2. Interactive Calculator Web Application

<u>Multi</u>-FunctionalCalculator.html

```html
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

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

  <title>Multi-Functional Calculator</title>

  <style>

    * {

      margin: 0;

      padding: 0;

      box-sizing: border-box;

      font-family: 'Segoe UI', Tahoma, Geneva, Verdana, sans-serif;

    }

    body {

      background: linear-gradient(135deg, #6a11cb 0%, #2575fc 100%);

      min-height: 100vh;

      display: flex;

      justify-content: center;

      align-items: center;

      padding: 20px;

      color: #333;

    }

    .calculator-container {

      width: 100%;

      max-width: 800px;

      background: white;

      border-radius: 15px;

      box-shadow: 0 10px 30px rgba(0, 0, 0, 0.2);

      overflow: hidden;

    }
```

```css
.header {

    background: #4a6fc7;

    color: white;

    padding: 20px;

    text-align: center;

}


.header h1 {

    font-weight: 600;

    font-size: 28px;

    margin-bottom: 5px;

}


.header p {

    opacity: 0.9;

}


.tabs {

    display: flex;

    background: #f0f5ff;

    border-bottom: 1px solid #ddd;

}


.tab {

    flex: 1;

    padding: 15px;

    text-align: center;

    cursor: pointer;

    font-weight: 500;

    transition: all 0.3s;

}


.tab.active {
```

```css
    background: white;

    border-bottom: 3px solid #4a6fc7;

    color: #4a6fc7;

}

.tab:hover:not(.active) {

    background: #e6eeff;

}

.calculator-content {

    padding: 30px;

}

.tab-content {

    display: none;

}

.tab-content.active {

    display: block;

}

.form-group {

    margin-bottom: 20px;

}

label {

    display: block;

    margin-bottom: 8px;

    font-weight: 500;

    color: #555;

}

input[type="number"], select {

    width: 100%;

    padding: 12px 15px;

    border: 1px solid #ddd;

    border-radius: 5px;

    font-size: 16px;

    transition: border-color 0.3s;

}
```

```css
input[type="number"]:focus, select:focus {

    border-color: #4a6fc7;

    outline: none;

    box-shadow: 0 0 0 3px rgba(74, 111, 199, 0.2);

}

.operation-buttons {

    display: grid;

    grid-template-columns: repeat(4, 1fr);

    gap: 10px;

    margin-top: 10px;

}


.operation-btn {

    padding: 12px;

    background: #f0f5ff;

    border: 1px solid #ddd;

    border-radius: 5px;

    font-size: 18px;

    font-weight: bold;

    cursor: pointer;

    transition: all 0.3s;

}


.operation-btn:hover {

    background: #e6eeff;

}


.operation-btn.active {

    background: #4a6fc7;

    color: white;

    border-color: #4a6fc7;

}
```

```css
button {

    width: 100%;

    padding: 14px;

    background: #4a6fc7;

    color: white;

    border: none;

    border-radius: 5px;

    font-size: 16px;

    font-weight: 600;

    cursor: pointer;

    transition: background 0.3s;

    margin-top: 10px;

}


button:hover {

    background: #3b5aa6;

}


.result {

    margin-top: 20px;

    padding: 15px;

    border-radius: 5px;

    text-align: center;

    font-weight: 500;

    font-size: 18px;

    min-height: 60px;

    display: flex;

    align-items: center;

    justify-content: center;

}


.success {
```

```css
      background-color: #d4edda;

      color: #155724;

      border: 1px solid #c3e6cb;

  }


  .error {

      background-color: #f8d7da;

      color: #721c24;

      border: 1px solid #f5c6cb;

  }


  .info {

      background-color: #d1ecf1;

      color: #0c5460;

      border: 1px solid #bee5eb;

      font-size: 14px;

      text-align: left;

      padding: 10px 15px;

      margin-top: 20px;

  }


  .currency-row {

      display: flex;

      gap: 15px;

  }


  .currency-row .form-group {

      flex: 1;

  }


  @media (max-width: 600px) {

      .currency-row {

          flex-direction: column;
```

```
          gap: 0;

        }


        .operation-buttons {

          grid-template-columns: repeat(2, 1fr);

        }

      }

    </style>

</head>

<body>

  <div class="calculator-container">

    <div class="header">

      <h1>Multi-Functional Calculator</h1>

      <p>Perform calculations, conversions, and more</p>

    </div>


    <div class="tabs">

      <div class="tab active" data-tab="arithmetic">Arithmetic</div>

      <div class="tab" data-tab="temperature">Temperature</div>

