

# **Computer Science**

## **Project Synopsis**

**Topic: Online Calculator**

**Name: Swarnali Shome**  
**Class: XI Sec:K Roll.no: 38**

## Objective Of The Project

This project is capable to solve mathematical calculations starting from basics mathematical operations, square root functions, logarithmic functions, conversion of units(decimal to binary and vice versa). It can be used in various ways depending upon the need. For students, it would help them in their mathematics assignments or any assignment which involves the use of a calculator, can be used by shopkeepers to calculate the total amount(apply rebates etc), and in various other ways.

This calculator asks the user their preference and as per the preference of operation, it asks the user to provide inputs required to display the output(result).

Some of the examples of online calculators are Wolfram Alpha, Cymath, Symbolab and many more.

## What is an online calculator ?

An online calculator is a web-based tool or application that performs mathematical calculations and other related functions over the internet. These calculators are accessible through web browsers on various devices such as computers, smartphones, tablets.

There are various types of online calculator based on their purpose and use. Types of online calculators are Scientific Calculators, Graphing Calculators, Programming Calculators and many more. Examples of online calculators are Wolfram Alpha, RapidTables, GeoGebra and many more

## Expected Inputs and Outputs:

Few expected inputs and outputs are:

**1) Addition:**

Enter your choice (1-9): 1

Enter the first number: 5

Enter the second number: 3

Result: 8.0

## **2)Subtraction:**

Enter your choice (1-9): 2

Enter the first number: 10

Enter the second number: 7

Result: 3.0

## **3)Logarithm:**

Enter your choice (1-9): 6

Enter the number: 100

Enter the logarithm base: 10

Result: 2.0

## **4)Decimal to binary conversion:**

Enter your choice (1-9): 7

Enter a decimal number: 14

Binary: 1110

## **5)Square Root:**

Enter your choice (1-9): 5

Enter the number: 25

Result: 5.0

## Python Modules And Concepts Used:

The only python module used is math module.

Concepts of python used are:

- Functions
- Loops
- Conditional Statements

Here we create various functions to perform various mathematical operation. The loops are used to maintain continuity of the program.

The user may exit from the program any time they want. Conditional Statements helps the program to understand the inputs and display output according to condition.

## Scopes of this project:

The scopes of this project are given below:

- Efficient in error handling and dealing with exception situations such as checking for division by zero and providing appropriate error messages.
- Can perform scientific calculations such as logarithm, square root and unit conversion (from decimal to binary and vice versa) along with basic arithmetic conversions.
- Unit conversion varieties could be increased by adding more categories of conversion.
- Number of mathematical tools can be increased in order to make the calculator more effective.
- User Interactive: The user is able to choose which operation he/she wants to perform and can quit the calculator whenever they want.

## **Limitations of the Project**

Despite having various advantages, it has some limitations too. They are:

- Limited availability of scientific tools as the calculator can calculate logarithm and square root only.
- Limited availability of unit conversion tools. It can only convert from decimal to binary and vice versa.
- Unable to perform basic mathematical operations for more than two numbers at a time.

## **Hardware and Software Information**

### **Software Information**

This project was done in Visual Studio Code Text editor with Python 3.11 version.

## **Hardware information**

Pc: MacBook Air

Operating System: MacOS Ventura

Version: 13.5.1

Processor: 1.1 GHz Dual-Core Intel Core i3

Memory: 8 GB

## **Bibliography:**

Some information and ideas were taken from  
[www.google.com](http://www.google.com).

Inspiration: <https://www.geeksforgeeks.org/make-simple-calculator-using-python/>