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Mini-Project Test Case Suite: Basic Web Calculator

This suite covers the functional requirements (TC-A), edge cases (TC-E), and non-functional aspects (TC-NF).

I. Functional Test Cases (Black-Box)

Test ID	Feature Tested	Test Procedure (Steps)	Expected Result	Pass/Fail
TC-A-001	Basic Addition	1. Click '5'. 2. Click '+'. 3. Click '10'. 4. Click '='.	Display shows **15**.	PENDING
TC-A-002	Basic Subtraction	1. Click '25'. 2. Click '-'. 3. Click '7'. 4. Click '='.	Display shows **18**.	PENDING
TC-A-003	Basic Multiplication	1. Click '8'. 2. Click '*'. 3. Click '6'. 4. Click '='.	Display shows **48**.	PENDING
TC-A-004	Basic Division	1. Click '100'. 2. Click '/'. 3. Click '4'. 4. Click '='.	Display shows **25**.	PENDING
TC-A-005	Decimal Input	1. Click '1'. 2. Click '.'. 3. Click '5'. 4. Click '+'. 5. Click '0'. 6. Click '.'. 7. Click '5'. 8. Click '='.	Display shows **2**.	PENDING
TC-A-006	Clear Functionality	1. Enter '123' and '+'. 2. Click 'C'. 3. Click '9'. 4. Click '='.	Display shows **9**. (State reset to zero).	PENDING
TC-A-007	Operator Overwrite	1. Click '10'. 2. Click '+'. 3. Click '-'. 4. Click '5'. 5. Click '='.	Display shows **5**. (The last operator '-' should override '+').	PENDING

II. Edge and Critical Error Test Cases (Black/White-Box)

Test ID	Feature Tested	Test Procedure (Steps)	Expected Result	Pass/Fail
TC-E-001	**Division by Zero (Critical)**	1. Click '1'. 2. Click '/'. 3. Click '0'. 4. Click '='.	Display shows **"Error"**. (Confirms failure case handling).	PENDING
TC-E-002	Operator Chaining	1. Click '5'. 2. Click '+'. 3. Click '5'. 4. Click '+'. 5. Click '5'. 6. Click '='.	Display shows **15**. (Confirms sequential operation integrity).	PENDING
TC-E-003	Precedence Check (Chain)	1. Click '2'. 2. Click '+'. 3. Click '3'. 4. Click '*'. 5. Click '4'. 6. Click '='.	Display shows **20**. (This simple calculator uses **left-to-right** evaluation: (2+3) * 4 = 20).	PENDING
TC-E-004	Multi-Digit Input	1. Enter the number 123456789. 2. Verify display width handling.	The full number is visible; text size is responsive or overflow is handled (breaks line/scrolls).	PENDING
TC-E-005	Decimal Point Logic	1. Click '1'. 2. Click '.'. 3. Click '.'. 4. Click '5'.	Display shows **1.5**. (The second decimal input is ignored).	PENDING

III. White-Box Unit Test Cases (Unit/Integration)

Test ID	Component Tested	Test Scenario	Expected Result (Internal)	Pass/Fail
TC-W-001	performCalculation	Input: op='+', firstOperand=1.5, secondOperand=2.5.	Returns **4**. (Verify floating-point addition accuracy).	PENDING
TC-W-002	performCalculation	Input: op='/', firstOperand=10, secondOperand=0.	Returns **'Error'**. (Verifies division by zero handling in the core logic).	PENDING
TC-W-003	handleOperator	Input sequence: firstOperand=5, operator='+', then new operator input '-' while waitingForSecondOperand=true.	operator state should update to **'-'** without calculation.	PENDING