Requirements

Introduction

- Scientific calculators are the devices that are used for solving various types of scientific, mathematical and engineering problems.
- Here we are going to perform some of the basic operations involving trigonometric, arithmetical and other important functions like exponent, logarithm in c programming language.

Research

- *Objective*

  This calculator can be used for various engineering calculations involving several physical quantities. With the help of this the calculation time can be effectively minimized.

- *Benefits*

  Acts as a shortcut for the users for calculation purpose.

Defining Our System

Features

Arithmetic Operations

- ✓ '1'-Addition
- ✓ '2'-Subtraction
- ✓ '3'-Multiplication
- ✓ '4'-Division

Trigonometric Operations

- ✓ '5'-Sine function.
- ✓ '6'-Cos function
- ✓ '7'-Tang function
- ✓ '8'-Cosec function
- ✓ '9'-Sec function
- ✓ '10'-Cot function

Other Mathematical Operations

- ✓ '11'-exponential
- ✓ '12'-natural log with base e
- ✓ '13'- log with base 10
- ✓ '14'-square root of positive numbers
- ✓ '15'-nth root of any number
- ✓ '16'-square of any number
- ✓ '17'-n^{th} power of a function
- ✓ '18'-x^{th} power of 10
- ✓ '19'-factorial of a number

SWOT ANALYSIS

STRENGTH

- Performs the most used calculations for with greater efficiency.
- Easy to use

WEAKNESS

- Equations solving not possible
- Cannot perform calculation involving very large numbers

OPPURTUNITIES

- Gain hands on coding experience on C
- Design robust test cases
- Use the math header files in real life

THREAT

- Operations are limited
- Not compatible with mobile phones

4W's and 1'H

Who:

- Students of different age groups
- Users requiring various outputs of various calculations

What:

- Arithmetic, trigonometric and other frequently used calculations can be performed

When:

- Can be used at any time in accordance with the user

Where:

- Compatible with any system installed with windows as an operating system

How:

- When user opens this application, various choices are given to the user for performing the required operation. After providing correct operands for the particular function, the answer will be displayed on the monitor.

High Level Requirements:

ID	DESCRIPTION	CATEGORY	STATUS
HR01	Performing arithmetic operations	Technical	IMPLEMENTED
HR02	Performing trigonometric operations	Technical	IMPLEMENTED
HR03	Performing logarithmic operations	Technical	IMPLEMENTED
HR04	Performing exponential operations	Technical	IMPLEMENTED
HR05	Finding the factorial of a number	Technical	IMPLEMENTED
HR06	Performing other frequent operations	Technical	IMPLEMENTED

Low level Requirements:

ID	Description	HLR ID	STATUS
LR01	Performing addition of numbers	HR01	IMPLEMENTED
LR02	Performing subtraction of numbers	HR01	IMPLEMENTED
LR03	Performing division of numbers	HR01	IMPLEMENTED
LR04	Performing multiplication of numbers	HR01	IMPLEMENTED
LR05	Performing sine function	HR02	IMPLEMENTED
LR06	Performing cosine function	HR02	IMPLEMENTED
LR07	Performing tangent function	HR02	IMPLEMENTED
LR08	Performing cot function	HR02	IMPLEMENTED
LR09	Performing cosec function	HR02	IMPLEMENTED
LR10	Performing sec function	HR02	IMPLEMENTED
LR11	Performing the natural log function	HR03	IMPLEMENTED

LR12	Performing the log function (base 10)	HR03	IMPLEMENTED
LR13	Performing the exponential function	HR04	IMPLEMENTED
LR14	Performing factorial function	HR05	IMPLEMENTED
LR15	Performing square function	HR06	IMPLEMENTED
LR16	Performing square ROOT function	HR06	IMPLEMENTED
LR17	Performing N^{th} power of a number	HR06	IMPLEMENTED