# SIMPLE CALCULATOR

* **REQUIREMENTS:**

# Using Agile

## **Introduction**

## A calculator is a mobile app that performs arithmetic operations on numbers. The simplest calculators can do only addition, subtraction, multiplication, and division. More sophisticated calculators can handle exponential operations, roots, trigonometric functions, and hyperbolic functions. Internally, some calculators perform these functions by repeated processes of addition. Portable, battery-powered calculators are popular with engineers and engineering students. The calculator we have designed will have

## Simple Calculations like addition, subtraction, multiplication, division and modulo division.

## Scientific Operations like nth power of a number, square root of a given number, factorial of a number and multiplicative inverse of a number.

## **Theme**

Calculation

## **Epic1**

Simple Calculation

## **User Stories1:**

## As an accountant.

## I want to add 2 numbers.

## I want to see the result with less time.

## **Test Case:**

## Given 2 numbers 3 and 5.

## When I add them.

## Result should be 8 with no time.

## **User Stories2:**

## As a primary school teacher.

## I want to teach students about basic addition, subtraction, multiplication and division.

## I want to get the results in less time

## **Test Case:**

* Given 2 number 16 and 8.
* When I add, multiply, subtract and divide.
* Then the result should be 24,144,8,2 respectively in each output.

**Epic2:**

Easy Set up and usages.

## **User Stories:**

* As a Student.
* I want to reset the calculator
* So that I can start fresh.

## **Test Case1:**

* Given I am in the middle of an operation.
* When I press CE (clear everything) key.
* Then the operation should be cancelled.
* And the display should show 0 show that it will be ready for next operation.

## **Test Case2:**

* Given that the display status bar on the display shows ‘M’.
* When I press CE key.
* Then the memory should get cleared and it should not display ‘M’.
* And the display should show ‘0’ for further operations

# Using V Model

## **Ageing**

|  |  |
| --- | --- |
| Time | Gradation |
| Before | Analog-User had to interact more |
| Now | Scientific and digital |
| Future | Voice enabled input |

## **Costing**

|  |  |
| --- | --- |
| Type | Cost |
| Standard | Rs. 250/- |
| Digital | Rs. 450/- |
| Scientific | Rs. 890/- |

## **Requirements:**

## **High Level Requirements:**

|  |  |
| --- | --- |
| ID | Description |
| HL\_01 | The calculator has the following keys: 0..9, ., +, -, \*, /, ±, =, C, CE |
| HL\_02 | Calculator should display correct output |
| HL\_03 | The calculator is developed using standard C++ language and should run on all machines supporting g++ compiler. |

## **Low Level Requirements:**

|  |  |
| --- | --- |
| ID | Description |
| LL\_01 | If the calculations are if not possible the calculator must display information helping the user to resolve the issue |
| LL\_02 | On encountering divide by 0 operation and operations on imaginary numbers calculator should display error message |
| LL\_03 | Should exit when the user tries to enter the choice more than the Specific choice given. |

## **SWOT Analysis**

|  |  |
| --- | --- |
| **Strength**  1. Perform basic arithmetic operations  2.Able to perform calculations for both  positive and negative numbers  3. large number calculations | **Weakness**  1.basic knowledge needed  2.Continuous input should be provided |
| **Opportunities**  1. chance to get pro skills in C and  C++ and git  2.Programming practice | **Threats**  1.Fault results for invalid inputs  2.infinite number display problem  3. imaginary numbers can’t be displayed |