      <div class="tab" data-tab="currency">Currency</div>

    </div>


    <div class="calculator-content">

      <!-- Arithmetic Operations Tab -->

      <div class="tab-content active" id="arithmetic">

        <div class="form-group">

          <label for="num1">First Number:</label>

          <input type="number" id="num1" step="any" placeholder="Enter a number">

        </div>


        <div class="form-group">

          <label for="num2">Second Number:</label>

          <input type="number" id="num2" step="any" placeholder="Enter a number">
```

```html
      </div>

      <div class="form-group">
        <label>Select Operation:</label>
        <div class="operation-buttons">
          <button class="operation-btn" data-operation="add">+</button>
          <button class="operation-btn" data-operation="subtract">-</button>
          <button class="operation-btn" data-operation="multiply">×</button>
          <button class="operation-btn" data-operation="divide">÷</button>
        </div>
      </div>

      <button id="calculate-btn">Calculate</button>

      <div class="result" id="arithmetic-result"></div>
    </div>

    <!-- Temperature Conversion Tab -->
    <div class="tab-content" id="temperature">
      <div class="form-group">
        <label for="celsius">Celsius (°C):</label>
        <input type="number" id="celsius" step="any" placeholder="Enter temperature in Celsius">
      </div>

      <button id="convert-temp-btn">Convert to Fahrenheit</button>

      <div class="result" id="temperature-result"></div>

      <div class="info">
        <strong>Formula:</strong> Fahrenheit = (Celsius × 9/5) + 32
      </div>
    </div>
```

```html
<!-- Currency Conversion Tab -->
<div class="tab-content" id="currency">
    <div class="form-group">
        <label for="amount">Amount:</label>
        <input type="number" id="amount" step="any" placeholder="Enter amount to convert">
    </div>

    <div class="currency-row">
        <div class="form-group">
            <label for="from-currency">From Currency:</label>
            <select id="from-currency">
                <option value="USD">USD - US Dollar</option>
                <option value="EUR">EUR - Euro</option>
                <option value="INR">INR - Indian Rupee</option>
                <option value="GBP">GBP - British Pound</option>
                <option value="JPY">JPY - Japanese Yen</option>
            </select>
        </div>

        <div class="form-group">
            <label for="to-currency">To Currency:</label>
            <select id="to-currency">
                <option value="EUR">EUR - Euro</option>
                <option value="USD">USD - US Dollar</option>
                <option value="INR">INR - Indian Rupee</option>
                <option value="GBP">GBP - British Pound</option>
                <option value="JPY">JPY - Japanese Yen</option>
            </select>
        </div>
    </div>

    <button id="convert-currency-btn">Convert Currency</button>
```

```html
        <div class="result" id="currency-result"></div>


        <div class="info">

            <strong>Note:</strong> This calculator uses hardcoded exchange rates for demonstration purposes.
A real-world application would fetch live exchange rates from a financial API.

        </div>

      </div>

    </div>

  </div>


  <script>
    // Tab switching functionality
    document.querySelectorAll('.tab').forEach(tab => {
      tab.addEventListener('click', () => {
        // Remove active class from all tabs and contents
        document.querySelectorAll('.tab').forEach(t => t.classList.remove('active'));
        document.querySelectorAll('.tab-content').forEach(c => c.classList.remove('active'));


        // Add active class to clicked tab and corresponding content
        tab.classList.add('active');
        document.getElementById(tab.dataset.tab).classList.add('active');
      });
    });


    // Arithmetic Operations
    let selectedOperation = null;


    document.querySelectorAll('.operation-btn').forEach(btn => {
      btn.addEventListener('click', () => {
        document.querySelectorAll('.operation-btn').forEach(b => b.classList.remove('active'));
        btn.classList.add('active');
        selectedOperation = btn.dataset.operation;
      });
    });
```

```javascript
});

document.getElementById('calculate-btn').addEventListener('click', () => {
