }
    .custom-textms{
        background-color: rgb(255,255,255);
        margin: 20px auto;
        padding: 20px;
        opacity: 0.5;
        color: rgb(0,0,0);
        font-style: bold;
        text-align: center;
    }
</style>
</head>
<body>
<div class="container">
    <h2 align="center">Student Information</h2>
    <table>
        <tr>
            <th>FirstName</th>
            <th>LastName</th>
            <th>Percentage (%)</th>
        </tr>
        <tr>
            <td>Allen</td>
            <td>William</td>
            <td>90</td>
        </tr>
        <tr>
            <td>Bob</td>
            <td>Walker</td>
            <td>100</td>
        </tr>
        <tr>
            <td>Alex</td>
            <td>Wallmer</td>
            <td>80</td>
        </tr>
        <tr>
            <td>Mathews</td>
            <td>Jaqler</td>
            <td>75</td>
        </tr>
    </table>
    <div class="image-box">
        <p>Student should have minimum 80% attendence.</p>
        <img src="./photo1.jpeg">
    </div>
```

```
    <div class="custom-textSm">
        Minor Exam is Mandatory for everyone.
    </div>
    <div class="custom-textms">
        Minor Exam will start at 27th oct 10:00AM sharp.
    </div>
</div>
</body>
</html>
```

Output



Assignment 06 – CSS Overflow and Positioning

Aim: Demonstrate different **overflow** properties and CSS **positioning** types (static, relative, absolute, sticky, fixed).

Source Code

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>CSS Overflow property</title>
<style>
.box1{
    width: 200px;
    height: 100px;
    border: 2px dashed red;
    margin: 20px;
    padding: 10px;
    background-color: darkseagreen;
}
/* Overflow Types */
.overflow-visible{
    overflow: visible;
}
.overflow-hidden{
    overflow: hidden;
}
.overflow-scroll{
    overflow: scroll;
}
.overflow-auto{
    overflow: auto;
}
/* Position Container */
.container{
    position: relative;
    width: 400px;
    height: 300px;
    border: 2px dotted green;
    margin: 20px;
    background-color: #e5afe5;
}
/* Inner Boxes */
.box{
    width: 100px;
    height: 50px;
    padding: 10px;
    color: blue;
    font-weight: bold;
```

```
    text-align: center;
}
/* Positions */
.static-box{
    position: static;
    background-color: aqua;
}
.relative-box{
    position: relative;
    top: 0px;
    left: 0px;
    background: green;
}
.absolute-box{
    position: absolute;
    top: 50px;
    right: 20px;
    background: red;
}
.sticky-box{
    position: sticky;
    top: 0;
    background-color: chartreuse;
}
.fixed-box{
    position: fixed;
    bottom: 10px;
    right: 10px;
    background: purple;
}
</style>
</head>
<body>
<h2>Overflow Property</h2>
<div class="box1 overflow-visible">
    <b>Overflow: visible</b><br>
    ITIL (Information Technology Infrastructure Library) is a framework of best
        practices for managing IT services.
</div>
<div class="box1 overflow-hidden">
    <b>Overflow: hidden</b><br>
    ITIL (Information Technology Infrastructure Library) is a framework of best
        practices for managing IT services.
</div>
<div class="box1 overflow-scroll">
    <b>Overflow: scroll</b><br>
    ITIL (Information Technology Infrastructure Library) is a framework of best
        practices for managing IT services.
</div>
<div class="box1 overflow-auto">
    <b>Overflow: auto</b><br>
```

```
    ITIL (Information Technology Infrastructure Library) is a framework of best
        practices for managing IT services.
</div>
<br><br>
<div class="container">
    <div class="box static-box">Static</div>
    <div class="box relative-box">Relative</div>
    <div class="box absolute-box">Absolute</div>
    <div class="box sticky-box">Sticky</div>
</div>
<p style="height: 800px;">
    This is the property of positioning in CSS that affected each and every
        property we used
</p>
<div class="box fixed-box">
    <b>Overflow: fixed</b><br>
    ITIL (Information Technology Infrastructure Library).
</div>
</body>
</html>
```

Output

Assignment 07 – CSS Box Model Demonstration

Aim: Demonstrate the **CSS box model** using content area, padding, border, and margin with a student information example.

