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">

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

<title>Simple Calculator</title>

<style>

body {

font-family: 'Segoe UI', Arial, sans-serif;

display: flex;

justify-content: center;

align-items: center;

height: 100vh;

background: #fff;

}

.calculator {

background: #fff;

padding: 28px 24px 24px 24px;

border-radius: 18px;

box-shadow: 0 8px 24px rgba(0,0,0,0.13);

width: 290px;

transition: box-shadow 0.3s;

}

.calculator:hover {

box-shadow: 0 12px 32px rgba(0,0,0,0.18);

}

.calculator h2 {

margin-bottom: 18px;

color: #111;

letter-spacing: 1px;

text-align: center;

}

input[type="number"] {

width: 100%;

padding: 12px;

margin: 7px 0 12px 0;

border-radius: 7px;

border: 1.5px solid #fda085;

font-size: 17px;

outline: none;

transition: border 0.2s;

background: #fff8f3;

}

input[type="number"]:focus {

border: 1.5px solid #f76b1c;

background: #fff3e6;

}

.calculator div {

display: flex;

justify-content: space-between;

}

button {

flex: 1 1 0;

padding: 11px 0;

margin: 5px 4px;

font-size: 18px;

border: none;

border-radius: 7px;

cursor: pointer;

color: #fff;

font-weight: 600;

box-shadow: 0 2px 6px rgba(250, 168, 133, 0.13);

transition: background 0.2s, transform 0.2s;

}

.calculator div:nth-of-type(1) button:nth-child(1) { background: linear-gradient(90deg, #43cea2 0%, #185a9d 100%); }

.calculator div:nth-of-type(1) button:nth-child(2) { background: linear-gradient(90deg, #f7971e 0%, #ffd200 100%); color: #333; }

.calculator div:nth-of-type(2) button:nth-child(1) { background: linear-gradient(90deg, #f953c6 0%, #b91d73 100%); }

.calculator div:nth-of-type(2) button:nth-child(2) { background: linear-gradient(90deg, #36d1c4 0%, #1e3799 100%); }

button:hover {

filter: brightness(1.08);

transform: translateY(-2px) scale(1.04);

}

#result {

margin-top: 16px;

padding: 12px;

font-size: 19px;

text-align: center;

border-radius: 7px;

background: #fff8f3;

border: 1.5px solid #fda085;

color: #111;

min-height: 28px;

box-shadow: 0 1px 3px rgba(250, 168, 133, 0.08);

}

</style>

</head>

<body>

<div class="calculator">

<h2>Simple Calculator</h2>

<input type="number" id="num1" placeholder="Enter first number">

<input type="number" id="num2" placeholder="Enter second number">

<div>

<button onclick="add()">+</button>

<button onclick="subtract()">-</button>

</div>

<div>

<button onclick="multiply()">×</button>

<button onclick="divide()">÷</button>

</div>

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

</div>

<!-- Link to external JS file -->

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

</body>

</html>

***script,js***

// script.js

// Simple Calculator Logic

// Get elements from the DOM

// Get values from inputs

function getValues() {

let num1 = parseFloat(document.getElementById("num1").value);

let num2 = parseFloat(document.getElementById("num2").value);

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

document.getElementById("result").innerText = "Error: Please enter both numbers!";

return null;

}

return { num1, num2 };

}

// Addition

function add() {

let values = getValues();

if (!values) return;

document.getElementById("result").innerText = "Result: " + (values.num1 + values.num2);

}

// Subtraction

function subtract() {

let values = getValues();

if (!values) return;

document.getElementById("result").innerText = "Result: " + (values.num1 - values.num2);

}

// Multiplication

function multiply() {

let values = getValues();

if (!values) return;

document.getElementById("result").innerText = "Result: " + (values.num1 \* values.num2);

}

// Division

function divide() {

let values = getValues();

if (!values) return;

if (values.num2 === 0) {

document.getElementById("result").innerText = "Error: Cannot divide by zero!";

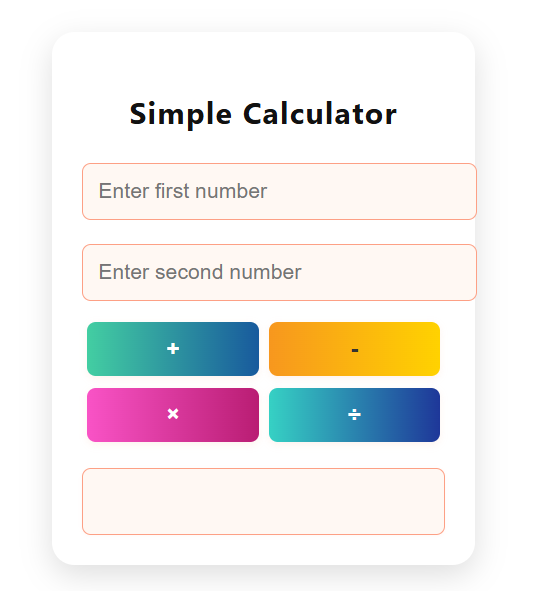
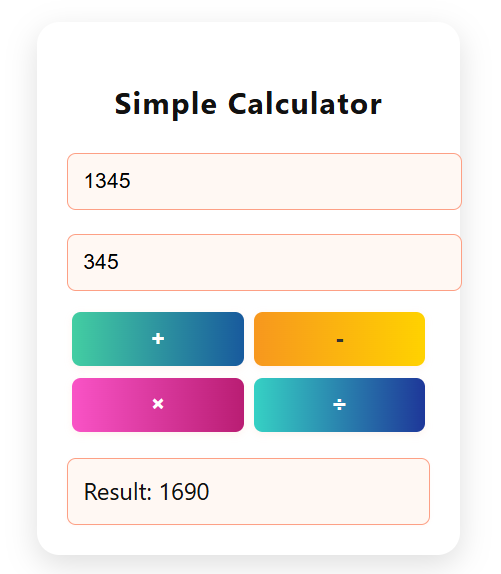
} else {

document.getElementById("result").innerText = "Result: " + (values.num1 / values.num2).toFixed(2);

}

}

**Output**

**** ****