**Assignment**

**Learner Details**

* **Name: Nikhil k**
* **Enrollment Number: SU625MR004**
* **Batch / Class: June 2025 MERN**
* **Assignment: Simple calculator using JavaScript Functions**
* **Date of Submission: 16/07/2025**

**Problem Solving Activity 1.1**

**1. Program Statement**

The goal of this program is to create a simple calculator using HTML, CSS, and JavaScript that takes two numeric inputs from the user and performs one of the four basic arithmetic operations: addition, subtraction, multiplication, or division. The user selects the desired operation from a dropdown menu and clicks a button to calculate and display the results.

**2. Algorithm**

* Accept two number inputs from the user using input fields.
* Provide a dropdown (select) to choose the arithmetic operation.
* On clicking the calculate button, call the calculate() function.
* Inside the function:
* Retrieve the input values and selected operation.
* Convert the inputs to numbers using parseFloat().
* Validate the inputs.
* Based on the selected operation, call the corresponding arithmetic function (add, subtract, multiply, divide).
* Handle division by zero separately.
* Display the result in a result section on the page.

**3. Pseudocode**

START

READ num1 from input field

READ num2 from input field

READ selected operation from dropdown

IF num1 or num2 is not a number THEN

DISPLAY error message

ELSE

SWITCH operation

CASE 'add': result = num1 + num2

CASE 'subtract': result = num1 - num2

CASE 'multiply': result = num1 \* num2

CASE 'divide':

IF num2 == 0 THEN

DISPLAY 'Cannot divide by zero'

ELSE

result = num1 / num2

END SWITCH

DISPLAY result

END IF

END

**4. Program Code**

<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8" />

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

  <title>Simple Calculator using JavaScript</title>

   <link rel="icon" type="image/x-icon" href="../../arr1.jpg">

  <style>

    body {

      display: flex;

      justify-content: center;

      align-items: center;

      height: 650px;

      background-color:antiquewhite;

      font-family: Arial, sans-serif;

    }

    .calculator {

      background-color:burlywood;

      padding: 30px;

      border-radius: 10px;

      box-shadow: 0 0 15px goldenrod;

      width: 300px;

      text-align: center;

    }

    input, select, button {

      width: 100%;

      padding: 10px;

      margin: 10px 0;

      font-size: 16px;

      background-color:floralwhite;

    }

    #result {

      margin-top: 15px;

      font-weight: bold;

      color:brown;

      font-size:28px;

    }

  </style>

</head>

<body>

  <div class="calculator">

    <h2>Simple Calculator Using JavaScript</h2>

    <input type="number" id="num1" placeholder="Please Enter Your Input :- Number 1" />

    <input type="number" id="num2" placeholder="Please Enter Your Input :- Number 2" />

    <select id="operation">

      <option value="add">Addition Operation  (+)</option>

      <option value="subtract">Subtraction Operation  (−)</option>

      <option value="multiply">Multiplication Operation  (×)</option>

      <option value="divide">Division Operation  (÷)</option>

    </select>

    <button onclick="calculate()">Please click here to calculate the result</button>

    <div id="result"></div>

  </div>

  <script>

    function add(a, b) {

      return a + b;

    }

    function subtract(a, b) {

      return a - b;

    }

    function multiply(a, b) {

      return a \* b;

    }

    function divide(a, b) {

      if (b === 0) return 'ERROR:   "CANNOT DIVIDE BY ZERO" ';

      return a / b;

    }

    function calculate() {

      const num1 = parseFloat(document.getElementById('num1').value);

      const num2 = parseFloat(document.getElementById('num2').value);

      const operation = document.getElementById('operation').value;

      let result;

      if (isNaN(num1) || isNaN(num2)) {

        result = 'Error: Please try to enter valid numbers';

      } else {

        switch (operation) {

          case 'add':

            result = add(num1, num2);

            break;

          case 'subtract':

            result = subtract(num1, num2);

            break;

          case 'multiply':

            result = multiply(num1, num2);

            break;

          case 'divide':

            result = divide(num1, num2);

            break; } }

      document.getElementById('result').textContent = "Result: " + result;    }

  </script>

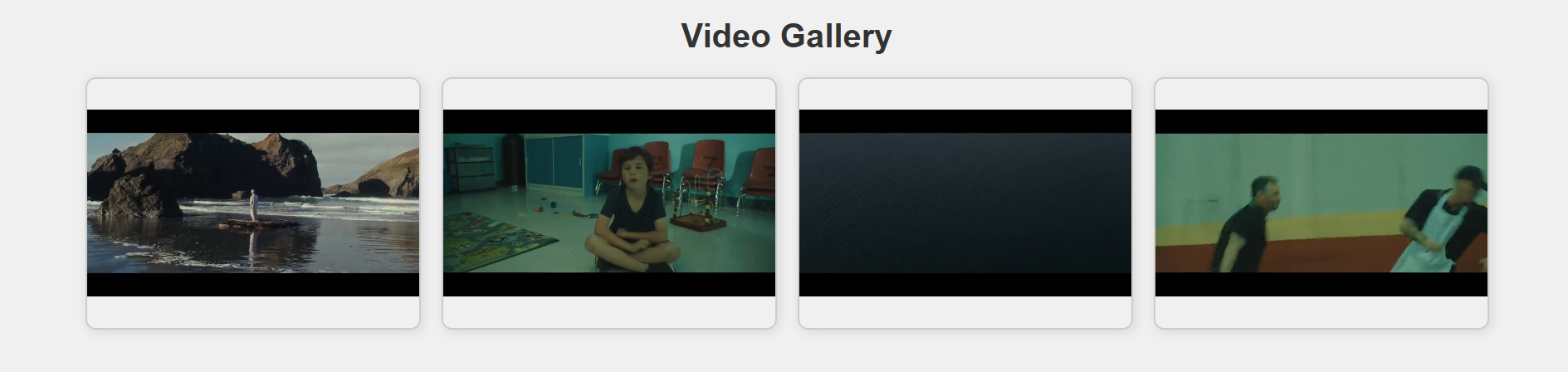
</body>

</html>

**5. Test Cases**

| **Test Case** | **Input 1** | **Input 2** | **Operation** | **Expected Output** |
| --- | --- | --- | --- | --- |
| **TC1** | **12** | **3** | **Addition** | **Result: 15** |
| **TC2** | **8** | **5** | **Subtraction** | **Result: 3** |
| **TC3** | **7** | **6** | **Multiplication** | **Result: 42** |
| **TC4** | **10** | **2** | **Division** | **Result: 5** |
| **TC5** | **10** | **0** | **Division** | **ERROR: CANNOT DIVIDE BY ZERO** |

**6. Screenshots of Output**



**7. Observation / Reflection**

This assignment helped me understand how to use JavaScript functions and interact with the DOM effectively. I learned how to connect inputs, dropdowns, and buttons to perform real-time calculations. Handling edge cases like empty inputs or division by zero improved my validation skills. I also enjoyed styling the interface. Next time, I’d like to add features like keyboard input, calculation history, and instant validation.