Source Code

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Document</title>
<style>
.box{
    width: 250px;
    height: 100px;
    padding: 20px;
    border: 5px solid black;
    margin: 20px;
    background-color: rgb(58, 227, 211);
    color: rgb(159, 8, 59);
    font-weight: bold;
}
.info{
    font-family: Arial, Helvetica, sans-serif;
    background-color: brown;
    padding: 20px;
    margin: 20px 0;
    border: 2px dashed gray;
}
</style>
</head>
<body>
<h2>Student Information CSS Box Model Demonstration</h2>
<div class="info">
    <p><b>Student Database:</b></p>
    <ul>
        <li>Contact - Student Name : Mr. John William</li>
        <li>Percentage - 90%</li>
        <li>Branch : MCA</li>
        <li>University - MITWPU</li>
    </ul>
</div>
<div class="box">
    This is the Student CONTENT AREA.<br>
    (250px  100px)<br>
</div>
</body>
</html>
```

Output


Welcome Zaid
Student Information CSS Box Model Demonstration
Student Database:
Contact - Student Name : Mr. John William
Percentage - 90%
Branch : MCA
University - MITWPU
This is the Student CONTENT AREA.
(250px × 100px)

Assignment 08 – Pseudo Class Hover and Bootstrap Buttons

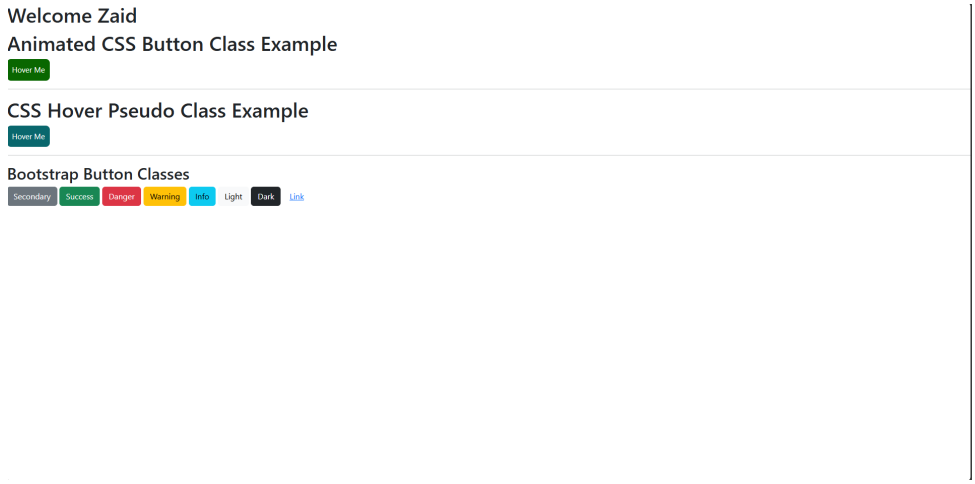
Aim: Create a web page demonstrating **CSS pseudo-class :hover** effects and use **Bootstrap button classes** for styled buttons.

Source Code

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>This is pseudo class CSS hover effect and bootstrap buttons</title>

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.
    css" rel="stylesheet">

<style>
/* Basic Button Class */
.btn-class{
    background-color: rgb(9, 103, 0);
    color: white;
    padding: 10px;
    border: 0;
    border-radius: 8px;
    font-size: 15px;
}
/* Hover Button */
.btn-hover{
    background-color: rgb(9, 103, 109);
    color: white;
    padding: 10px;
    border: 0;
    border-radius: 8px;
    font-size: 15px;
}
/* Hover Animation */
.btn-hover:hover{
    background-color: rgb(127, 196, 121);
    transform: scale(1.1);
    transition: 0.4s;
}
/* General Button Styling */
.btnf{
    display: inline-flex;
    padding: 10px;
    transition: all 0.5s ease;
    cursor: pointer;
}
```

```
/* Hover Translation Effect */
.btnf:hover{
    transform: translateX(5px);
    box-shadow: 0px 8px 15px rgba(0,0,0,0.2);
}
</style>
</head>
<body>
<h1>Animated CSS Button Class Example</h1>
<button class="btn btn-class">Hover Me</button>
<hr>
<h1>CSS Hover Pseudo Class Example</h1>
<button class="btn-hover">Hover Me</button>
<hr>
<h2>Bootstrap Button Classes</h2>
<button type="button" class="btn btn-secondary">Secondary</button>
<button type="button" class="btn btn-success">Success</button>
<button type="button" class="btn btn-danger">Danger</button>
<button type="button" class="btn btn-warning">Warning</button>
<button type="button" class="btn btn-info">Info</button>
<button type="button" class="btn btn-light">Light</button>
<button type="button" class="btn btn-dark">Dark</button>
<button type="button" class="btn btn-link">Link</button>
</body>
</html>
```

Output



Assignment 09 – CSS 2D Transform & Attribute Selectors

Aim: Create a web page demonstrating **CSS 2D transform** effects (rotate, translate, scale, skew, combination) and another page demonstrating different **CSS attribute selectors**.

Source Code – CSS 2D Transform Demo

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>CSS 2D Transform Demo</title>

<style>
body{
    font-family: 'Gill Sans', 'Gill Sans MT', Calibri, 'Trebuchet MS', sans-
        serif;
    background: #d0d6ce; /* light beige background */
    padding: 40px;
    margin: 0;
    color: #4a3e2e; /* dark brown text */
}

h2, p{
    text-align: center;
}

.container{
    display: flex;
    flex-wrap: wrap;
    gap: 15px;
    justify-content: center;
    align-items: center;
    margin-top: 40px;
}

.box{
    width: 140px;
    height: 140px;
    background: #8edbaa; /* soft terracotta */
    border: 2px solid #4b2e2e; /* dark brown border */
    display: flex;
    justify-content: center;
    align-items: center;
    font-weight: bold;
    font-size: 1.1em;
    color: #4b2e2e;
```

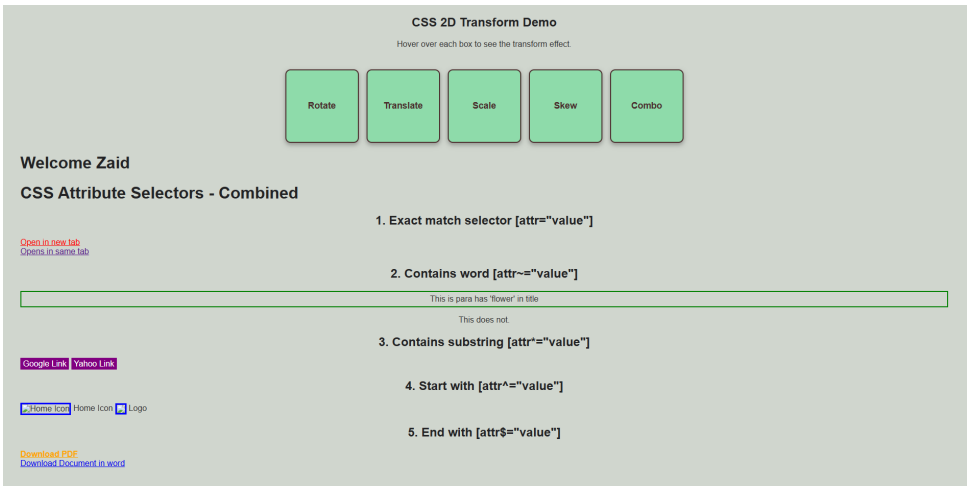
```
    border-radius: 10px;
    box-shadow: 0px 4px 9px rgba(0,0,0,0.3);
    transition: transform 0.5s ease-in-out;
}

