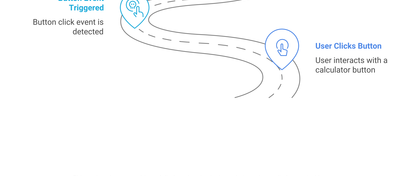
Simple Calculator Implementation in HTML, CSS, and JavaScript

This document provides a comprehensive overview of a simple calculator built using HTML, CSS, and JavaScript. The calculator features a user-friendly interface with basic arithmetic operations, including addition, subtraction, multiplication, and division. The design is responsive and visually appealing, utilizing a gradient background and custom fonts to enhance user experience.

```
<!DOCTYPE html> <!-- Declares the document type as HTML5. This is essential for
browsers to interpret the code correctly. -->
<html lang="en"> <!-- The <html> tag starts the document and specifies the
language as English. -->

  <head>
    <meta charset="UTF-8" /> <!-- Specifies the character encoding for the
document to be UTF-8 (handles special characters). -->
    <meta http-equiv="X-UA-Compatible" content="IE=edge" /> <!-- Ensures the
page is rendered correctly in Internet Explorer. -->
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
<!-- Makes the page responsive, adapting to different screen sizes. -->
    <title>Calculator - By Code Traversal</title> <!-- Title of the page,
displayed on the browser tab. -->

    <style>
        @import
url('https://fonts.googleapis.com/css2?family=Poppins:wght@500&display=swap');
        /* Imports a custom Google font (Poppins) for styling. */

        *{
            margin: 0; /* Removes default margin from all elements. */
            padding: 0; /* Removes default padding from all elements. */
            box-sizing: border-box; /* Ensures that padding and border are
included in element's total width and height. */
            font-family: 'Poppins', sans-serif; /* Applies the imported Poppins
font to all elements. */
        }

        body{
            width: 100%; /* Sets the body width to 100% of the viewport. */
            height: 100vh; /* Sets the body height to 100% of the viewport
height. */
            display: flex; /* Enables flexbox layout for centering the
calculator. */
            justify-content: center; /* Horizontally centers the calculator. */
            align-items: center; /* Vertically centers the calculator. */
            background: linear-gradient(45deg, #0a0a0a, #3a4452); /* Adds a
gradient background to the body. */
        }

        .calculator{
            border: 1px solid #717377; /* Adds a subtle border around the
calculator. */
            padding: 20px; /* Adds space inside the calculator. */
            border-radius: 15px; /* Rounds the corners of the calculator. */
            background: transparent; /* Makes the background transparent. */
            box-shadow: 0px 3px 15px rgba(113, 115, 119, 0.5); /* Adds a soft
shadow around the calculator for depth. */
        }

        input{
            width: 320px; /* Sets the width of the input field. */
            border: none; /* Removes the border from the input field. */
            padding: 24px; /* Adds padding inside the input field. */
            margin: 10px; /* Adds space around the input field. */
            background: transparent; /* Makes the background of the input field
transparent. */
            background-color: #706c6c; /* Sets the background color of the input
field to a dark shade. */
            box-shadow: 0px 3px 15px rgba(84, 84, 84, 0.1); /* Adds a soft
shadow to the input field. */
            font-size: 40px; /* Increases the font size inside the input field.
*/
            text-align: right; /* Aligns the text inside the input field to the
right. */
            cursor: pointer; /* Changes the cursor to a pointer when hovered
over. */
            color: #ffffff; /* Sets the text color inside the input field to
white. */
        }

        input::placeholder{
            color: #ffffff; /* Sets the placeholder text color to white. */
        }

        button{
            border: none; /* Removes the border from buttons. */
            width: 60px; /* Sets the width of each button. */
            height: 60px; /* Sets the height of each button. */
            margin: 10px; /* Adds space around each button. */
            border-radius: 50%; /* Makes the buttons circular. */
            background: transparent; /* Makes the button background transparent.
*/
            color: #ffffff; /* Sets the text color of the buttons to white. */
            font-size: 20px; /* Sets the font size for the button text. */
            box-shadow: -8px -8px 15px rgba(255, 255, 255, 0.1); /* Adds a
subtle shadow around the buttons. */
            cursor: pointer; /* Changes the cursor to a pointer when hovered
over the buttons. */
        }

        .equalBtn{
            background-color: #fb7c14; /* Sets the background color of the equal
button to orange. */
