A close up of a logo

Description automatically generated

**JavaScript Basics**

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**LAB MANUAL**

**Simple Calculator Performing Arithmetic operation with JavaScript**

**Objective:**

The objective of this activity is to teach learners how to perform basic arithmetic operations (addition, subtraction, multiplication, and division) using JavaScript. By building a simple calculator, participants will practice connecting HTML form inputs with JavaScript functions, processing user input, and dynamically displaying results on a web page.

**Equipment Required:**

* A computer with a text editor (VS Code, Sublime Text, or Notepad++)
* A modern web browser (Chrome, Firefox, Edge, etc.)

**Prerequisites:**

* Basic knowledge of HTML elements and forms
* Understanding of JavaScript variables, functions, and event handling
* Ability to link an external JavaScript file to an HTML page

**Problem Statement:**

Create a simple calculator where the user can enter two numbers and choose an arithmetic operation (addition, subtraction, multiplication, or division). When the user clicks a "Calculate" button, JavaScript should process the inputs and display the correct result. This activity will reinforce connecting form inputs to JavaScript and updating HTML content dynamically.

**Procedure:**

1. Create ***calculator.html*** for the interface.
2. Add two input fields for the numbers.
3. Provide a <select> dropdown for the operation type.
4. Add a Calculate button and an area to display the result.
5. Create ***script.js*** for JavaScript logic.
6. In JavaScript, fetch input values, parse them to numbers, perform the selected operation, and display the result.
7. Test with different inputs and operations.

**Code**

***calculator.html***

<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

    <title>Simple Calculator</title>

    <style>

        body {

            font-family: Arial, sans-serif;

            background-color: #eef2f3;

            display: flex;

            justify-content: center;

            align-items: center;

            height: 100vh;

        }

        .calculator {

            background: white;

            padding: 25px;

            border-radius: 10px;

            box-shadow: 0px 4px 10px rgba(0,0,0,0.1);

            width: 300px;

            text-align: center;

        }

        input, select, button {

            width: 100%;

            margin: 8px 0;

            padding: 10px;

            font-size: 1rem;

            border-radius: 5px;

            border: 1px solid #ccc;

        }

        button {

            background-color: #007bff;

            color: white;

            cursor: pointer;

            border: none;

            font-weight: bold;

        }

        button:hover {

            background-color: #0056b3;

        }

        #result {

            margin-top: 15px;

            font-size: 1.2rem;

            font-weight: bold;

            color: #333;

        }

    </style>

</head>

<body>

    <div class="calculator">

        <h2>Simple Calculator</h2>

        <input type="number" id="num1" value="15">

        <input type="number" id="num2" value="35">

        <select id="operation">

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

            <option value="subtract">Subtraction (-)</option>

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

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

        </select>

        <button id="calculateBtn">Calculate</button>

        <div id="result">Result: </div>

    </div>

    <script src="calculator.js"></script>

</body>

</html>

***script,js***

// Simple Calculator Logic

// Get elements from the DOM

const num1Input = document.getElementById("num1");

const num2Input = document.getElementById("num2");

const operationSelect = document.getElementById("operation");

const resultDiv = document.getElementById("result");

const calculateBtn = document.getElementById("calculateBtn");

// Function to perform calculation

function calculate() {

    const num1 = parseFloat(num1Input.value);

    const num2 = parseFloat(num2Input.value);

    const operation = operationSelect.value;

    // Check if inputs are valid

    if (isNaN(num1) || isNaN(num2)) {

        resultDiv.textContent = "Please enter valid numbers.";

        return;

    }

    let result;

    switch (operation) {

        case "add":

            result = num1 + num2;

            break;

        case "subtract":

            result = num1 - num2;

            break;

        case "multiply":

            result = num1 \* num2;

            break;

        case "divide":

            if (num2 === 0) {

                resultDiv.textContent = "Error: Division by zero!";

                return;

            }

            result = num1 / num2;

            break;

        default:

            result = "Invalid operation";

    }

    // Display the result

    resultDiv.textContent = `Result: ${result}`;

}

// Attach event listener to button

calculateBtn.addEventListener("click", calculate);

// Set default operation to addition

operationSelect.value = "add";

calculate();

**Output**

