**Simple Calculator**

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**INTRODUCTION**

The current situation involves the need for a convenient and efficient tool that can perform these basic arithmetic operations swiftly and accurately. Traditional handheld calculators have been widely used for this purpose, but in today's digital age, there is a growing demand for software-based calculators that can be accessed easily on various devices such as smartphones, tablets, and computers.

The problem we aim to solve with the Simple Calculator Project is to provide users with a user-friendly digital tool that simplifies basic arithmetic calculations and add trigonometry values to easily measures the angles and side of a right-angle triangle. By developing a simple calculator application or device, we aim to streamline the process of performing arithmetic operations, thereby saving time and reducing the likelihood of errors. Whether it's students needing quick solutions to math problems or individuals managing household finances, a simple calculator can serve as a valuable utility in numerous contexts. Therefore, our objective is to create a solution that addresses this need efficiently and effectively.

**Current Process Analysis**

Users access the calculator. Upon launching, the calculator's interface is presented to the user. This interface typically consists of a numeric keypad, mathematical operators (such as addition, subtraction, multiplication, and division), and a display screen to show input and output. Users input numbers by pressing the corresponding digits on the numeric keypad. For multi-digit numbers, users enter each digit sequentially. Some calculators may also support inputting decimal numbers. After inputting the desired numbers, users select the mathematical operation they wish to perform by pressing the corresponding operator button (addition, subtraction, multiplication, division). Once the numbers and operator are selected, users initiate the calculation process by pressing the "equals" button or a similar function key. The calculator then computes the result based on the selected operation and displays it on the screen. The calculated result is displayed on the calculator's screen for the user to view. In case of complex calculations or errors, some calculators may provide additional features such as memory functions, parentheses for precedence, or error messages to assist the user. Users may choose to perform additional calculations by inputting new numbers and selecting operators, or they may clear the current calculation and start anew by pressing the "AC" button. This workflow represents a typical process followed when using a simple calculator to perform basic arithmetic calculations. The simplicity and ease of use of this process make calculators valuable tools in various everyday situations.

**Proposed Improvement**

Integrate trigonometric functions such as sine (sin), cosine (cos), tangent (tan) into the calculator's interface. These functions will allow users to compute trigonometric values directly. Ensure seamless integration of trigonometric functions with other basic arithmetic operations already present in the calculator. This allows users to combine trigonometric calculations with addition, subtraction, multiplication, and division as needed.

**Benefits & Impact**

Adding trigonometric functions expands the capabilities of the calculator beyond basic arithmetic operations. Users can now perform a wider range of mathematical calculations, including trigonometric functions like sine, cosine and tangent. For students learning trigonometry or related subjects, having access to trigonometric functions in a simple calculator can aid in understanding concepts and verifying solutions to problems. It allows students to focus on learning the principles rather than spending time on manual calculations. Having these functions readily available in a simple calculator saves time and effort compared to using separate specialized calculators or manual calculations. Trigonometric functions can involve complex calculations, especially for angles or values that are not easily divisible by common fractions. By incorporating these functions into the calculator, users can ensure accuracy and precision in their calculations, reducing the risk of human error.

**Project Plan & Timeline**

**Design Phase:**

•Design the user interface layout, including buttons for trigonometric functions, input fields for angles or values, and a display area for results.

•Plan the integration of trigonometric functions with existing arithmetic operations.

•Determine error handling mechanisms for invalid inputs or calculation errors.

**Implementation:**

•Develop the calculator application/software using appropriate programming languages and frameworks JavaScript for web-based calculators.

•Implement the logic for trigonometric calculations based on selected functions and input values.

•Integrate the user interface design with the underlying logic to ensure seamless interaction.

**Evaluation & Risk Assessment**

**Accuracy:**

Metric: Percentage of correct calculations performed by the calculator.

Method: Compare the results of calculator calculations with manually calculated results or known correct values across a range of test cases.

**Error Rate:**

Metric: Percentage of erroneous calculations or unexpected behaviors encountered during testing.

Method: Record instances where the calculator produces incorrect results, displays error messages,

or fails to handle invalid inputs appropriately.

**User Satisfaction:**

Metric: User feedback and satisfaction ratings.

Method: Conduct user surveys or interviews to gather feedback on the calculator's ease of use,

interface design, features, and overall satisfaction. Utilize rating scales (e.g., Likert scale) to quantify

satisfaction levels.

**Conclusion**

Develop the calculator application/software using appropriate programming languages and frameworks. Implement the logic for trigonometric calculations based on selected functions and input values.

The value proposition of a simple calculator with trigonometric values lies in its ability to offer enhanced functionality and convenience to users. By integrating trigonometric functions such as sine, cosine, tangent, and their inverses into a basic calculator, users gain access to a broader range of mathematical operations without the need for specialized or separate tools.

I recommend moving forward with the development and implementation of the simple calculator with trigonometric values to capitalize on these benefits and meet the needs of our users effectively. Your approval or guidance on the next steps would be greatly appreciated.I