/* Rotate */
.rotate:hover{
    transform: rotate(15deg);
}

/* Translate */
.translate:hover{
    transform: translate(15px, 25px);
}

/* Scale */
.scale:hover{
    transform: scale(1.3);
}

/* Skew */
.skew:hover{
    transform: skew(5deg, 3deg);
}

/* Combo  combination of multiple transforms */
.combo:hover{
    transform: rotate(10deg) scale(1.2) translate(10px, 20px);
}
</style>
</head>

<body>

<h2>CSS 2D Transform Demo</h2>
<p>Hover over each box to see the transform effect.</p>

<div class="container">
    <div class="box rotate">Rotate</div>
    <div class="box translate">Translate</div>
    <div class="box scale">Scale</div>
    <div class="box skew">Skew</div>
    <div class="box combo">Combo</div>
</div>

</body>
</html>
```

Source Code – CSS Attribute Selectors Demo

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8" />
<meta name="viewport" content="width=device-width, initial-scale=1.0" />
<title>CSS Attribute Selectors Demo</title>

<style>
body{
    font-family: sans-serif;
    color: #333;
}

h1, h2{
    color: rgb(34,34,36);
}

/* 1. Exact match selector [attr="value"] */
a[target="_blank"]{
    color: red;
}

/* 2. Contains word selector [attr~="value"] */
p[title~="flower"]{
    border: 2px solid green;
    padding: 5px;
}

/* 3. Contains substring selector [attr*="value"] */
a[class*="link"]{
    background-color: purple;
    color: white;
    padding: 3px 5px;
    text-decoration: none;
}

/* 4. Starts with selector [attr^="value"] */
img[src^="pi"]{
    border: 3px solid blue;
    vertical-align: middle;
}

/* 5. Ends with selector [attr$=".pdf"] */
a[href$=".pdf"]{
    color: orange;
    font-weight: bold;
}
</style>
</head>

<body>
```

```
<h1>Welcome Zaid </h1>
<h1>CSS Attribute Selectors - Combined</h1>

<h2>1. Exact match selector [attr="value"]</h2>
<a href="#" target="_blank">Open in new tab</a>
<br>
<a href="#">Opens in same tab</a>

<h2>2. Contains word [attr~="value"]</h2>
<p title="This is a beautiful flower paragraph">This is para has 'flower' in
    title</p>
<p>This does not.</p>

<h2>3. Contains substring [attr*="value"]</h2>
<a href="#" class="google-link">Google Link</a>
<a href="#" class="yahoo-link">Yahoo Link</a>

<h2>4. Start with [attr^="value"]</h2>
<img src="pi.png" alt="Home Icon" width="20"> Home Icon
<img src="pione.png" width="20"> Logo

<h2>5. End with [attr$="value"]</h2>
<a href="files/document.pdf">Download PDF</a>
<br>
<a href="files/document.docx">Download Document in word</a>

</body>
</html>
```

Output



Assignment 10 – JavaScript Events Demo

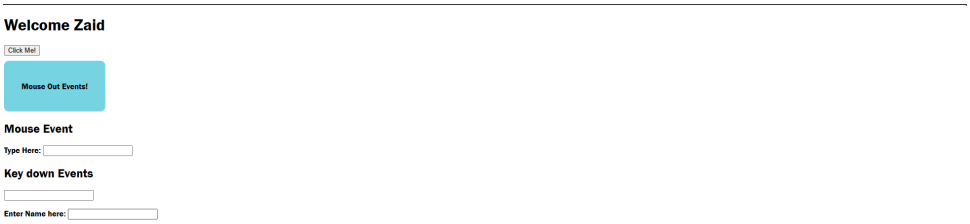
Aim: Create a page demonstrating different **JavaScript events** like click, mouseover, mouseout, keyup, keydown, and form events.

Source Code

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>JavaScript Events</title>

<style>
body {
    font-family: "Franklin Gothic Medium", "Arial Narrow", Arial, sans-serif;
}

.Mouse-Events{
    background-color: rgb(118, 211, 226);
    width: 200px;
    height: 100px;
    text-align: center;
    margin-top: 10px;
    border-radius: 10px;
    transition: 0.3s ease;
    line-height: 100px;
}
</style>
</head>

<body>

<button type="button" id="Event1" onclick="info()">Click Me!</button>

<div class="Mouse-Events"
     onmouseover="chngClr(this)"
     onmouseout="rstClr(this)">
    Mouse Out Events!
</div>

<h2>Mouse Event</h2>
Type Here:
<input type="text" id="textInput" onkeyup="keyPress(event)">
<p id="keyMsg"></p>

<h2>Key down Events</h2>
<input type="text" id="keydown" onkeydown="keydown(event)">
<p id="keyMsg1"></p>
```

```
<form onclick="show(event)">
    Enter Name here:
    <input type="text" id="txt1"><br>
    <label id="lb1"></label>
</form>

<script>
// CLICK EVENT
function info() {
    document.getElementById("Event1").innerHTML =
        "Hello!! Welcome to click events";
}

// MOUSEOVER EVENT
function chngClr(ele) {
    ele.style.backgroundColor = "bisque";
    ele.innerHTML = "Mouse Over Events!";
}

// MOUSEOUT EVENT
function rstClr(ele) {
    ele.style.backgroundColor = "teal";
    ele.innerHTML = "Mouse Out Events!";
}

// KEYPRESS EVENT
function keyPress(event) {
    let name = document.getElementById("textInput").value;
    document.getElementById("keyMsg").innerHTML = "Hello " + name + " !";
}

// KEYDOWN EVENT
function keydown(event) {
    let input = event.target;
    document.getElementById("keyMsg1").innerHTML =
        "Key Pressed : " + input.value.length;
}

// FORM CLICK EVENT
function show(event) {
    let name = document.getElementById("txt1").value;
    document.getElementById("lb1").innerHTML = "name is " + name;
}
</script>

</body>
</html>
```

Output


Welcome Zaid
Click Me!
Mouse Out Events!
Mouse Event
Type Here:
Key down Events
Enter Name here:

Assignment 11 – JavaScript Strings

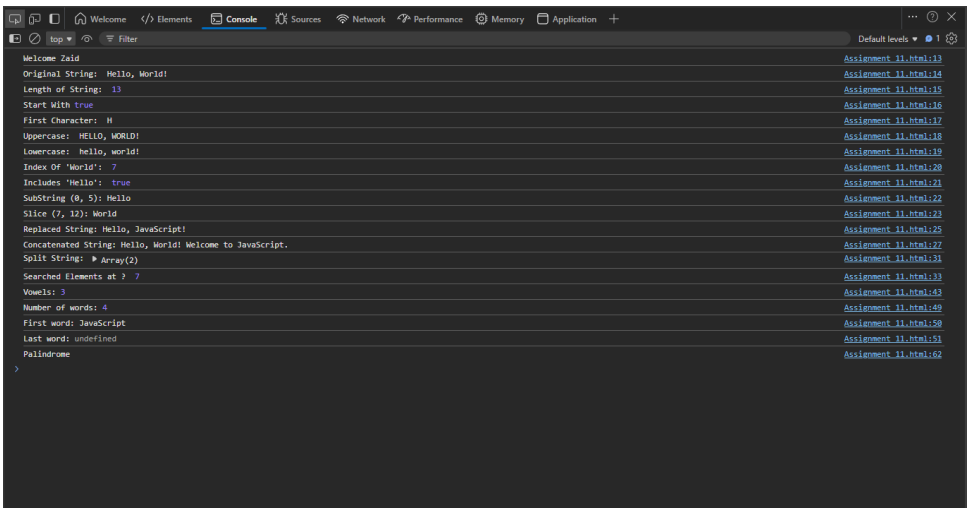
Aim: Write a JavaScript program to demonstrate various **string methods**, count vowels, count words in a sentence and check for **palindrome**.

Source Code

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<title>JavaScript Strings</title>
</head>
<body>

<script>
let str = "Hello, World!";
let string1 = "JavaScript is OOP language";
let cnt = 0;

console.log("Original String: ", str);
console.log("Length of String: ", str.length);
console.log("Start With", str.startsWith("Hello"));
console.log("First Character: ", str[0]);
console.log("Uppercase: ", str.toUpperCase());
console.log("Lowercase: ", str.toLowerCase());
console.log("Index Of 'World': ", str.indexOf("World"));
console.log("Includes 'Hello': ", str.includes("Hello"));
console.log("SubString (0, 5):", str.substring(0, 5));
console.log("Slice (7, 12):", str.slice(7, 12));

console.log("Replaced String:", str.replace("World", "JavaScript"));

console.log("Concatenated String:",
    str.concat(" Welcome to JavaScript.")
);

console.log("Split String:", str.split(", "));

console.log("Searched Elements at ? ",
    str.search("World")
);

// Count vowels
for (let char of str) {
    if ("aeiou".includes(char.toLowerCase())) {
        cnt += 1;
    }
}
console.log("Vowels:", cnt);
```

```
// Count words in second string
let wrd = string1.split(" ");
let wcnt = wrd.length;

console.log("Number of words:", wcnt);
console.log("First word:", wrd[0]);
console.log("Last word:", wrd[4]);

// Palindrome
let pstr = "wow";
let rev = "";

for (let i = pstr.length - 1; i >= 0; i--) {
    rev += pstr[i];
}

if (pstr === rev) {
    console.log("Palindrome");
} else {
    console.log("Not Palindrome");
}
</script>

</body>
</html>
```

Output



Assignment 12 – JavaScript Conditional Statements

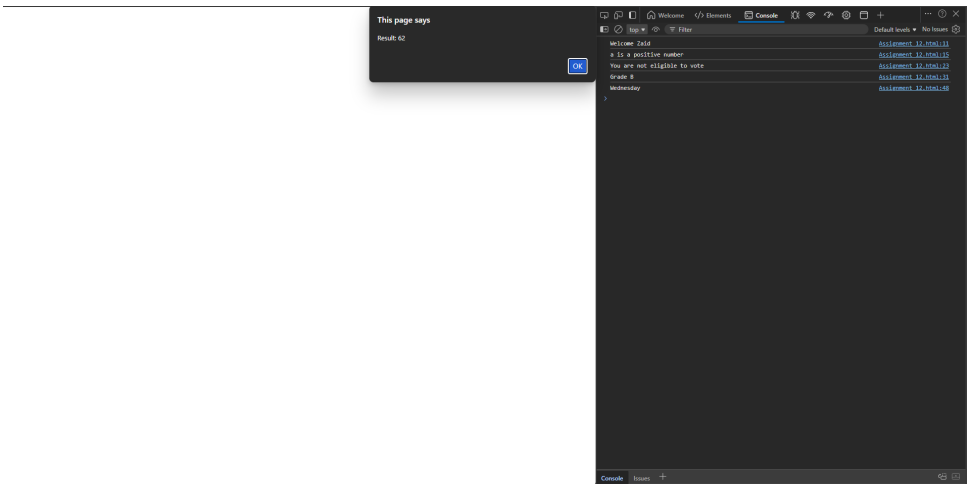
Aim: Demonstrate **if**, **if–else**, **if–else if–else**, **switch** statements and a simple calculator using **conditional statements**.

Source Code

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8" />
<meta name="viewport" content="width=device-width, initial-scale=1.0" />
<title>JavaScript Conditional Statements</title>
</head>
<body>

<script>
// 1. If Statement
let a = 10;
if (a > 0) {
    console.log("a is a positive number");
}

// 2. IfElse Statement
let age = 15;
if (age >= 18) {
    console.log("You are eligible to vote");
} else {
    console.log("You are not eligible to vote");
}

// 3. IfElse IfElse Statement
let marks = 85;
if (marks >= 90) {
    console.log("Grade A");
} else if (marks >= 75) {
    console.log("Grade B");
} else if (marks >= 50) {
    console.log("Grade C");
} else {
    console.log("Grade F");
}

// 4. Switch Statement
let day = 3;
switch (day) {
    case 1:
        console.log("Monday");
        break;
    case 2:
        console.log("Tuesday");
```

```
        break;
    case 3:
        console.log("Wednesday");
        break;
    case 4:
        console.log("Thursday");
        break;
    case 5:
        console.log("Friday");
        break;
    case 6:
        console.log("Saturday");
        break;
    case 7:
        console.log("Sunday");
        break;
    default:
        console.log("Invalid day");
}

// 5. Simple Calculator using Conditional Statements
let num1 = parseFloat(prompt("Enter the first number:"));
let operator = prompt("Enter operator (+, -, *, /)");
let num2 = parseFloat(prompt("Enter the second number:"));
let result;

if (operator === "+") {
    result = num1 + num2;
} else if (operator === "-") {
    result = num1 - num2;
} else if (operator === "*") {
    result = num1 * num2;
} else if (operator === "/") {
    if (num2 === 0) {
        result = "Error: Division by zero is not allowed.";
    } else {
        result = num1 / num2;
    }
} else {
    result = "Invalid operator!";
}

alert("Result: " + result);
console.log("Result: " + result);
</script>

</body>
</html>
```

Output


This page says
Result: 62
OK
Welcome Zaid
a is a positive number
You are not eligible to vote
Grade B
Wednesday

Assignment 13 – JavaScript Arrays

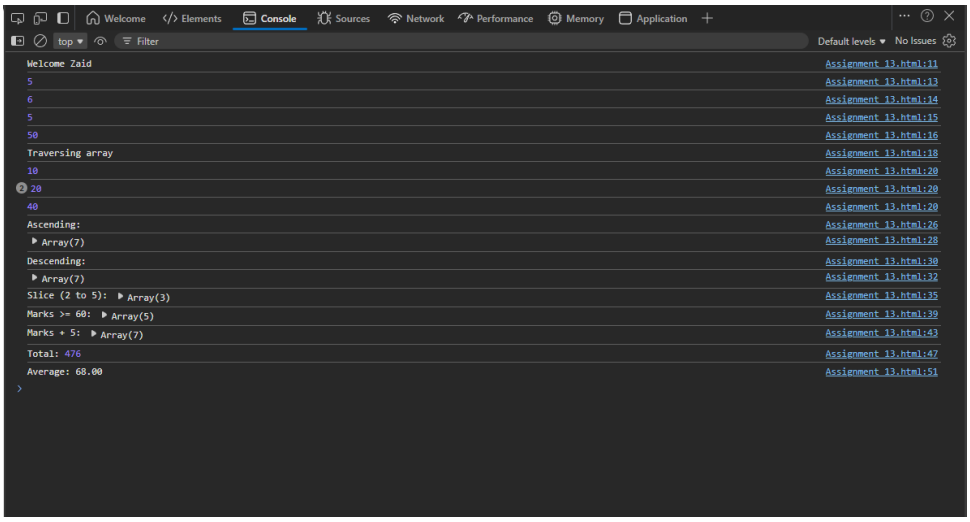
Aim: Write a JavaScript program to demonstrate **array operations** such as push, pop, shift, unshift, traversing, sorting, slice, filter, map, reduce and average.

Source Code

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8" />
<meta name="viewport" content="width=device-width, initial-scale=1.0" />
<title>JavaScript Array</title>
</head>
<body>

<script>
let nums = [10, 20, 20, 40];
console.log(nums.push(50)); // push
console.log(nums.unshift(5)); // unshift
console.log(nums.shift()); // shift
console.log(nums.pop()); // pop

console.log("Traversing array");
for (let i = 0; i < nums.length; i++) {
    console.log(nums[i]);
}

// Sorting Example
let marks = [74, 70, 23, 59, 67, 88, 95];

console.log("Ascending:");
marks.sort((a, b) => a - b);
console.log(marks);

console.log("Descending:");
marks.sort((a, b) => b - a);
console.log(marks);

// Slice (2 to 5)
console.log("Slice (2 to 5):", marks.slice(2, 5));

// Filter marks >= 60
let passed = marks.filter(m => m >= 60);
console.log("Marks >= 60:", passed);

// Map  Add 5 to each marks
let newMarks = marks.map(m => m + 5);
console.log("Marks + 5:", newMarks);

// Reduce  sum
```

```
let total = marks.reduce((sum, m) => sum + m, 0);
console.log("Total:", total);

// Average
let avg = total / marks.length;
console.log("Average:", avg.toFixed(2));
</script>

</body>
</html>
```

Output



Assignment 14 – JavaScript Functions & Objects

Aim: (a) Demonstrate JavaScript **functions** for total, average, and grade calculation. (b) Demonstrate JavaScript **objects**, nested objects, array of objects, methods, and property manipulation.

