

SRS Document

SCIENTIFIC CALCULATOR

INTRODUCTION

The Scientific calculator has various applications in field of science, technology and engineering.

This project is an attempt to make such a calculator using c++ programming language . The calculator performs various operations on the numbers given as input and outputs the result, such as sin, cos, tan, ln, log, etc.

Here we are trying to cover as many functions as possible to make the calculator as much user friendly as we can.

FUNCTIONS USED

- **Simple Mathematical Operations:**

1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Finding Percentage
6. Finding Remainder

- **Trigonometric Functions:**

1. \sin
2. \cos
3. \tan
4. \cot
5. \sec
6. \csc

- **Exponential Functions:**

1. \exp : finds value of e raised to argument
2. \ln : finds logarithm with base as e .
3. \log : finds logarithm with base as 10.

- **Power Operations:**

1. square
2. cube
3. square root
4. cube root
5. N^{th} power (N is user specified)
6. N^{th} root (N is user specified)

- Solving system of linear equations
- Finding roots of quadratic equation
- Inverse trigonometric Functions

$\arcsin x$

$\arccos x$

$\arctan x$

- Hyperbolic Functions

\sinh

\cosh

\tanh

- Conversions

- Integration

\sin

\cos

\tan

\sec

cosec

\cot

\sec^2

x^n

e^x

$\ln x$

MAIN EVENTS

When the window of the calculator opens, we see a calculator like window appear. To carry out the calculations, first you have to give the input at one shot and then wait for the answer to be displayed in the answer box. Do not wait for value to displayed before entering the next input because the input will only be displayed after the user has entered the whole of the expression after we press the '=' button.

The output will be displayed after a delay of a few seconds, as we have coded the program to do so.

SYSTEM REQUIREMENTS

The user can use any of the compilers to run the code, we would prescribe Code Blocks though. We are using the 'simplecpp' graphics package, so the user should have the simplecpp graphics package installed on their pc.

The program would run on any of the operating systems, like Apple mac, Windows, Ubuntu, etc., though we used Windows while making the product.

STATUS OF COMPLETION

We completed most of the work but still there are some loopholes in the project. Almost all the functions were completed and also worked properly with the graphics input but some of the functions could not be integrated with the graphics. So, we are giving a separate cpp file for those functions.

CREDITS

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