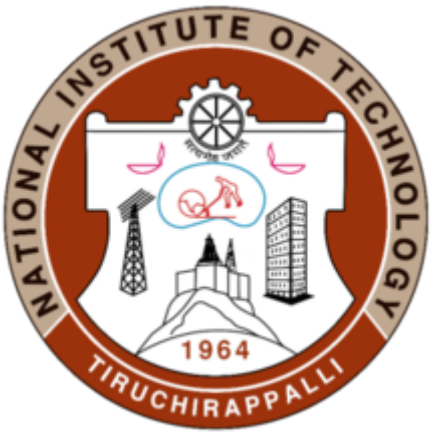
National Institute of Technology, Tiruchirappalli



Department of Computer Applications

Web Technology and its Applications Lab

Lab 4

Submitted to:

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Submitted by:

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205120007

MCA – 2nd Year

1. Write a JavaScript to design a simple calculator to perform the following operations: sum, product, difference and quotient.

- **index.html**

```
<!DOCTYPE html>

<html>

<head>

    <title>Calculator</title>

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

</head>

<body>



    <div id="calculator">

        <h1>Calculator</h1>

        <div id="display-container">

            <p id="display"> </p>

        </div>

        <div id="buttons-container">

            <div class="button" id="button-clear" data-value="ac">

                <span>AC</span>

            </div>

            <div class="button" id="button-sign" data-value="sign">

                <span>+/-</span>

            </div>

            <div class="button red" data-value="/" id="button-divide">

                <span> / </span>
```

```
            </div>
            <div class="button" id="button-seven" data-value="7">
                <span>7</span>
            </div>
            <div class="button" id="button-eight" data-value="8">
                <span>8</span>
            </div>
            <div class="button" id="button-nine" data-value="9">
                <span>9</span>
            </div>
            <div class="button red" id="button-multiply"
data-value="*">
                <span>*</span>
            </div>
            <div class="button" id="button-four" data-value="4">
                <span>4</span>
            </div>
            <div class="button" id="button-five" data-value="5">
                <span>5</span>
            </div>
            <div class="button" id="button-six" data-value="6">
                <span>6</span>
            </div>
            <div class="button red" id="button-minus" data-value="-">
                <span>-</span>
```

```
            </div>
            <div class="button" id="button-one" data-value="1">
                <span> 1 </span>
            </div>
            <div class="button" id="button-two" data-value="2">
                <span> 2 </span>
            </div>
            <div class="button" id="button-three" data-value="3">
                <span> 3 </span>
            </div>
            <div class="button red" id="button-plus" data-value="+">
                <span> + </span>
            </div>
            <div class="button" id="button-zero" data-value="0">
                <span> 0 </span>
            </div>
            <div class="button" id="button-decimal" data-value=".">
                <span> . </span>
            </div>
            <div class="button red" id="button-equals" data-value="=">
                <span> = </span>
            </div>
        </div>
    </div>
    <script src="script.js">
```

```
    </script>

</body>

<html>
```

- **style.css**

```
*{

    box-sizing: border-box;

}



#calculator{

    width: 45%;

    height: 80%;

    min-width: 300px;

    min-height: 400px;

    background-color: lightgrey;

    margin: auto;

    margin-top: 80px;

    border: 2px solid lightgray;

    border-radius: 5px;

    padding: 10px;

}



#calculator h1{

    background-color: black;

    color: white;
```

```
    text-transform: uppercase;
    text-align: center;
    padding: 10px;
}

#display-container{
   font-size: 2.8rem;
   display: flex;
   align-items: flex-end;
   justify-content: flex-end;
   color: #7f6cfc;
   width: 100%;
   height: 20%;
   min-height: 100px;
   border-radius: 5px;
   background-color: whitesmoke;
   margin-bottom: 10px;
}

#display-container p{
    margin: 0.5rem;
    vertical-align: text-bottom;
}

#buttons-container{
```

```
    width: 100%;
    height: 60%;
    border: 1px solid lightgray;
    border-radius: 5px;
    background-color: lightgrey;
    display: flex;
    flex-flow: row wrap;
    justify-content: space-around;
}

.button{
    width: 25%;
    height: 20%;
    display: flex;
    align-items: center;
    justify-content: center;
    border: 1px solid lightgrey;
    background-color: white;
    font-size: 1.8rem;
}

.button:hover {
    background-color: #ffc877;
}
```

```
.red{

    background-color: #c14444;

    color: white;

}



#button-zero, #button-clear{

    width: 50%;

}
```

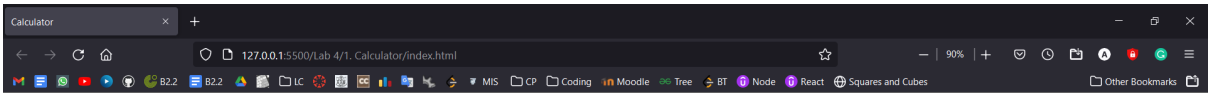
- **script.js**

```
var buttons = document.getElementsByClassName("button");

var display = document.getElementById("display");



var operand1 = 0;

var operand2 = null;

var operator = null;



function isOperator(value) {

    return value == "+" || value == "-" || value == "*" || value ==
"/";

}



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

    buttons[i].addEventListener('click', function () {



        var value = this.getAttribute('data-value');
```

```
        var text = display.textContent.trim();


        if (isOperator(value)) {
            operator = value;
            operand1 = parseFloat(text);
            display.textContent = "";
        }
        else if (value == "ac") {
            display.textContent = "";
        }
        else if (value == "sign") {
            operand1 = parseFloat(text);
            operand1 = -1 * operand1;
            display.textContent = operand1;
        }
        else if (value == ".") {
            if (text.length && !text.includes('.')) {
                display.textContent = text + '.';
            }
        }
        else if (value == "=") {
            operand2 = parseFloat(text);
            var result = eval(operand1 + ' ' + operator + ' ' +
operand2);
            if (result) {
```

```
                display.textContent = result;

                operand1 = result;

                operand2 = null;

                operator = null;

            }

        }

        else {

            display.textContent += value;

        }

    });

}
```

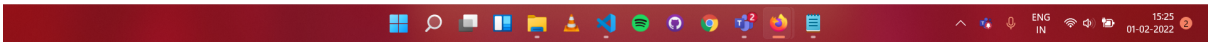
Eg1. 18 * 3 = 54

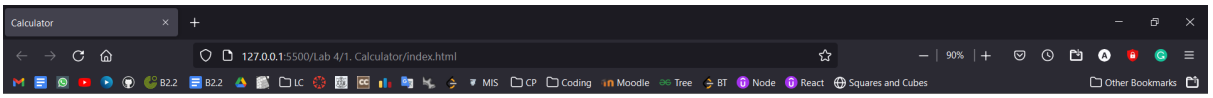


CALCULATOR

18

AC		+/-	/
7	8	9	*
4	5	6	-
1	2	3	+
0		.	=

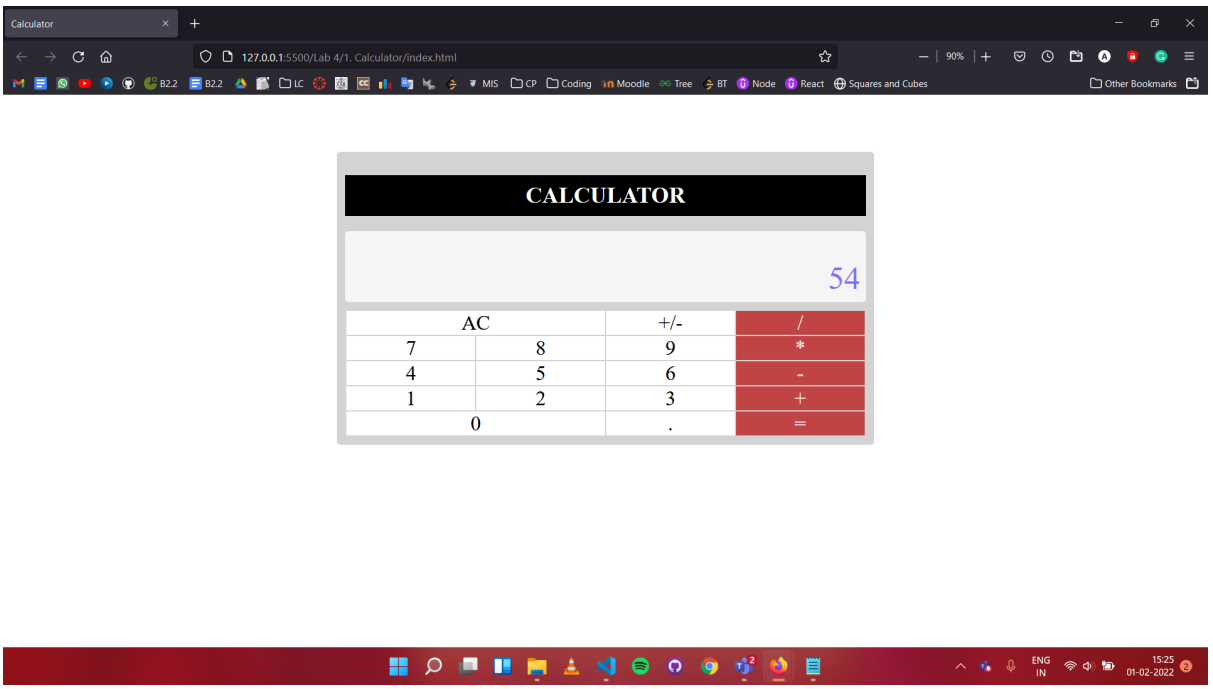




CALCULATOR

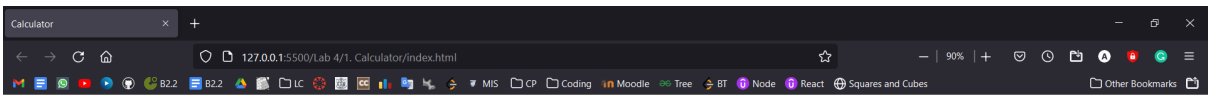
3

AC		+/-	/
7	8	9	*
4	5	6	-
1	2	3	+
0		.	=


Calculator
127.0.0.1:5500/Lab 4/1. Calculator/index.html
90%
MIS
CP
Coding
Moodle
Tree
BT
Node
React
Squares and Cubes
Other Bookmarks
CALCULATOR
54
AC
+/-
/
7
8
9
*
4
5
6
-
1
2
3
+
0
.
=

ENG
IN
15:25
01-02-2022

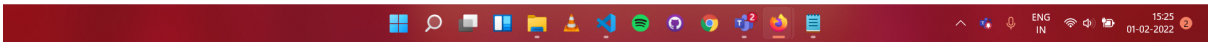
Eg2. 9 + 12 = 21

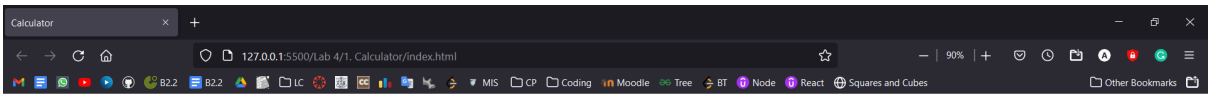


CALCULATOR

12

AC		+/-	/
7	8	9	*
4	5	6	-
1	2	3	+
0		.	=

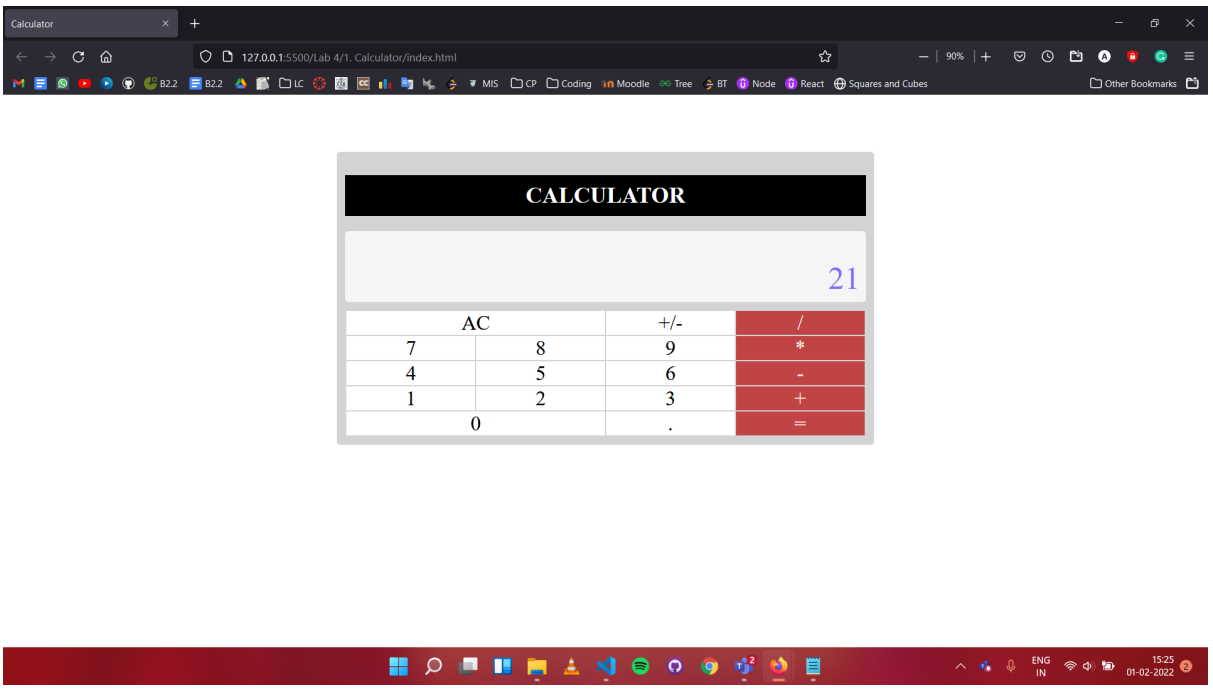




CALCULATOR

9

AC		+/-	/
7	8	9	*
4	5	6	-
1	2	3	+
0		.	=



---

2. Write a JavaScript that calculates the squares and cubes of the numbers from 0 to 10 and outputs HTML text that displays the resulting values in an HTML table format.

Sample Input : 5-5 o/p: Number:5 Square:25 Cube: 125 in table format.

```
<!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>Squares and Cubes</title>

    <style>

        table{

            border-collapse: collapse;
```

```
        }
        tr, td, th{
            border: 3px solid black;
            padding: 5px;
        }
    </style>
</head>
<body>
    <h2>Table of Squares and Cubes of Numbers from 1 to 10</h2>
    <table id="numTable">
        <tr>
            <th>Number</th>
            <th>Square</th>
            <th>Cube</th>
        </tr>
    </table>
</body>
<script>
    let table = document.getElementById("numTable");
    for(let i=1; i<=10; i++){
        let row = table.insertRow(i);
        let num = row.insertCell(0);
        let square = row.insertCell(1);
        let cube = row.insertCell(2);
        num.innerHTML = i;
```

```
        square.innerHTML = i*i;

        cube.innerHTML = i*i*i;

    }

</script>

</html>
```

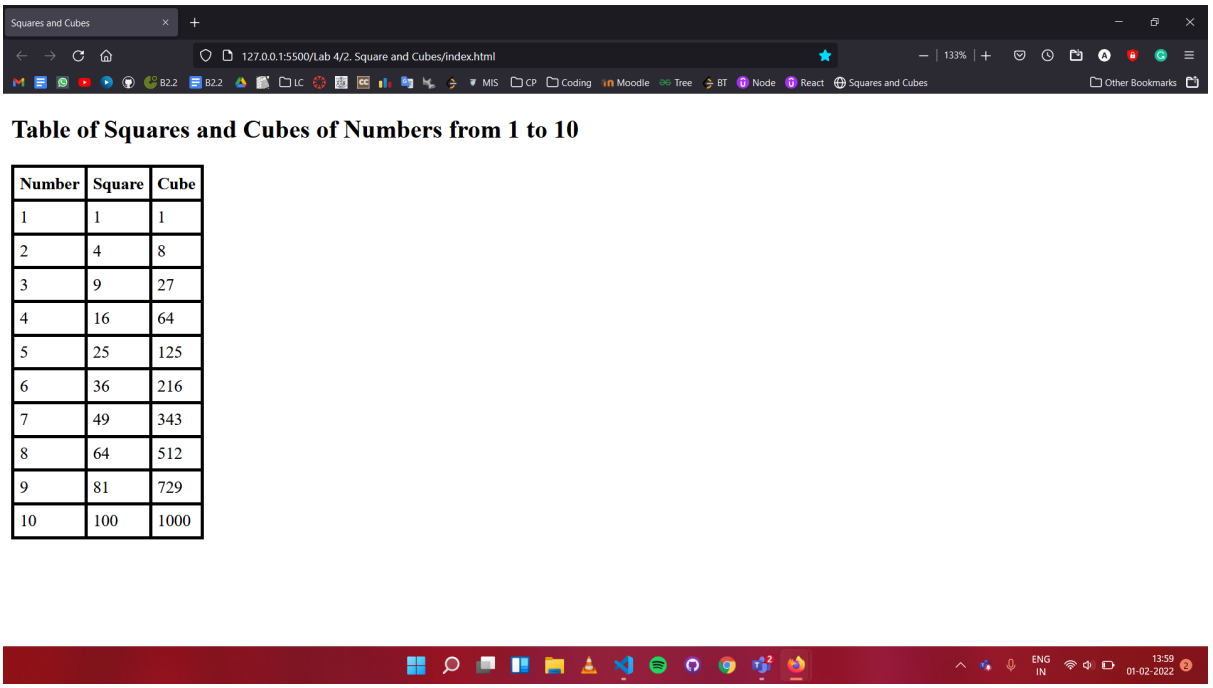


Table of Squares and Cubes of Numbers from 1 to 10

Number	Square	Cube
1	1	1
2	4	8
3	9	27
4	16	64
5	25	125
6	36	216
7	49	343
8	64	512
9	81	729
10	100	1000

---

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

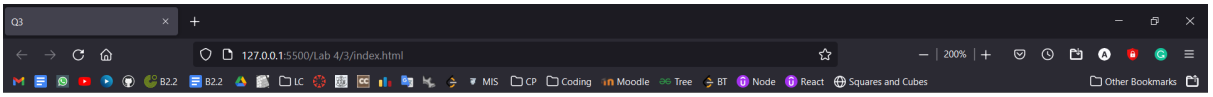
a. Parameter: A string, Output: The position in the string of the left-most vowel

b. Parameter: A number , Output: The number with its digits in the reverse order

```
<!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>Q3</title>

</head>

<body>



</body>

<script>

    function isVowel(ch){

        if(ch=='a' || ch=='e' || ch=='i' || ch=='o' || ch=='u' ||
ch=='A' || ch=='E' || ch=='I' || ch=='O' || ch=='U')

            return 1;

        return 0;

    }

    function positionOfLeftMostVowel(str){

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

            if(isVowel(str[i]))

                return i+1;

        }

        return "No vowel in the string";

    }

    function reverseDigit(num){

        let rev = 0;
```

```
        while(num){

            rev = rev*10 + num%10;

            num = Math.floor(num/10);

        }

        return rev;

    }

    let str = window.prompt("Enter a string: ");

    document.write(`The position of left-most vowel in string
\"${str}\" is: ${positionOfLeftMostVowel(str)}\n`);

    document.write("<br><br>");

    let num = parseInt(window.prompt("Enter a number: "));

    document.write(`The number ${num} with its digits in reverse order
is: ${reverseDigit(num)}`);

</script>

</html>
```



The position of left-most vowel in string "Who are you?" is: 3

The number 434621 with its digits in reverse order is: 126434

4. Validate the Registration, user login using JavaScript

- **Registration form:**

```
<!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>Registration Form with CSS</title>

    <style>

        *{

            font-family: 'Gill Sans', 'Gill Sans MT', Calibri,
'Trebuchet MS', sans-serif;

        }

        body{

            display: flex;

            justify-content: center;

            align-items: center;

            background-color: blanchedalmond;

            margin-left: 50px;

            margin-top: 50px;

        }

        form{

            padding: 20px 100px 20px 100px;
```

```
        background-color: #eec50f;
    }
    .radio-button{
        font-size: 20px;
        padding-top: 20px;
        padding-left: 20px;
    }
    h2{
        background-color: #0d771b;
        color: #fff;
        padding: 20px;
        font-size: 30px;
    }
    select{
        width: 100px;
        font-size: 20px;
        padding: 5px 10px 5px 10px;
    }
    .label{
        font-size: 20px;
        font-weight: bold;
    }
    .input-field, textarea{
        padding: 10px;
        margin-top: 10px;
```

```
            margin-bottom: 20px;
            height: 20px;
            width: 300px;
            background-color: #f8f8ff;
            border-radius: 1rem;
        }
        textarea{
            height: 150px;
        }
        #submit-button{
            width: 150px;
            padding: 15px;
            font-size: 20px;
            font-weight: 600;
            background: #0d771b;
            border: 2px solid black;
            color: #fff;
            border-radius: 2rem;
            transition-duration: 0.4s;
        }
        #submit-button:hover{
            background-color: rgb(14, 223, 101);
            color: #0d771b;
        }
    </style>
```

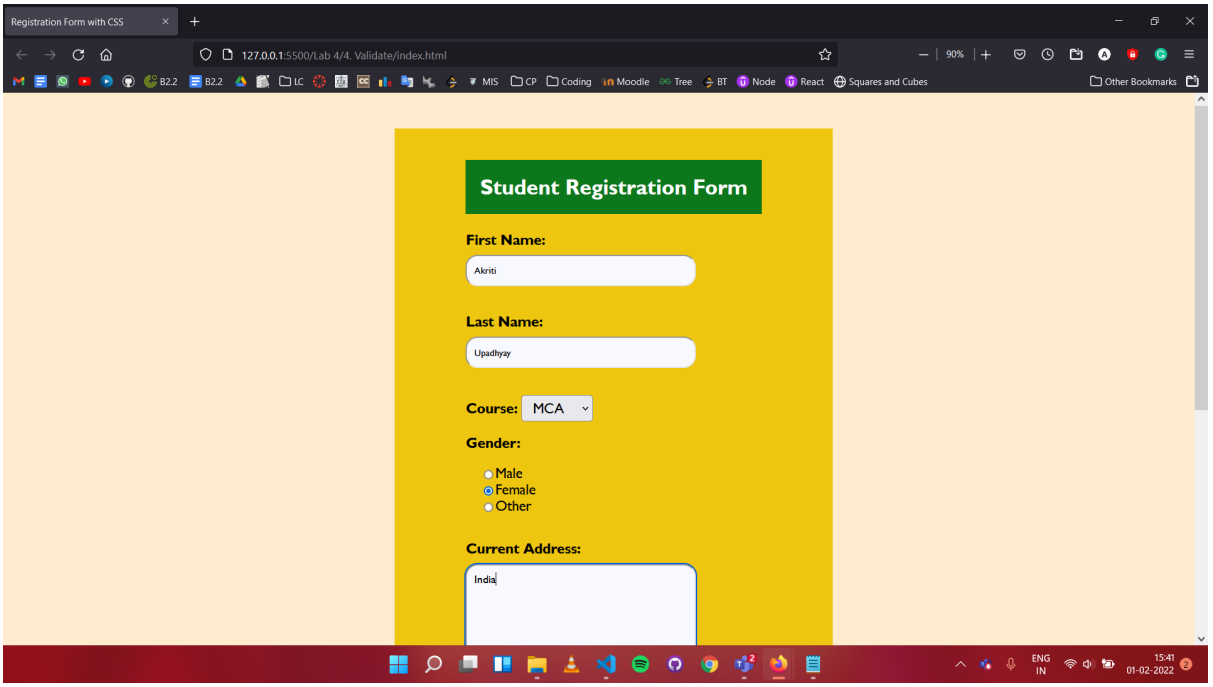
```
</head>

<body>

    <form action="#" name="reg_form" onsubmit="return validate()">

        <h2>Student Registration Form</h2>

        <label class="label" for="fname">First Name:</label><br>

        <input class="input-field" type="text" name="fname" id="fname"
placeholder="First Name">

        <br><br>

        <label class="label" for="lname">Last Name:</label><br>

        <input class="input-field" type="text" name="lname" id="lname"
placeholder="Last Name">

        <br><br>

        <label class="label" for="course">Course: </label>

        <select name="select" id="course">

            <option value="mca">MCA</option>

            <option value="msc">MSc</option>

            <option value="mtech">Mtech</option>

            <option value="btech">Btech</option>

        </select>

        <br><br>

        <label class="label" for="gender">Gender:</label><br>

        <div class="radio-button">

            <input type="radio" name="gender" id="gender" value="male"
checked>Male<br>

            <input type="radio" name="gender" id="gender"
value="female" checked>Female<br>
```

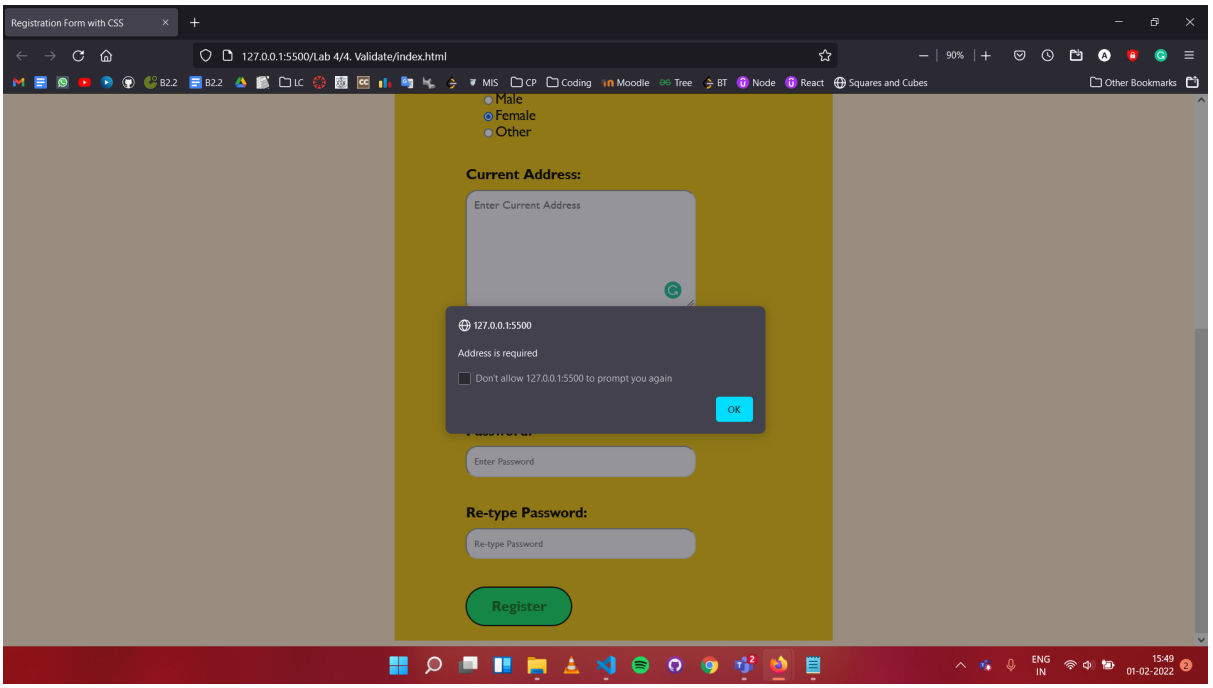
```
            <input type="radio" name="gender" id="gender" value="other"
checked>Other

        </div>

        <br><br>

        <label class="label" for="add">Current Address:</label><br>

        <textarea name="address" id="add" cols="30" rows="10"
placeholder="Enter Current Address"></textarea>

        <br><br>

        <label class="label" for="email">Email:</label><br>

        <input class="input-field" type="email" name="email" id="email"
placeholder="Enter Email">

        <br><br>

        <label class="label" for="pass">Password:</label><br>

        <input class="input-field" type="password" name="password"
id="pass" placeholder="Enter Password">

        <br><br>

        <label class="label" for="repass">Re-type Password:</label><br>

        <input class="input-field" type="password" name="repassword"
id="repass" placeholder="Re-type Password">

        <br><br>

        <button id="submit-button" type="submit">Register</button>

    </form>

</body>

<script>

    function validate() {

        var fname = document.reg_form.fname;

        var lname = document.reg_form.lname;
```

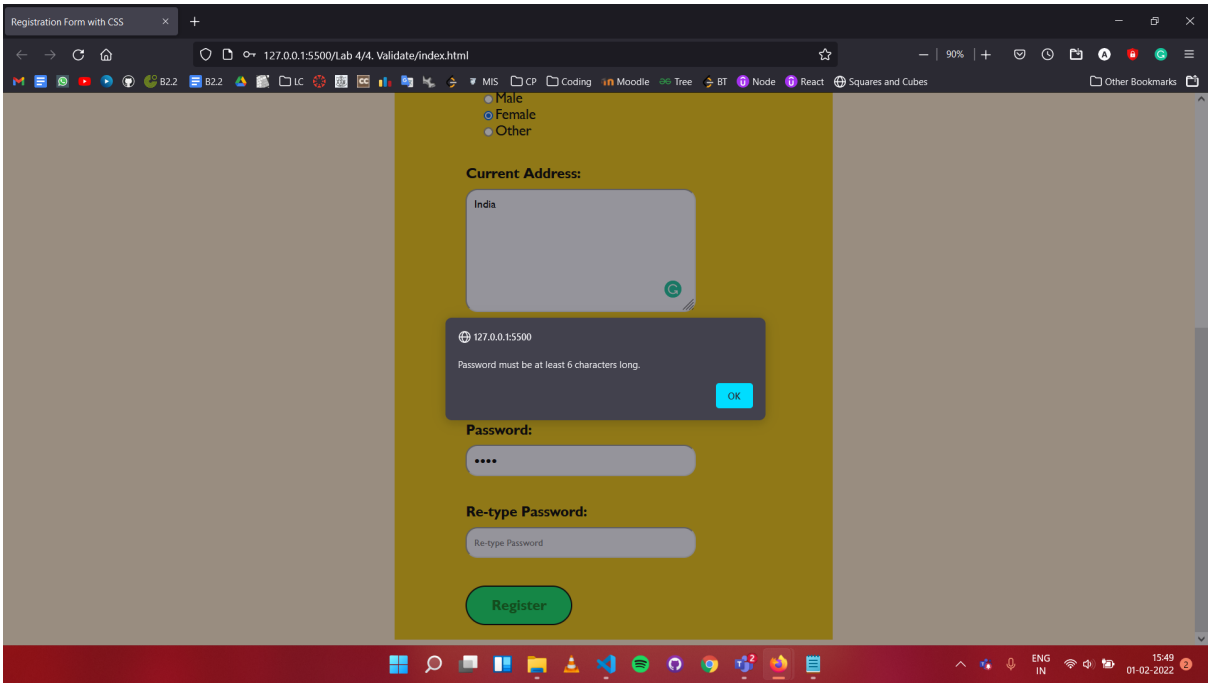
```
        var course = document.reg_form.course;
        var gender = document.reg_form.gender;
        var address = document.reg_form.add;
        var email = document.reg_form.email;
        var mobile = document.reg_form.mobile;
        var pass = document.reg_form.pass;
        var repass = document.reg_form.repass;


        if (fname.value.length <= 0) {
            alert("First name is required");
            fname.focus();
            return false;
        }
        if (lname.value.length <= 0) {
            alert("Last Name is required");
            lname.focus();
            return false;
        }
        if (course.value == "select course") {
            alert("Course is required");
            course.focus();
            return false;
        }
        if (gender.value.length <= 0) {
            alert("Gender is required");
```

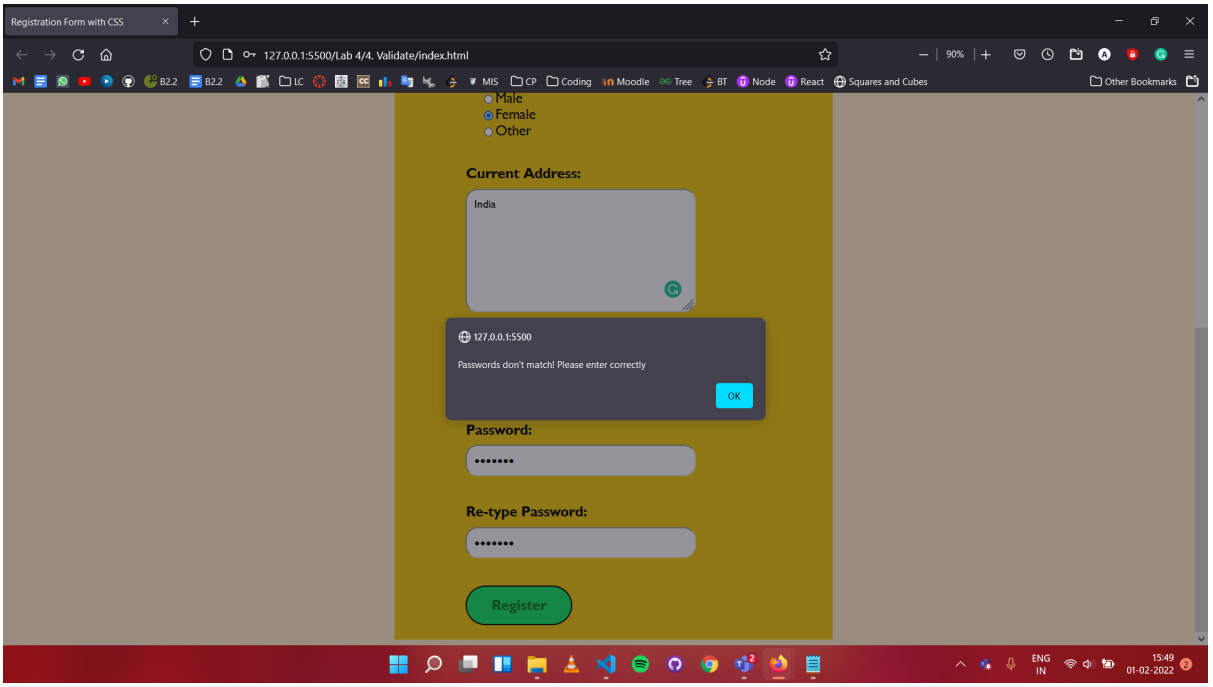
```
            gender.focus();
            return false;
        }
        if (address.value.length <= 0) {
            alert("Address is required");
            address.focus();
            return false;
        }
        if (email.value.length <= 0) {
            alert("Email Id is required");
            email.focus();
            return false;
        }
        if (pass.value.length <= 0) {
            alert("Password is required");
            pass.focus();
            return false;
        }
        if (pass.value.length <= 6){
            alert("Password must be at least 6 characters long.");
            pass.focus();
            return false;
        }
        if (repass.value.length <= 0) {
            alert("Re-Password is required");
```

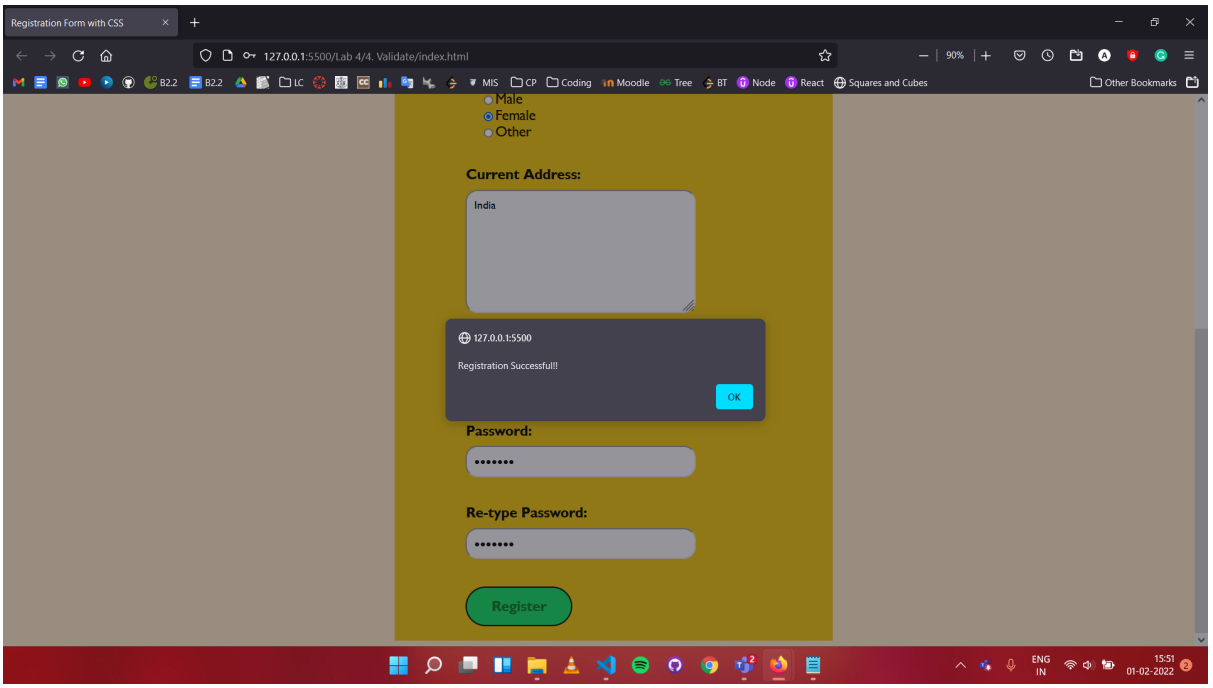
```
            repass.focus();
            return false;
        }
        if (pass.value != repass.value){
            alert("Passwords don't match! Please enter correctly")
            repass.focus();
            return false;
        }
        else{
            alert("Registration Successful!!")
            return true;
        }
        return false;
        }
</script>
</html>
```


Registration Form with CSS
127.0.0.1:5500/Lab 4/4. Validate/index.html
Student Registration Form
First Name:
Akriti
Last Name:
Upadhyay
Course: MCA
Gender:
Male
Female
Other
Current Address:
India


Registration Form with CSS
127.0.0.1:5500/Lab 4/4. Validate/index.html
Male
Female
Other
Current Address:
Enter Current Address
127.0.0.1:5500
Address is required
Don't allow 127.0.0.1:5500 to prompt you again
OK
Enter Password
Re-type Password:
Re-type Password
Register


Registration Form with CSS
127.0.0.1:5500/Lab 4/4. Validate/index.html
Male
Female
Other
Current Address:
India
127.0.0.1:5500
Password must be at least 6 characters long.
OK
Password:
Re-type Password:
Re-type Password
Register





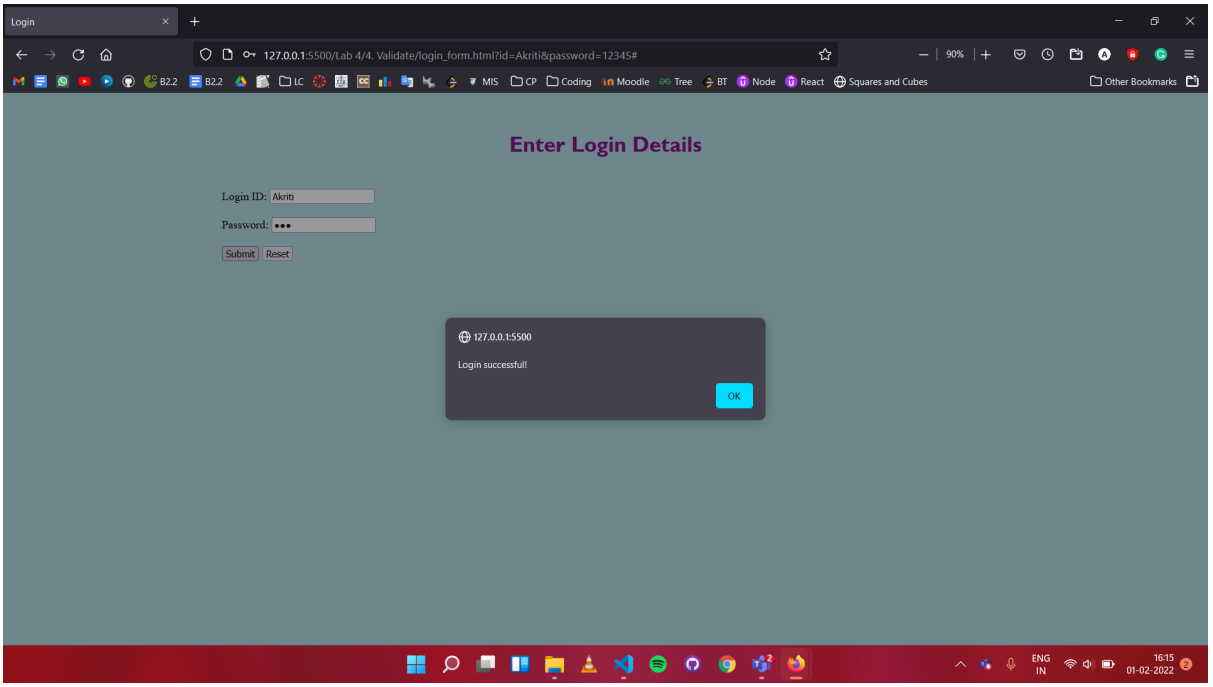
- **User Login:**

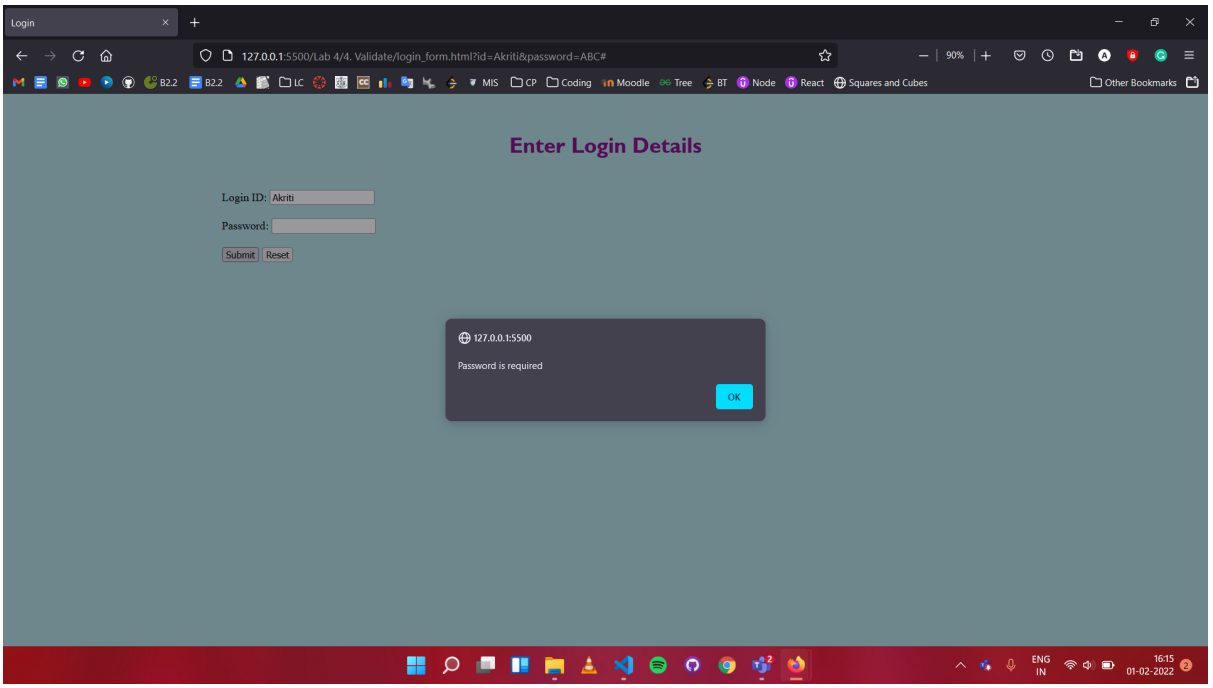
```
<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

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

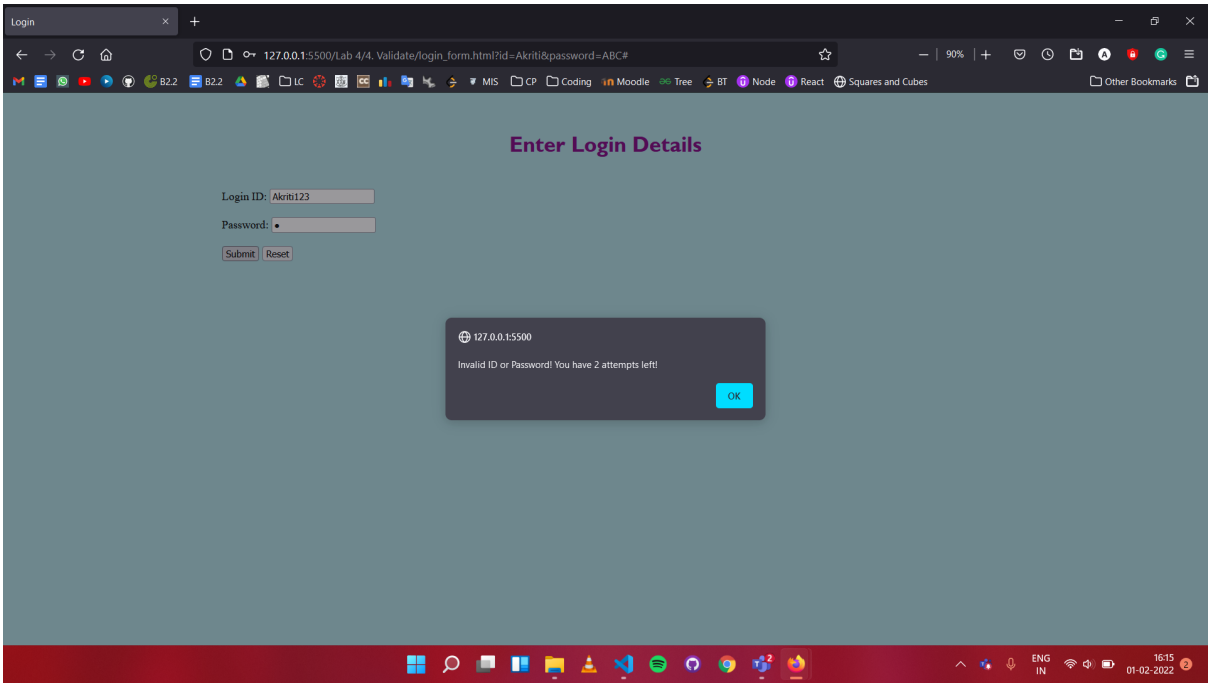
```
    <meta name="viewport" content="width=device-width,
initial-scale=1.0">