Source Code – Part A: JavaScript Functions

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8" />
<meta name="viewport" content="width=device-width, initial-scale=1.0" />
<title>JavaScript Functions</title>
</head>
<body>
<h1>Welcome Zaid </h1>
<script>
const marks = [85, 92, 78];


const Total = (arr) => arr.reduce((sum, m) => sum + m, 0);


const Avg = (arr) => Total(arr) / arr.length;


const Grade = (avg) => {
    if (avg >= 90)
        return "A";
    else if (avg >= 75)
        return "B";
    else if (avg >= 60)
        return "C";
    else
        return "D";
};

let total = Total(marks);
let avg = Avg(marks);
let grade = Grade(avg);

console.log("Marks:", marks);
console.log("Total:", total);
console.log("Average:", avg.toFixed(2));
console.log("Grade:", grade);
</script>

</body>
</html>
```

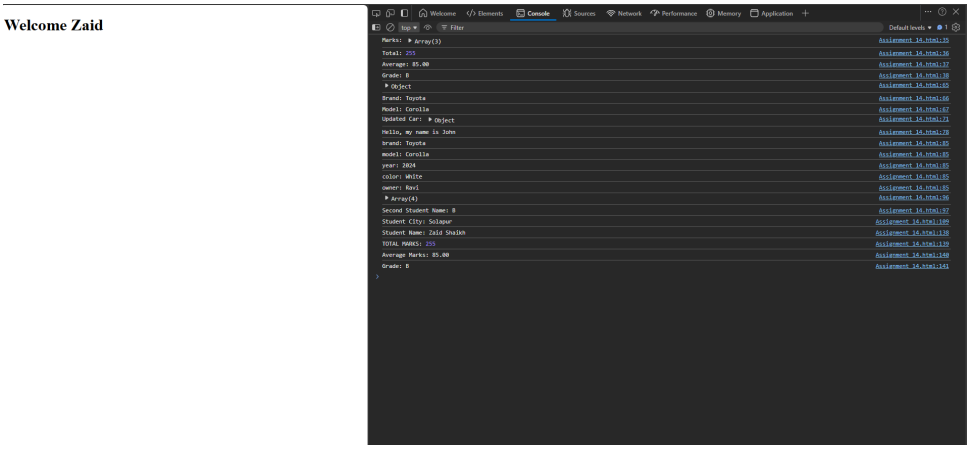
Source Code – Part B: JavaScript Objects and Methods

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>Document</title>
</head>
<body>

<script>

let car = {
    brand: "Toyota",
    model: "Corolla",
    year: 2021,
    color: "White"
};

console.log(car);
console.log("Brand:", car.brand);
console.log("Model:", car["model"]);

car.owner = "Ravi";
car.year = 2024;
console.log("Updated Car:", car);


let person = {
    name: "John",
    age: 22,
    greet: function () {
        console.log("Hello, my name is " + this.name);
    }
};

person.greet();

for (let key in car) {
    console.log(key + ": " + car[key]);
}


let students = [
    { name: "A", age: 18, grade: "A" },
    { name: "B", age: 19, grade: "A" },
    { name: "C", age: 17, grade: "B" },
    { name: "D", age: 20, grade: "C" }
];
```

```
console.log(students);
console.log("Second Student Name:", students[1].name);


let employee = {
    name: "Zaid Vedi",
    address: {
        city: "Solapur",
        country: "India"
    },
    position: "Student"
};

console.log("Student City:", employee.address.city);

let student = {
    name: "Zaid Shaikh",
    rollNo: 12,
    marks: {
        english: 85,
        math: 90,
        science: 80
    },

    totalMarks: function () {
        return this.marks.english + this.marks.math + this.marks.science;
    },

    avgMarks: function () {
        return this.totalMarks() / 3;
    },

    calGrade: function () {
        let avg = this.avgMarks();
        if (avg >= 90) return "A";
        else if (avg >= 75) return "B";
        else if (avg >= 60) return "C";
        else return "D";
    },

    display: function () {
        console.log("Student Name:", this.name);
        console.log("TOTAL MARKS:", this.totalMarks());
        console.log("Average Marks:", this.avgMarks().toFixed(2));
        console.log("Grade:", this.calGrade());
    }
};

student.display();
</script>
```

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

Output



Assignment 15 – JavaScript DOM Selectors

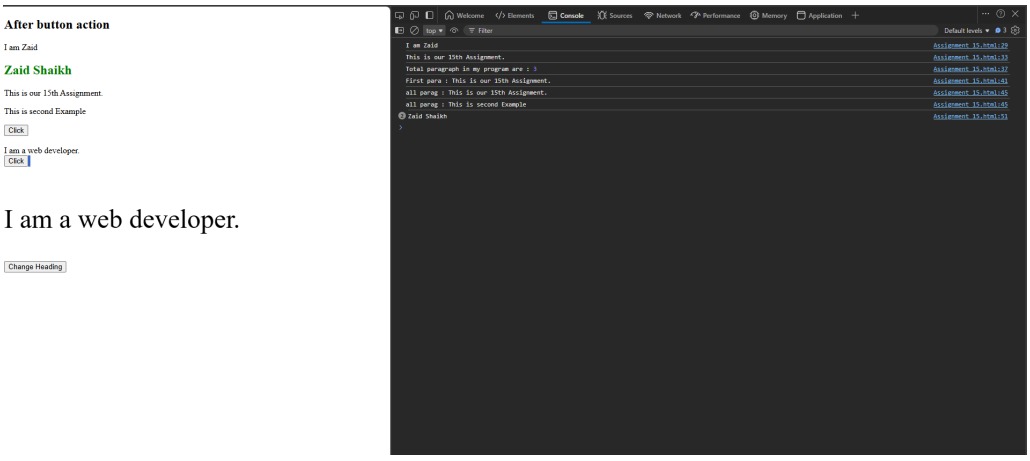
Aim: Demonstrate different **DOM selectors** in JavaScript.

Source Code

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<title>DOM Selector</title>
</head>

<body>

<h2 id="btn">Before button action</h2>
<h2 id="mainTitl">Dom selector Example</h2>
<h2 id="call">Zaid Shaikh</h2>
<p class="info">This is our 15th Assignment.</p>
<p class="info">This is second Example</p>

<button id="change">Click</button><br><br>

<label id="label">I am a web developer.</label><br>
<button id="click">Click</button><br><br>

<p id="demo"></p>

<button id="heading">Change Heading</button>

<script>

let a = document.getElementById("mainTitl");
console.log(a.outerText = "I am Zaid");

let par = document.getElementsByClassName("info");
console.log(par[0].innerText);

let tagName = document.getElementsByTagName("p");
console.log("Total paragraph in my program are :", tagName.length);

let firstPara = document.querySelector(".info");
console.log("First para :", firstPara.innerText);


let allInfo = document.querySelectorAll(".info");
allInfo.forEach(p => console.log("all parag :", p.innerText));


let b = document.getElementById("call");
```

```
document.getElementById("change").addEventListener("click", function () {
    console.log(b.innerText = "Zaid Shaikh");
    b.style.color = "green";
});

let label = document.getElementById("label");
let p = document.getElementById("demo");
document.getElementById("click").addEventListener("click", function () {
    p.innerText = label.innerText;
    p.style.fontSize = "50px";
});

let btn = document.getElementById("btn");

document.getElementById("heading").addEventListener("click", function () {
    btn.innerText = "After button action";
});
</script>

</body>
</html>
```

Output



Assignment 16 – React Application

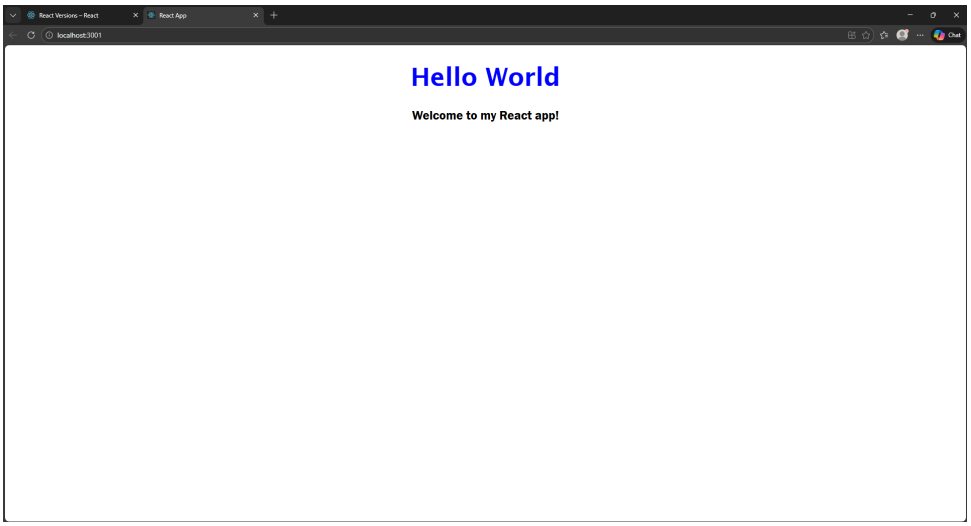
Aim: Create React Application

Program 1 – React Hello World Component

Source Code

```
import React from "react";

function App() {
  return (
    <div>
      <h1 style={{color:"blue"}}>Hello World</h1>
      <p>Welcome to my React app!</p>
    </div>
  );
}

export default App;
```

Output

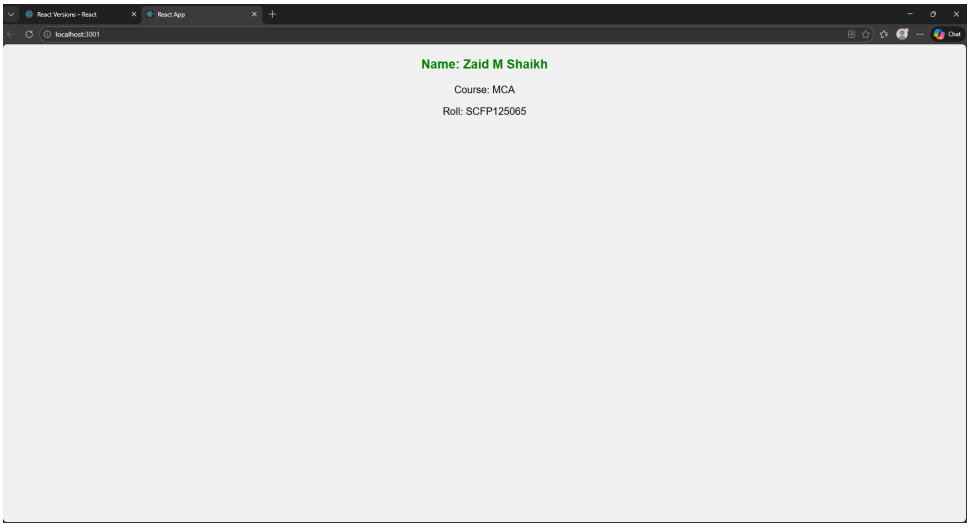


Program 2 – Display Student Information Using Props

Source Code

