

SRM UNIVERSITY ANDHRA PRADESH

**Introduction to Programming Using C
Project Report on**

“SCIENTIFIC CALCULATOR”

Submitted in partial fulfillment for the award of the degree in

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE AND ENGINEERING

Submitted by:-

Group: 18

Section: T

1. *Sanjeet Chukka*

AP21110011402

2. *Vamshi Krishna Nagari*

AP21110011403

3. *Prasanth Suddapalli*

AP21110011404

Under the guidance of

Ms. Snehal K.

CONTENTS

Chapter 1) Aim/Objective

Chapter 2) Technologies Used: -

2.1) Hardware Requirement

2.2) Software Requirement

Chapter 3) Abstract

Chapter 4) Introduction

Chapter 5) Algorithm

Chapter 6) Sample Input/Output (screenshots)

Chapter 7) End User

Chapter 8) Conclusion

Chapter 1

AIM

The Aim of this project is making scientific calculator using C programming language. It is used to calculate the math functions easily. This program allows users to solve complicated problems quickly and in an efficient manner.

OBJECTIVE

- **The C program code is able to show the scientific calculator.**
- **Using this Scientific calculator one can also find trigonometric values**
- **Easy to everyone to do calculations.**
- **To decrease burden on students.**
- **We can get more accurate values.**
- **Time Saving.**

Chapter 2

TECHNOLOGIES USED

SOFTWARE REQUIREMENTS:

Language used: C

Operating System: Windows 7 or Windows 10

HARDWARE REQUIREMENTS:

Hard Disk: 512 GB (Minimum)

Processor: Intel-i3 (Minimum)

Chapter 3

ABSTRACT

Calculators are part and parcel of modern education. Involvement of science and engineering in different fields of knowledge is increasing with each bit of time is passed by, and they are playing a role in description and characterization of the delicate phenomena of nature arising day by day. These fields of knowledge and mathematics in particular, are influencing even those distant branches of knowledge, which were so far imagined to be free of mathematics. Even art is not free of mathematics and there exists mathematical art. Computations are getting lengthy and complex especially in design and analysis of engineering systems. Scientific calculators are handy tools. But an efficient computation is a skill that can be developed.



Chapter 4

INTRODUCTION

Today's world is of science and technology. Science has pervaded in other branches of knowledge, it has become difficult to think a subject thoroughly explained without inviting science to help. More insight into the natural phenomena is required and as a way, they demand computations. Subjects specifically related to engineering and technology, are heavily computational. Fortunately, powerful computing devices are readily available and in every body's reach. It has been observed that usually students buy scientific calculators. But it is a pity that most of these students usually imagine the operations of multiplying and dividing, and computations of functions like sine and cosine is the all a scientific calculator can do.

Today's scientific calculators are highly powerful and if their operation is properly understood, a little innovative imagination can do wonders. Long calculations are a normal part of design and analysis, where students spend time like anything, and conclude the computational procedure in distaste.

A scientific calculator is an electronic device that performs the basic operations of arithmetic (addition, subtraction, multiplication and division). In math's, a scientific calculator is a valuable and useful tool, since it allows the user to solve more difficult equations greater than one or two terms quickly and easily.

Equations with a scientific calculator are commonly used in maths, physics and other sciences.

Chapter 5

ALGORITHM

Step 1: Start

Step 2: Insert your choice

Step 3:

Case1: Input X and Y, Result= $X+Y$, Print Result

Case2: Input X and Y, Result= $X-Y$, Print Result

Case 3: Input X and Y, Result= $X*Y$, Print Result

Case 4: Input X and Y, Result= $X+Y$, Print Result

Case 5: Input X and Y, Result= $\text{sqrt}(X)$, Print Result

Case 6: Input X and Y, Result= $\text{pow}(X, Y)$, Print Result

Case 7: Input X and Y, Result= $\text{pow}(X, 2)$, Print Result

Case 8: Input X and Y, Result= $\text{pow}(X, 3)$, Print Result

Case 9: Input X and Y, Result= $\text{pow}(X, -1)$, Print Result

Case 10: Input X and Y, Result= $\text{pow}(X, (1/Y))$, Print Result

Case 11: Input X; Y=3; Result= $\text{pow}(X, (1/Y))$, Print Result

Case 12: Input X, Result= $\text{pow}(10, X)$, Print Result

Case 13: Input X, Result= $X!$, Print Result

Case 14: Input X and Y, Result= $(X*Y)/100$, Print Result

Case 15: Input X, Result= $\log_{10}(X)$, Print Result

Case 16: Input X and Y, Result= $X\%Y$, Print Result

Case 17: Input X, Result= $\sin(X)$, Print Result

Case 18: Input X, Result= $\cos(X)$, Print Result

Case 19: Input X, Result= $\tan(X)$, Print Result

Case 20: Input X, Result= $\operatorname{cosec}(X)$, Print Result

Case 21: Input X, Result= $\cot(X)$, Print Result

Case 22: Input X, Result= $\sec(X)$, Print Result

Step 4: Input choice 0 to exit

Step 5: End

Chapter 6

SAMPLE INPUT/OUTPUT

Default menu

```
Select your operation (0 to exit):  
1. Addition  
2. Subtraction  
3. Multiplication  
4. Division  
5. Square root  
6.  $X^Y$   
7.  $X^2$   
8.  $X^3$   
9.  $1/X$   
10.  $X^{(1/Y)}$   
11.  $X^{(1/3)}$   
12.  $10^X$   
13.  $X!$   
14.  $\%$   
15.  $\log_{10}(x)$   
16. Modulus  
17.  $\sin(X)$   
18.  $\cos(X)$   
19.  $\tan(X)$   
20.  $\operatorname{Cosec}(X)$   
21.  $\cot(X)$   
22.  $\sec(X)$   
Choice:
```

Case 1: Addition

Input

```
Choice: 1
Enter X: 6

Enter Y: 35
```

Output

```
Result: 41.000000
Select your operation (0 to exit):
1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Square root
6.  $X^Y$ 
7.  $X^2$ 
8.  $X^3$ 
9.  $1/X$ 
10.  $X^{(1/Y)}$ 
11.  $X^{(1/3)}$ 
12.  $10^X$ 
13.  $X!$ 
14.  $\%$ 
15.  $\log_{10}(x)$ 
16. Modulus
17. Sin(X)
18. Cos(X)
19. Tan(X)
20. Cosec(X)
21. Cot(X)
22. Sec(X)
Choice: _
```

If we add whole screenshot it is getting bigger, So for below cases we added only cropped parts of input and output

Case 2: Subtraction

Input

```
Choice: 2
Enter X: 25

Enter Y: 13_
```

Output

```
Result: 12.000000
```

Case 3: Multiplication

Input

```
Choice: 3
Enter X: 5

Enter Y: 12
```

Output

```
Result: 60.000000
```

Case 4: Division

Input

```
Choice: 4
Enter X: 36

Enter Y: 13_
```

Output

```
Result: 2.769231
```

Case 5: Square root

Input

```
Choice: 5
Enter X: 81
```

Output

```
Result: 9.000000
```

Case 6: X^Y

Input

```
Choice: 6
Enter X: 5

Enter Y: 3
```

Output

```
Result: 125.000000
```

Case 7: X^2

Input

```
Choice: 7
Enter X: 6
```

Output

```
Result: 36.000000
```

Case 8: X^3

Input

```
Choice: 8
Enter X: 5
```

Output

```
Result: 125.000000
```

Case 9: $1/X$

Input

```
Choice: 9
Enter X: 6
```

Output

```
Result: 0.166667
```

Case 10: $X^{(1/Y)}$

Input

```
Choice: 10
Enter X: 16

Enter Y: 4_
```

Output

```
Result: 2.000000
```

Case 11: $X^{(1/3)}$

Input

```
Choice: 11
Enter X: 64_
```

Output

```
Result: 4.000000
```

Case 12: 10^X

Input

```
Choice: 12
Enter X: 2_
```

Output

```
Result: 100.000000
```

Case 13: $X!$

Input

```
Choice: 13
Enter X: 5
```

Output

```
Result: 120
```

Case 14:%

Input

```
Choice: 14
Enter X: 31
Enter Y: 12
```

Output

```
Result: 3.72
```

Case 15:log₁₀(X)

Input

```
Choice: 15
Enter X: 3_
```

Output

```
Result: 0.48
```

Case 16:Modulus

Input

```
Choice: 16
Enter X: 25
Enter Y: 5_
```

Output

```
Result: 0
```

Case 17:Sin(X)

Input

```
Choice: 17
Enter X:12
```

Output

```
Result: 0.21
```

Case 18:Cos(X)

Input

```
Choice: 18
Enter X: 90
```

Output

```
Result: 0.00
```

Case 19: Tan(X)

Input

```
Choice: 19
Enter X: 23
```

Output

```
Result: 0.42
```

Case 20: Cosec(X)

Input

```
Choice: 20
Enter X: 60_
```

Output

```
Result: 1.15
```

Case 21: Cot(X)

Input

```
Choice: 21
Enter X: 30
```

Output

```
Result: 1.73
```

Case 22: Sec(X)

Input

```
Choice: 22
Enter X: 0
```

Output

```
Result: 1.00
```

Chapter 7

END USER

- **Student**
- **Employees**
- **Physicists**
- **Engineers**

Chapter 8

CONCLUSION

The purpose of this project is to make scientific calculator And for fields which include mathematical calculations this Is very useful, and they can avoid calculative errors by using scientific calculator.

Our group has learned how to use Switch cases. And we understood the concept of loops by using do-while looping construct. We got to know about exit keyword and how to get trigonometric values and logarithmic values.