



Chandigarh University

# Computer Programming

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# SIMPLE CALCULATOR

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## Computer Programming

### Abstract

This project presents a simple command-line calculator program developed in C that performs basic arithmetic operations, including addition, subtraction, multiplication, and division. The main aim is to provide users with a straightforward tool for performing these calculations based on inputted numbers and operators.

The program is designed to handle common issues such as invalid operator input and division by zero errors, enhancing its robustness. By developing this calculator, users can efficiently execute essential arithmetic operations while receiving error messages for invalid inputs.

Core points	Elaboration
Aim	<ul style="list-style-type: none"><li>To develop a basic calculator program in C that performs addition, subtraction, multiplication, and division operations based on user input.</li></ul>
Objective(s)	<ul style="list-style-type: none"><li>To create a menu-driven calculator that accepts user input for two numbers and an operator.</li><li>To perform basic arithmetic operations (+, -, *, /) based on the chosen operator.</li><li>To handle errors such as division by zero and incorrect operator input.</li></ul>
Input/Parameters Used	<ul style="list-style-type: none"><li><b>Operator:</b> The user enters an operator (+, -, *, /).</li><li><b>Numbers:</b> The user inputs two floating-point numbers (num1 and num2).</li></ul>
Observations: Outcome	<ul style="list-style-type: none"><li>The program prompts the user to enter an operator and two numbers.</li><li>Depending on the operator entered, it calculates the result of the operation:<ul style="list-style-type: none"><li>If + is entered, it adds num1 and num2.</li><li>If - is entered, it subtracts num2 from num1..</li><li>If * is entered, it multiplies num1 and num2.</li><li>If / is entered, it divides num1 by num2 unless num2 is zero (in which case, it displays an error message).</li></ul></li><li>If an incorrect operator is entered, the program displays an error message indicating invalid operator input.</li><li>The program successfully performs the calculation and displays the result or error message.</li></ul>

## PROCEDURE CODE:

```
#include<stdio.h>

int main() {
    char operator;
    double num1, num2, result;

    // Display the menu
    printf("Enter an operator (+, -, *, /): ");
    scanf(" %c", &operator);

    // Ask for numbers
    printf("Enter two numbers: ");
    scanf("%lf %lf", &num1, &num2);

    // Perform calculation based on the operator
    switch(operator) {
        case '+':
            result = num1 + num2;
            printf("%.2lf + %.2lf = %.2lf\n", num1, num2, result);
            break;
        case '-':
            result = num1 - num2;
            printf("%.2lf - %.2lf = %.2lf\n", num1, num2, result);
            break;
        case '*':
            result = num1 * num2;
            printf("%.2lf * %.2lf = %.2lf\n", num1, num2, result);
            break;
        case '/':
            if(num2 != 0) {
                result = num1 / num2;
                printf("%.2lf / %.2lf = %.2lf\n", num1, num2, result);
            } else {
                printf("Error! Division by zero.\n");
            }
            break;
        default:
            printf("Error! Operator is not correct.\n");
    }

    return 0;
}
```

# Output:

```
main.c      Run   Output
1 #include <stdio.h>
2
3 int main() {
4     char operator;
5     double num1, num2, result;
6
7     // Display the menu
8     printf("Enter an operator (+, -, *, /): ");
9     scanf(" %c", &operator);
10
11    // Ask for numbers
12    printf("Enter two numbers: ");
13    scanf("%lf %lf", &num1, &num2);
14
15    // Perform calculation based on the
16    // operator
16    switch (operator) {
17        case '+':
18            result = num1 + num2;
19            printf("%.2lf + %.2lf = %.2lf\n",
20                   num1, num2, result);
20            break;
21        case '-':
22            result = num1 - num2;
23            printf("%.2lf - %.2lf = %.2lf\n",
24                   num1, num2, result);
24            break;
25        case '*':
26            result = num1 * num2;
27            printf("%.2lf * %.2lf = %.2lf\n",
28                   num1, num2, result);
28            break;
29        case '/':
30            if (num2 != 0) {
31                result = num1 / num2;
32                printf("%.2lf / %.2lf = %
33                   .2lf\n", num1, num2, result
33                   );
34            } else {
35                printf("Error! Division by zero
36                   .\n");
36            }
37            break;
38        default:
39            printf("Error! Operator is not
40                   correct.\n");
41    }
42    return 0;
42 }
```

/tmp/5bVx9HzdEG.o  
Enter an operator (+, -, \*, /): +  
Enter two numbers: 10 5  
10.00 + 5.00 = 15.00  
==== Code Execution Successful ===