        }

        .operator{
            color: #6deeba; /* Sets the text color of operator buttons to green.
*/
        }

    </style> <!-- This ends the CSS styling for the page. -->
  </head>

  <body>
    <div class="container"> <!-- Container div to wrap the calculator. -->
      <div class="calculator"> <!-- The calculator div that holds all the
elements of the calculator. -->
        <input type="text" id="inputBox" placeholder="0" /> <!-- Input box where
the result or input is displayed. -->

        <!-- Calculator buttons for operations and numbers -->
        <div>
          <button class="button operator">AC</button> <!-- 'AC' button to clear
the screen. -->
          <button class="button operator">DEL</button> <!-- 'DEL' button to
delete one character. -->
          <button class="button operator">%</button> <!-- '%' button for the
percentage operation. -->
          <button class="button operator">/</button> <!-- '/' button for
division operation. -->
        </div>

        <div>
          <button class="button">7</button> <!-- Button for number 7. -->
          <button class="button">8</button> <!-- Button for number 8. -->
          <button class="button">9</button> <!-- Button for number 9. -->
          <button class="button operator">*</button> <!-- '*' button for
multiplication operation. -->
        </div>

        <div>
          <button class="button">4</button> <!-- Button for number 4. -->
          <button class="button">5</button> <!-- Button for number 5. -->
          <button class="button">6</button> <!-- Button for number 6. -->
          <button class="button operator">-</button> <!-- '-' button for
subtraction operation. -->
        </div>

        <div>
          <button class="button">1</button> <!-- Button for number 1. -->
          <button class="button">2</button> <!-- Button for number 2. -->
          <button class="button">3</button> <!-- Button for number 3. -->
          <button class="button operator">+</button> <!-- '+' button for
addition operation. -->
        </div>

        <div>
          <button class="button">00</button> <!-- Button for number 00 (double
zero). -->
          <button class="button">0</button> <!-- Button for number 0. -->
          <button class="button">.</button> <!-- Button for decimal point. -->
          <button class="button equalBtn">=</button> <!-- '=' button for
calculating the result. -->
        </div>
      </div> <!-- This closes the calculator div. -->
    </div> <!-- This closes the container div. -->

    <script>
        // JavaScript code for calculator functionality
        let input = document.getElementById('inputBox'); // Selects the input
box where the result is displayed.
        let buttons = document.querySelectorAll('button'); // Selects all
buttons on the page.

        let string = ""; // Initializes an empty string to store the input.

        let arr = Array.from(buttons); // Converts NodeList of buttons into an
array for easy iteration.

        arr.forEach(button => { // Iterates over each button in the array.
            button.addEventListener('click', (e) =>{ // Adds a click event
listener to each button.
                if(e.target.innerHTML == '='){ // If the clicked button is the
equal button (=).
                string = eval(string); // Evaluates the mathematical
expression in the string.
                input.value = string; // Displays the result in the input
box.
                }
                else if(e.target.innerHTML == 'AC'){ // If the clicked button is
the 'AC' button.
                    string = ""; // Clears the string.
                    input.value = string; // Updates the input box to show an
empty string.
                }
                else if(e.target.innerHTML == 'DEL'){ // If the clicked button
is the 'DEL' button.
                    string = string.substring(0, string.length-1); // Removes
the last character from the string.
                    input.value = string; // Updates the input box to show the
modified string.
                }
                else{ // If any other number or operator is clicked.
                    string += e.target.innerHTML; // Adds the clicked button's
value to the string.
                    input.value = string; // Updates the input box with the new
string.
                }
            })
        })
    </script> <!-- This ends the JavaScript code for the calculator. -->

  </body> <!-- This closes the body section of the HTML document. -->
</html> <!-- This closes the HTML document. -->
```

Calculator Functionality Sequence



This code snippet provides a fully functional calculator that can be easily integrated into any web project. The use of modern web technologies ensures that it is both efficient and visually appealing.