**SCIENTIFIC CALCULATOR**

**Submitted by**

**Name of the Students:** Apratim Haldar

**Enrolment Number:** 12022002002236

**Section:** C

**Class Roll Number:** 96  
**Stream:** CSE

**Subject:** Programming for Problem Solving with C

**Subject Code:** IVC101

**Department:** Basic Science and Humanities

Under the supervision of

SWARNENDU GHOSH

**Academic Year: 2022-26**

PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE SECOND SEMESTER

Logo, company name

Description automatically generated

**DEPARTMENT OF BASIC SCIENCE AND HUMANITITES**

**INSTITUTE OF ENGINEERING AND MANAGEMENT, KOLKATA**

Logo, company name

Description automatically generated

**CERTIFICATE OF RECOMMENDATION**

We hereby recommend that the project prepared under our supervision by **Upalabdha Sinha,** entitled **PYTHON DATABASE PROJECT** be accepted in partial fulfillment of the requirements for the degree of partial fulfillment of the first semester.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Head of the Department Project Supervisor

Basic Sciences and Humanities

IEM, Kolkata

# INTRODUCTION

## A scientific calculator is a useful tool for performing complex mathematical calculations. In this project, we will create a program in C that works as a scientific calculator. The program will have a user-friendly interface, allowing users to input various mathematical expressions and perform basic operations

## DESIGN

The program will be designed using C language. We will use various libraries such as math.h to perform various mathematical calculations. The program will have a menu-based interface where the user can choose various mathematical operations such as addition, subtraction, multiplication, division, square root, power, and so on. The program will take the user input and perform the required operation, displaying the result to the user.

## IMPLEMENTATION

/\* The first step in implementing the program is to include the necessary libraries.

We will use math.h to perform various mathematical calculations such as square root and power.\*/

#include <stdio.h>

#include <math.h>

//Next, we will define the main function.

int main(){

    // Welcome Message

    printf("\*\*\*\*\*\*\*Scientific Calculator\*\*\*\*\*\*\*");

    //Variable Declaration

    double num1,num2,result,num,exponent,degree,radian;

    while(1){

        /\*Now we will take input of the numbers and the operation that the user wishes to

        perform\*/

        printf("Choose the mathematical operation you want to perform:\n");

        printf("1. Addition\n");

        printf("2. Subtraction\n");

        printf("3. Multiplication\n");

        printf("4. Division\n");

        printf("5. Square root\n");

        printf("6. Power\n");

        printf("7. Sin");

        printf("8. Cos");

        printf("9. Tan");

        printf("10. Exit.");

        //After this, we will take the user input using scanf.

        int choice;

        printf("Enter your choice: ");

        scanf("%d", &choice);

        //Next, we will write a switch statement to perform the selected operation.

        if(choice==10) break;

        switch(choice) {

            case 1: printf("Enter two numbers: ");

                    scanf("%lf %lf", &num1, &num2);

                    result = num1 + num2;

                    printf("Result: %lf\n", result);

                    break;

            case 2: printf("Enter two numbers: ");

                    scanf("%lf %lf", &num1, &num2);

                    result = num1 - num2;

                    printf("Result: %lf\n", result);

                    break;

            case 3: printf("Enter two numbers: ");

                    scanf("%lf %lf", &num1, &num2);

                    result = num1 \* num2;

                    printf("Result: %lf\n", result);

                    break;

            case 4: printf("Enter two numbers: ");

                    scanf("%lf %lf", &num1, &num2);

                    result = num1/num2;

                    printf("Result: %lf\n", result);

                    break;

            case 5: printf("Enter a number: ");

                    scanf("%lf", &num);

                    result = sqrt(num);

                    printf("Result: %lf\n", result);

                    break;

            case 6: float num, exponent, result;

                    printf("Enter a number and its exponent: ");

                    scanf("%lf %lf", &num, &exponent);

                    result = pow(num, exponent);

                    printf("Result: %lf\n", result);

                    break;

            case 7: printf("Enter your angle value in degree : ");

                    scanf("%lf", &degree);

                    radian = degree \* (acosl(-1.0L)/ 180);

                    printf("sin value is %lf \n", sin(radian));

                    break;

            case 8: printf("Enter your angle value in degree : ");

                    scanf("%lf", &degree);

                    radian = degree \* (acosl(-1.0L)/ 180);

                    printf("cos value is %lf \n", cos(radian));

                    break;

            case 9: printf("Enter your angle value in degree : ");

                    scanf("%lf", &degree);

                    radian = degree \* (acosl(-1.0L)/ 180);

                    printf("tan value is %lf \n", sin(radian));

                    break;

            default: printf("Invalid choice. Try again\n");

        }

    }

    return 0;

}

**VARIABLE DESCRIPTION TABLE**

|  |  |  |
| --- | --- | --- |
| **Data Type** | **Variable** | **Usage** |
| double | num1, num2, num | Stores the user input numbers on which operation is to be performed |
| int | choice | Stores the user’s choice of operation |
| double | result | Stores the final result |
| double | radian | Converts degree to radian for sin, cos, tan calculation |
| float | exponent | Stores the exponent to which a number is to be raised in exponential calculations. |

**OUTPUT**

A screenshot of a computer program

Description automatically generated with medium confidence

A screenshot of a computer program

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated