Subject : 2304CS431 – Client Side Scripting using Javascript

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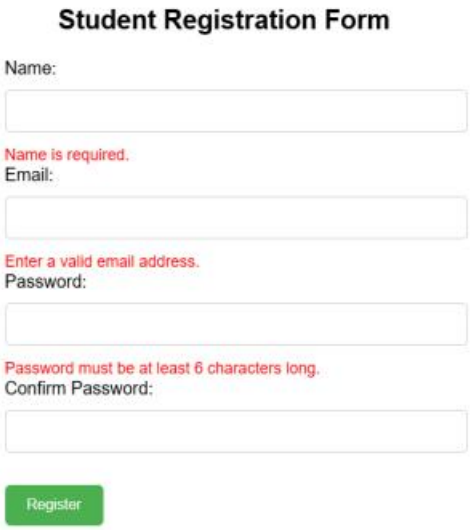
Practical - 11: Designing Interactive Web Applications with Forms and Calculators	
1)	**WAP to prepare student registration form and validate it using JavaScript. (A)**
	Program :-

```
<!DOCTYPE html>
<html>
<head>
  <title>Student Registration Form</title>
  <style>
    body {
      font-family: Arial, sans-serif;
      margin: 20px;
    }
    form {
      max-width: 400px;
      margin: auto;
    }
    .error {
      color: red;
      font-size: 0.9em;
    }
    input[type="text"], input[type="email"], input[type="password"] {
      width: 100%;
      padding: 10px;
      margin: 10px 0;
      border: 1px solid #ccc;
      border-radius: 5px;
    }
    button {
      padding: 10px 20px;
      background-color: #4CAF50;
      color: white;
      border: none;
      border-radius: 5px;
      cursor: pointer;
    }
    button:hover {
      background-color: #45a049;
    }
  </style>
</head>
<body>
  <h2>Student Registration Form</h2>
<form id="registrationForm">



<label for="name">Name:</label>
```

```
    <input type="text" id="name" name="name" required>
    <span class="error" id="nameError"></span>

    <br><label for="email">Email:</label>
    <input type="email" id="email" name="email" required>
    <span class="error" id="emailError"></span>

    <br><label for="password">Password:</label>
    <input type="password" id="password" name="password" required>
    <span class="error" id="passwordError"></span>

    <br><label for="confirmPassword">Confirm Password:</label>
    <input type="password" id="confirmPassword" name="confirmPassword" required>
    <span class="error" id="confirmPasswordError"></span>

    <br><button type="button" onclick="validateForm()">Register</button>
</form>

<script>
    function validateForm() {
        let isValid = true;

        // Clear previous error messages
        document.getElementById("nameError").textContent = "";
        document.getElementById("emailError").textContent = "";
        document.getElementById("passwordError").textContent = "";
        document.getElementById("confirmPasswordError").textContent = "";

        // Get form values
        const name = document.getElementById("name").value.trim();
        const email = document.getElementById("email").value.trim();
        const password = document.getElementById("password").value;
        const confirmPassword = document.getElementById("confirmPassword").value;

        // Validate name
        if (name === "") {
            document.getElementById("nameError").textContent = "Name is required.";
            isValid = false;
        }

        // Validate email
        const emailPattern = /^[^\s@]+@[^\s@]+\.[^\s@]+$/;
        if (!emailPattern.test(email)) {
            document.getElementById("emailError").textContent = "Enter a valid email address.";
            isValid = false;
        }

        // Validate password
```

```
        if (password.length < 6) {
            document.getElementById("passwordError").textContent = "Password must be at least 6 characters long.";
            isValid = false;
        }

        // Validate confirm password
        if (password !== confirmPassword) {
            document.getElementById("confirmPasswordError").textContent = "Passwords do not match.";
            isValid = false;
        }

        if (isValid) {
            alert("Registration successful!");
        }
    }
  </script>
</body>
</html>
```

Output :-

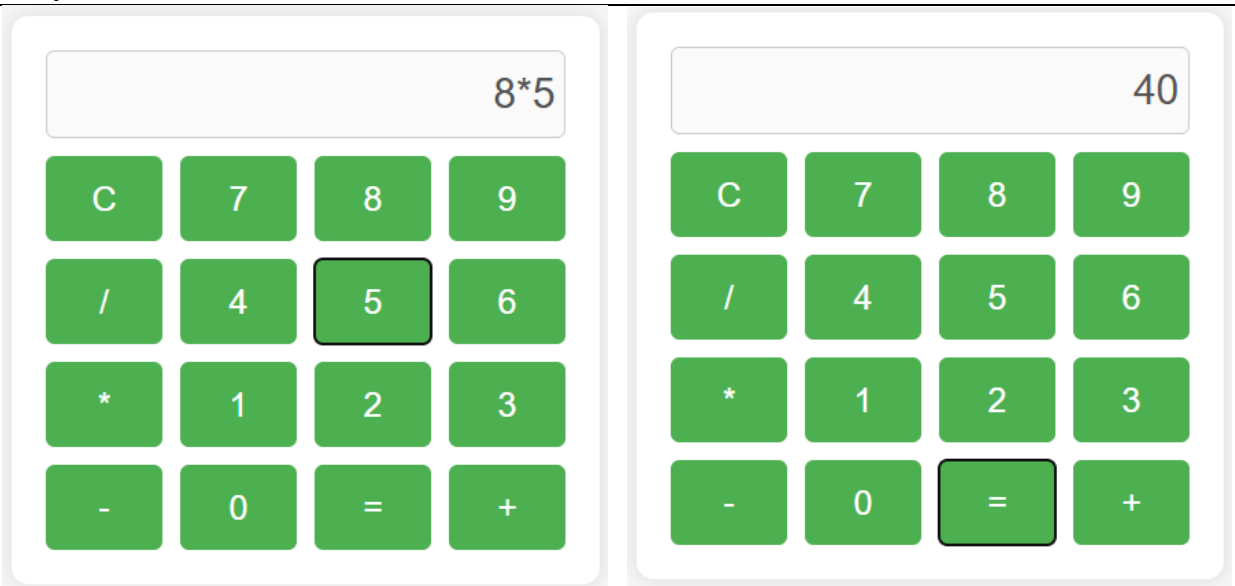


2)	WAP using HTML, CSS, JavaScript to design simple calculator with GUI. (B)
	Program :-

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Simple Calculator</title>
  <style>
    body {
      display: flex;
      justify-content: center;
      align-items: center;
      height: 100vh;
      background-color: #f5f5f5;
      font-family: Arial, sans-serif;
    }
    .calculator {
      background-color: #fff;
      padding: 20px;
      border-radius: 10px;
      box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);
    }
    #result {
      width: 96%;
      height: 40px;
      font-size: 24px;
      text-align: right;
      margin-bottom: 10px;
      border: 1px solid #ccc;
      border-radius: 5px;
      padding: 5px;
    }
    .buttons {
      display: grid;
      grid-template-columns: repeat(4, 1fr);
      gap: 10px;
    }
    button {
      height: 50px;
      font-size: 20px;
      border: none;
      border-radius: 5px;
      background-color: #4CAF50;
      color: white;
      cursor: pointer;
    }
```

```
      button:hover {
        background-color: #45a049;
      }
    </style>
</head>
<body>
    <div class="calculator">
      <input type="text" id="result" disabled />
      <div class="buttons">
        <button onclick="clearResult()">C</button>
        <button onclick="appendToResult('7')">7</button>
        <button onclick="appendToResult('8')">8</button>
        <button onclick="appendToResult('9')">9</button>
        <button onclick="appendToResult('/')">/</button>
        <button onclick="appendToResult('4')">4</button>
        <button onclick="appendToResult('5')">5</button>
        <button onclick="appendToResult('6')">6</button>
        <button onclick="appendToResult('*')">*</button>
        <button onclick="appendToResult('1')">1</button>
        <button onclick="appendToResult('2')">2</button>
        <button onclick="appendToResult('3')">3</button>
        <button onclick="appendToResult('-')">-</button>
        <button onclick="appendToResult('0')">0</button>
        <button onclick="calculateResult()">=</button>
        <button onclick="appendToResult('+')">+</button>
      </div>
    </div>
    <script>
      function appendToResult(value) {
        document.getElementById('result').value += value;
      }
      function clearResult() {
        document.getElementById('result').value = '';
      }
      function calculateResult() {
        const resultField = document.getElementById('result');
        try {
          resultField.value = eval(resultField.value);
        } catch (error) {
          resultField.value = 'Error';
        }
      }
    </script>
</body>
</html>
```

Output :-



3) WAP using HTML, CSS, JavaScript to design advance calculator with GUI. (C)

Program :-

