

BASIC CALCULATOR IN C — PROJECT REPORT

1. Title of the Project

Basic Calculator Using C Programming

2. Objective of the Project

The objective of this project is to design and implement a simple calculator in C that performs basic arithmetic operations such as addition, subtraction, multiplication, and division using a menu-driven program.

3. Introduction

A calculator is a fundamental tool used for performing mathematical calculations. This project demonstrates the use of decision-making statements, user input, and arithmetic operations in C programming. The program is designed to accept two numeric inputs from the user and execute one of the selected operations.

4. Problem Statement

Create a menu-driven C program that:

1. Displays a list of arithmetic operations
2. Accepts the user's choice
3. Accepts two numbers from the user
4. Performs the selected operation
5. Displays the result

5. Tools and Software Used

- C Programming Language
- Compiler: GCC / MinGW / Turbo C / CodeBlocks / OnlineGDB
- Operating System: Windows / Linux / MacOS

6. Algorithm

1. Start the program
2. Display the calculator menu

3. Read user's choice
4. If the choice is between 1 and 4, read two numbers
5. Use switch-case to perform the selected operation
6. Display the result
7. End the program

7. Source Code

```
#include
```

```
int main() {  
    int choice;  
    float num1, num2, result;  
  
    printf("===== BASIC CALCULATOR =====\n");  
    printf("1. Addition\n");  
    printf("2. Subtraction\n");  
    printf("3. Multiplication\n");  
    printf("4. Division\n");  
    printf("5. Exit\n");  
    printf("-----\n");  
    printf("Enter your choice: ");  
    scanf("%d", &choice);  
  
    if(choice >= 1 && choice <= 4) {  
        printf("Enter first number: ");  
        scanf("%f", &num1);  
  
        printf("Enter second number: ");  
        scanf("%f", &num2);
```

```
}

switch(choice) {

    case 1:
        result = num1 + num2;
        printf("Result = %.2f\n", result);
        break;

    case 2:
        result = num1 - num2;
        printf("Result = %.2f\n", result);
        break;

    case 3:
        result = num1 * num2;
        printf("Result = %.2f\n", result);
        break;

    case 4:
        if(num2 != 0)
            printf("Result = %.2f\n", num1 / num2);
        else
            printf("Error! Division by zero.\n");
        break;

    case 5:
        printf("Exiting... Thank you!\n");
        break;

    default:
        printf("Invalid Choice!\n");
}

}
```

```
    return 0;  
}
```

8. Sample Output

```
===== BASIC CALCULATOR =====
```

1. Addition
 2. Subtraction
 3. Multiplication
 4. Division
 5. Exit
-

```
Enter your choice: 1
```

```
Enter first number: 20
```

```
Enter second number: 15
```

```
Result = 35.00
```

9. Conclusion

This project demonstrates fundamental programming concepts in C, such as conditional statements, user input handling, and arithmetic operations. It is a beginner-friendly project and forms a strong base for developing more advanced applications.

10. Viva Questions & Answers

Q1. What is a switch-case statement?

A: A decision-making statement used when multiple choices are available.

Q2. What happens if the user divides a number by zero?

A: Division by zero is undefined; the program must handle it manually.

Q3. Why do we use float instead of int?

A: To allow decimal number operations.

Q4. What is a menu-driven program?

A: A program where the user selects an option from a list.

11. References

- Let Us C — Yashavant Kanetkar
- ANSI C Programming