    <title>Login</title>

    <style>

        form{

            padding: 20px 0 0 300px

        }

        body{

            background-color:powderblue ;

        }

        h2{

            padding-top: 30px;

            text-align: center;

            font-size: 30px;

            font-family: 'Gill Sans', 'Gill Sans MT', Calibri,
'Trebuchet MS', sans-serif;

            color: purple;

        }

    </style>

</head>

<body>

    <h2>Enter Login Details</h2>

    <form action="#" name="login_form" onsubmit="return validate()">

        <label for="id">Login ID:</label>

        <input type="text" name="id" id="id">

        <br><br>
```

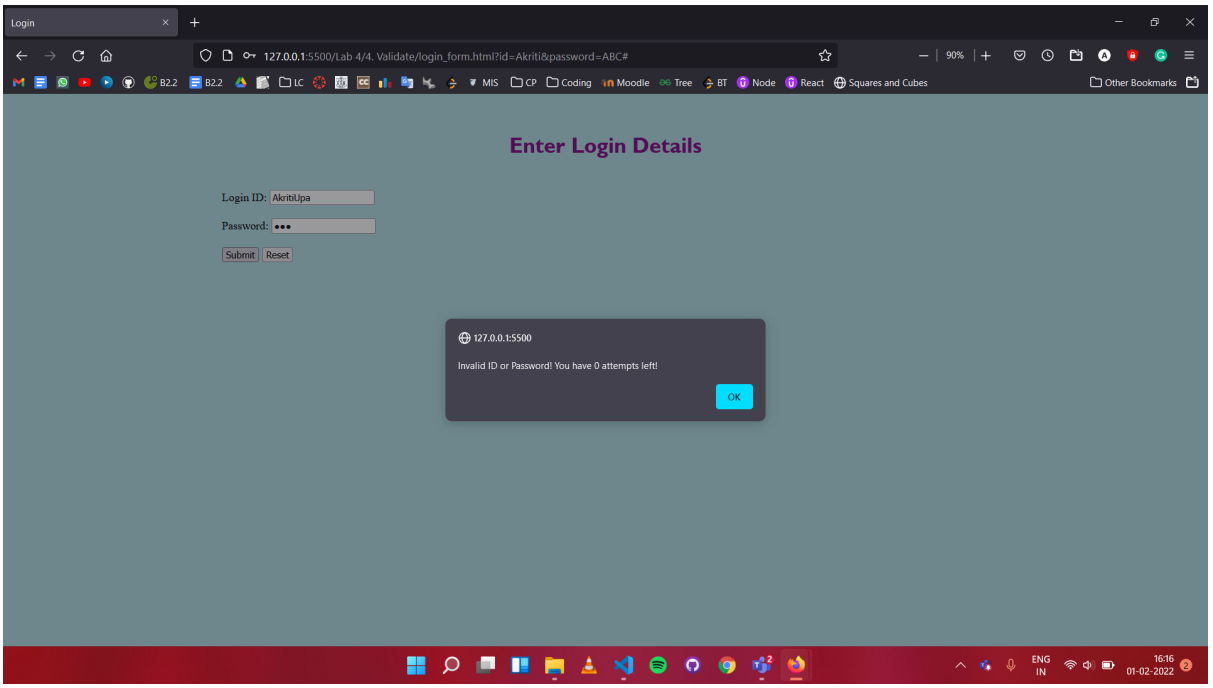
```
        <label for="pass">Password:</label>
        <input type="password" name="password" id="pass">
        <br><br>
        <button type="submit">Submit</button>
        <button type="reset">Reset</button>
    </form>
</body>
<script>
    let attempt = 3;
    function validate(){
        let loginID = document.login_form.id.value;
        let pass = document.login_form.pass.value;
        if(loginID.length <= 0){
            alert("Login Id is required");
            return false;
        }
        if(pass.length <= 0){
            alert("Password is required");
            return false;
        }
        if(loginID=="Akriti" && pass=="ABC"){
            alert("Login successful!");
            return true;
        }
        else{
```

```
            attempt--;

            alert(`Invalid ID or Password! You have ${attempt} attempts
left!`);

            if(attempt == 0){

                document.getElementById("id").disabled = true;

                document.getElementById("pass").disabled = true;

                document.getElementById("submit").disabled = true;

                document.getElementById("reset").disabled = true;

            }

            return false;

        }

    }

</script>

</html>
```


Login
127.0.0.1:5500/Lab 4/4. Validate/login_form.html?id=Akriti&password=12345#
Enter Login Details
Login ID: Akriti
Password:
Submit Reset
127.0.0.1:5500
Login successful!
OK


Login
127.0.0.1:5500/Lab 4/4. Validate/login_form.html?id=Akriti&password=ABC#
Enter Login Details
Login ID: Akriti
Password:
Submit Reset
127.0.0.1:5500
Password is required
OK





---

5. JavaScript script to:

a. Find the length of a string.

```
let str = window.prompt("Enter the string: ");

console.log(`Length of the string \"${str}\": ${str.length}`);
```

```
Length of the string "Web Technology Lab": 18
```

b. Count no. of words in a string.

```
let str = window.prompt("Enter the string: ");



function countWords(str){

    let count = 0;

    let words = str.split(" ");

    for(let i=0; i<words.length; i++){

        if(words[i] != "")

            count++;

    }

    return count;

}

console.log(`Total number of words in the string \"${str}\":
${countWords(str)}`);
```

```
Total number of words in the string "This is web tech lab 4": 6
```

c. Reverse a string.

```
let str = window.prompt("Enter the string: ");



let splitString = str.split("");

let reverseArray = splitString.reverse();

let joinArray = reverseArray.join("");
```

```
// str.split("").reverse().join("")


console.log(`Reverse of string \"${str}\": ${joinArray}`);
```

```
Reverse of string "Hello World": dlroW olleH
```

d. Search for a specific string.

```
let str = window.prompt("Enter the string: ");

let searchText = window.prompt(`Enter the string you want to search in
\"${str}\": `);



let position = str.search(searchText);



if(position == -1)

    console.log(`\"${searchText}\" is NOT present in string
\"${str}\"`)

else

    console.log(`\"${searchText}\" is present in string \"${str}\"`);
```

```
"code" is present in string "Hello today we are writing code in JS"
```

```
"WebTech" is NOT present in string "Today we are writing code in JS"
```

X-X-X-X