

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