```
import React from "react";

function StudentInfo() {
  return (
    <div style={{textAlign:"center"}}>
      <h2 style={{color:"green"}}>Name: Zaid M Shaikh</h2>
      <p>Course: MCA</p>
      <p>Ref: SCFP125065</p>
    </div>
  );
}

export default function App() {
  return (
    <>
      <StudentInfo />
    </>
  );
}
```

Output

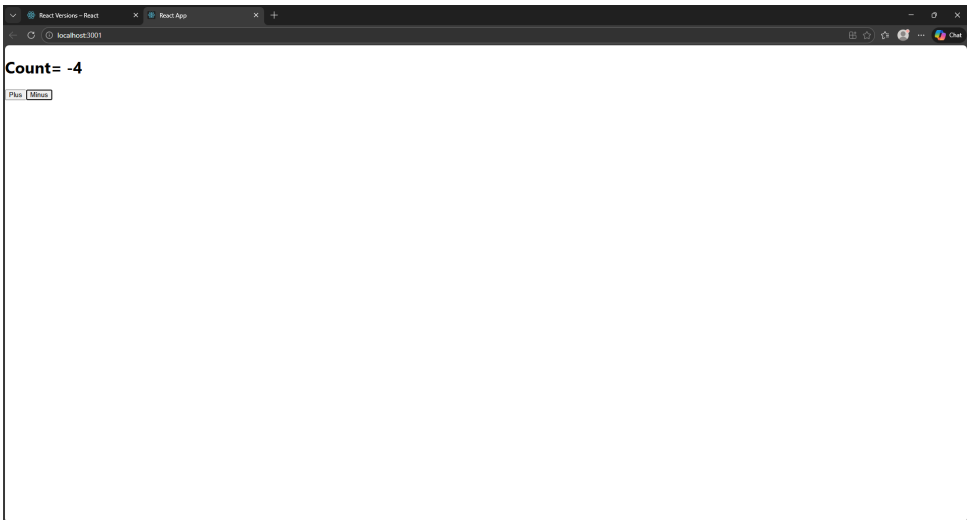


Program 3 – React Counter App

Source Code

```
import React, { useState } from "react";

export default function App() {
  const [count, setCount] = useState(0);

  return (
    <>
      <h1>Count = {count}</h1>

      <button onClick={() => setCount(count + 1)}>Inc</button>
      <button onClick={() => setCount(count - 1)}>Dec</button>
    </>
  );
}
```

Output

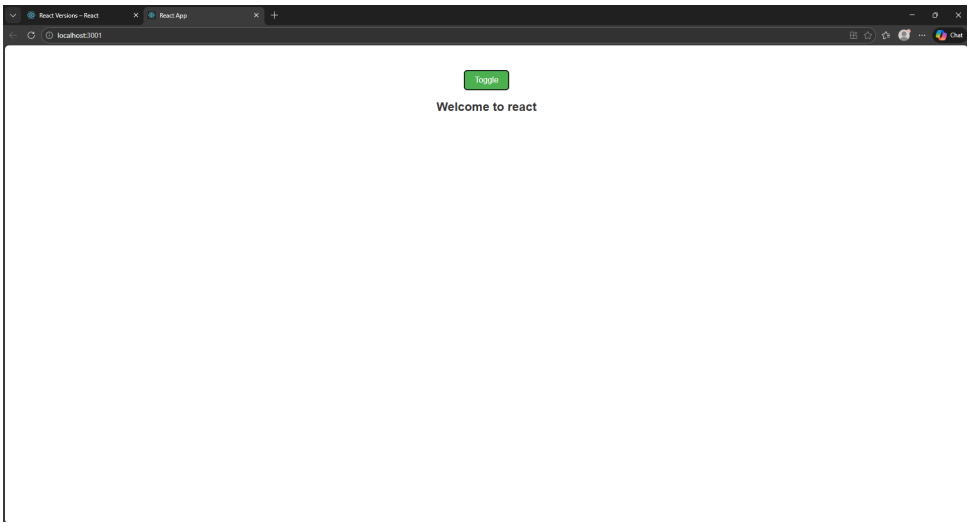


Program 4 – React Toggle Message

Source Code

```
import React, { useState } from "react";

export default function App() {
  const [show, setShow] = useState(false);

  return (
    <>
      <button style={{background:"green", color:"white"}}
              onClick={() => setShow(!show)}>
        Toggle
      </button>

      {show && <h2>Welcome to react</h2>}
    </>
  );
}
```

Output



Program 5 – React Array Map Example

Source Code

```
import React from "react";

export default function App() {
  let arr = [1, 2, 3, 4];

  return (
    <div>
      {arr.map((n) => (
        <h3>{n * 2}</h3>
      ))}
    </div>
  );
}
```

Output