  const num1 = parseFloat(document.getElementById('num1').value);
  const num2 = parseFloat(document.getElementById('num2').value);
  const resultElement = document.getElementById('arithmetic-result');

  if (isNaN(num1) || isNaN(num2)) {
    resultElement.textContent = "Please enter valid numbers";
    resultElement.className = "result error";
    return;
  }

  if (!selectedOperation) {
    resultElement.textContent = "Please select an operation";
    resultElement.className = "result error";
    return;
  }

  let result;
  let operationSymbol;

  switch(selectedOperation) {
    case 'add':
      result = num1 + num2;
      operationSymbol = '+';
      break;
    case 'subtract':
      result = num1 - num2;
      operationSymbol = '-';
      break;
    case 'multiply':
      result = num1 * num2;
```

```javascript
        operationSymbol = '×';

        break;

      case 'divide':

        if (num2 === 0) {

          resultElement.textContent = "Error: Division by zero is not allowed";

          resultElement.className = "result error";

          return;

        }

        result = num1 / num2;

        operationSymbol = '÷';

        break;

      default:

        resultElement.textContent = "Invalid operation";

        resultElement.className = "result error";

        return;

  }


    resultElement.textContent = `${num1} ${operationSymbol} ${num2} = ${result}`;

    resultElement.className = "result success";

});


// Temperature Conversion
document.getElementById('convert-temp-btn').addEventListener('click', () => {

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

    const resultElement = document.getElementById('temperature-result');


    if (isNaN(celsius)) {

      resultElement.textContent = "Please enter a valid temperature";

      resultElement.className = "result error";

      return;

    }


    const fahrenheit = (celsius * 9/5) + 32;
```

```javascript
    resultElement.textContent = `${celsius}°C = ${fahrenheit.toFixed(2)}°F`;

    resultElement.className = "result success";
});


// Currency Conversion
// Hardcoded exchange rates (for demonstration)
const exchangeRates = {
    USD: { EUR: 0.85, INR: 74.5, GBP: 0.73, JPY: 110.5, USD: 1 },
    EUR: { USD: 1.18, INR: 88.2, GBP: 0.86, JPY: 130.2, EUR: 1 },
    INR: { USD: 0.013, EUR: 0.011, GBP: 0.0098, JPY: 1.48, INR: 1 },
    GBP: { USD: 1.37, EUR: 1.16, INR: 102.3, JPY: 151.8, GBP: 1 },
    JPY: { USD: 0.0091, EUR: 0.0077, INR: 0.68, GBP: 0.0066, JPY: 1 }
};


document.getElementById('convert-currency-btn').addEventListener('click', () => {
    const amount = parseFloat(document.getElementById('amount').value);
    const fromCurrency = document.getElementById('from-currency').value;
    const toCurrency = document.getElementById('to-currency').value;
    const resultElement = document.getElementById('currency-result');


    if (isNaN(amount) || amount <= 0) {
        resultElement.textContent = "Please enter a valid amount";
        resultElement.className = "result error";
        return;
    }


    if (fromCurrency === toCurrency) {
        resultElement.textContent = "Please select different currencies for conversion";
        resultElement.className = "result error";
        return;
    }


    const rate = exchangeRates[fromCurrency][toCurrency];
```

```
      const convertedAmount = amount * rate;


      resultElement.textContent = `${amount} ${fromCurrency} = ${convertedAmount.toFixed(2)}
${toCurrency}`;

      resultElement.className = "result success";

    });
  </script>
</body>
</html>
```

Multi-Functional Calculator

Perform calculations, conversions, and more

Arithmetic	Temperature	Currency

First Number:

200

Second Number:

100

Select Operation:

+			

Calculate

200 + 100 = 300

Multi-Functional Calculator

Perform calculations, conversions, and more

Arithmetic	Temperature	Currency

Celsius (°C):

200

Convert to Fahrenheit

200°C = 392.00°F

Formula: Fahrenheit = (Celsius × 9/5) + 32

Multi-Functional Calculator

Perform calculations, conversions, and more

Arithmetic	Temperature	Currency

Amount:

300

From Currency:

INR - Indian Rupee

To Currency:

USD - US Dollar

Convert Currency

300 INR = 3.90 USD

Note: This calculator uses hardcoded exchange rates for demonstration purposes. A real-world application would fetch live exchange rates from a financial API.