



Full-Stack Web Development

III CSE/AI-ML NBKRIST VIDYANAGAR.....

Problem Statement: Basic Arithmetic and Prime Number Checker

Design and develop a simple web application that performs basic arithmetic and number checks. The system will use JavaScript functions called directly from the HTML to perform calculations and display the results on the page.

Core Information Requirements

The system must handle the following information:

- **Numbers for Addition:** Two or three numeric inputs from the user.
 - **Number for Prime Check:** A single numeric input from the user.
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Functional Requirements

The application must perform the following actions:

- **Add Two Numbers:** A function that takes two numbers and displays their sum.
 - **Add Three Numbers:** A function that takes three numbers and displays their sum.
 - **Prime Number Check:** A function that takes a single number and determines if it is a prime number, then displays the result. A prime number is a natural number greater than 1 that has no positive divisors other than 1 and itself.
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Technical Specifications

- **Programming Language:** JavaScript for all application logic. The functions should be called directly from HTML using onclick attributes.
- **User Interface:** A simple interface built with HTML and a minimal amount of CSS to allow user interaction and display results.
- **Data Handling:** Functions should directly retrieve values from input fields and update the display elements in the HTML without complex data structures.

Prepare by

Hari Babu Mutchakala



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Testing Requirements

The following test cases must be performed to ensure the system functions correctly:

Add Two Numbers Test:

- **Test Case 1.1:** Add 5 and 3.
 - **Expected Result:** The sum 8 is displayed.
- **Test Case 1.2:** Add 10 and -4.
 - **Expected Result:** The sum 6 is displayed.

Add Three Numbers Test:

- **Test Case 2.1:** Add 2, 7, and 11.
 - **Expected Result:** The sum 20 is displayed.
- **Test Case 2.2:** Add 1, 1, and 1.
 - **Expected Result:** The sum 3 is displayed.

Prime Number Check Test:

- **Test Case 3.1:** Check the number 7.
 - **Expected Result:** A message confirming 7 is a prime number is displayed.
- **Test Case 3.2:** Check the number 10.
 - **Expected Result:** A message indicating 10 is not a prime number is displayed.
- **Test Case 3.3:** Check the number 2.
 - **Expected Result:** A message confirming 2 is a prime number is displayed.

Learning Objectives

Upon completion of this project, students will be able to:

- **JavaScript Functions:** Write and use simple, self-contained JavaScript functions.

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- **HTML & CSS:** Integrate HTML for structure and basic CSS for styling to create a functional web page.
- **DOM Manipulation:** Use basic DOM methods to get input values and update content on a web page.
- **Basic Logic:** Implement fundamental conditional statements (if/else) and loops (for) to solve simple problems.
- **Event Handling:** Understand and use the onclick attribute for direct event handling.