```
<!DOCTYPE html>
<html lang="en">

<head>
   <meta charset="UTF-8">
   <meta name="viewport" content="width=device-width, initial-scale=1.0">
   <title>Advanced Calculator</title>
   <link rel="stylesheet" href="style.css">
   <style>
      body {
         display: flex;
         justify-content: center;
         align-items: center;
         height: 100vh;
         background-color: #f5f5f5;
         font-family: Arial, sans-serif;
      }

      .calculator {
         background-color: #fff;
         padding: 20px;
         border-radius: 10px;
         box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);
      }

      #result {
```

```
        width: 100%;
        height: 40px;
        font-size: 24px;
        text-align: right;
        margin-bottom: 10px;
        border: 1px solid #ccc;
        border-radius: 5px;
      }

      .buttons {
        display: grid;
        grid-template-columns: repeat(4, 1fr);
        gap: 10px;
      }

      button {
        height: 50px;
        font-size: 18px;
        border: none;
        border-radius: 5px;
        background-color: #4CAF50;
        color: white;
        cursor: pointer;
      }

      button:hover {
        background-color: #45a049;
      }
    </style>
</head>

<body>
    <div class="calculator">
      <input type="text" id="result" disabled />
      <div class="buttons">
        <button onclick="clearResult()">C</button>
        <button onclick="appendToResult('7')">7</button>
        <button onclick="appendToResult('8')">8</button>
        <button onclick="appendToResult('9')">9</button>
        <button onclick="appendToResult('/')">/</button>
        <button onclick="appendToResult('4')">4</button>
        <button onclick="appendToResult('5')">5</button>
        <button onclick="appendToResult('6')">6</button>
        <button onclick="appendToResult('*')">*</button>
        <button onclick="appendToResult('1')">1</button>
        <button onclick="appendToResult('2')">2</button>
        <button onclick="appendToResult('3')">3</button>
        <button onclick="appendToResult('-')">-</button>
```

```
        <button onclick="appendToResult('0')">0</button>
        <button onclick="calculateResult()">=</button>
        <button onclick="appendToResult('+')">+</button>
        <button onclick="appendToResult('**')">^</button>
        <button onclick="calculateSquareRoot()">√</button>
        <button onclick="appendToResult('+')">+</button>
        <button onclick="calculateLog()">log</button>
        <button onclick="calculateSin()">sin</button>
        <button onclick="calculateCos()">cos</button>
    </div>
</div>
<script>
    function appendToResult(value) {
        document.getElementById('result').value += value;
    }

    function clearResult() {
        document.getElementById('result').value = '';
    }

    function calculateResult() {
        const resultField = document.getElementById('result');
        try {
            resultField.value = eval(resultField.value);
        } catch (error) {
            resultField.value = 'Error';
        }
    }

    function calculateSquareRoot() {
        const resultField = document.getElementById('result');
        const value = parseFloat(resultField.value);
        if (value < 0) {
            resultField.value = 'Error';
        } else {
            resultField.value = Math.sqrt(value);
        }
    }
    function calculateLog() {
        const resultField = document.getElementById('result');
        const value = parseFloat(resultField.value);
        if (value > 0) {
            resultField.value = Math.log(value);
        } else {
            resultField.value = 'Error';
        }
    }
```

```
        function calculateSin() {
            const resultField = document.getElementById('result');
            const value = parseFloat(resultField.value);
            resultField.value = Math.sin(value * Math.PI / 180);
        }

        function calculateCos() {
            const resultField = document.getElementById('result');
            const value = parseFloat(resultField.value);
            resultField.value = Math.cos(value * Math.PI / 180);
        }
    </script>
</body>

</html>
```

Output:-