

A Project Report on
Calculator project
Submitted in partial fulfilment of the requirement of Python
of
BE. Computer



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1.Introduction

The Simple Calculator is a command-line tool designed to perform basic mathematical operations such as addition, subtraction, multiplication, and division. It provides a user-friendly interface for performing calculations quickly and efficiently. This calculator is intended for anyone needing to perform simple arithmetic calculations without the need for a graphical user interface.

2.Overview

The Simple Calculator project introduces a command-line tool for basic arithmetic operations, offering users a straightforward solution for mathematical calculations. It focuses on simplicity and efficiency, featuring a user-friendly interface and robust error handling. The project undergoes thorough analysis to meet functional and non-functional requirements while assessing technical, operational, and economic feasibility.

3.Installation:

I. Prerequisites:

- Python 3.x installed on your system.

II.Installation steps:

- Download the cal.py file or copy the code provided.
- Open a terminal or command prompt.
- Navigate to the directory where cal.py is located.
- Run the script by typing `python cal.py` and pressing Enter.

4.Usage:

To use the Simple Calculator, follow these steps:

- Run the script as instructed in the installation steps.
- Select the desired operation by entering the corresponding number (1 for addition, 2 for subtraction, 3 for multiplication, 4 for division).
- Enter the numbers you wish to perform the operation on, separated by spaces.
- Press Enter to see the result.

5.Functionality:

I.Supported Operations:

- Addition (+)
- Subtraction (-)
- Multiplication (*)
- Division (/)

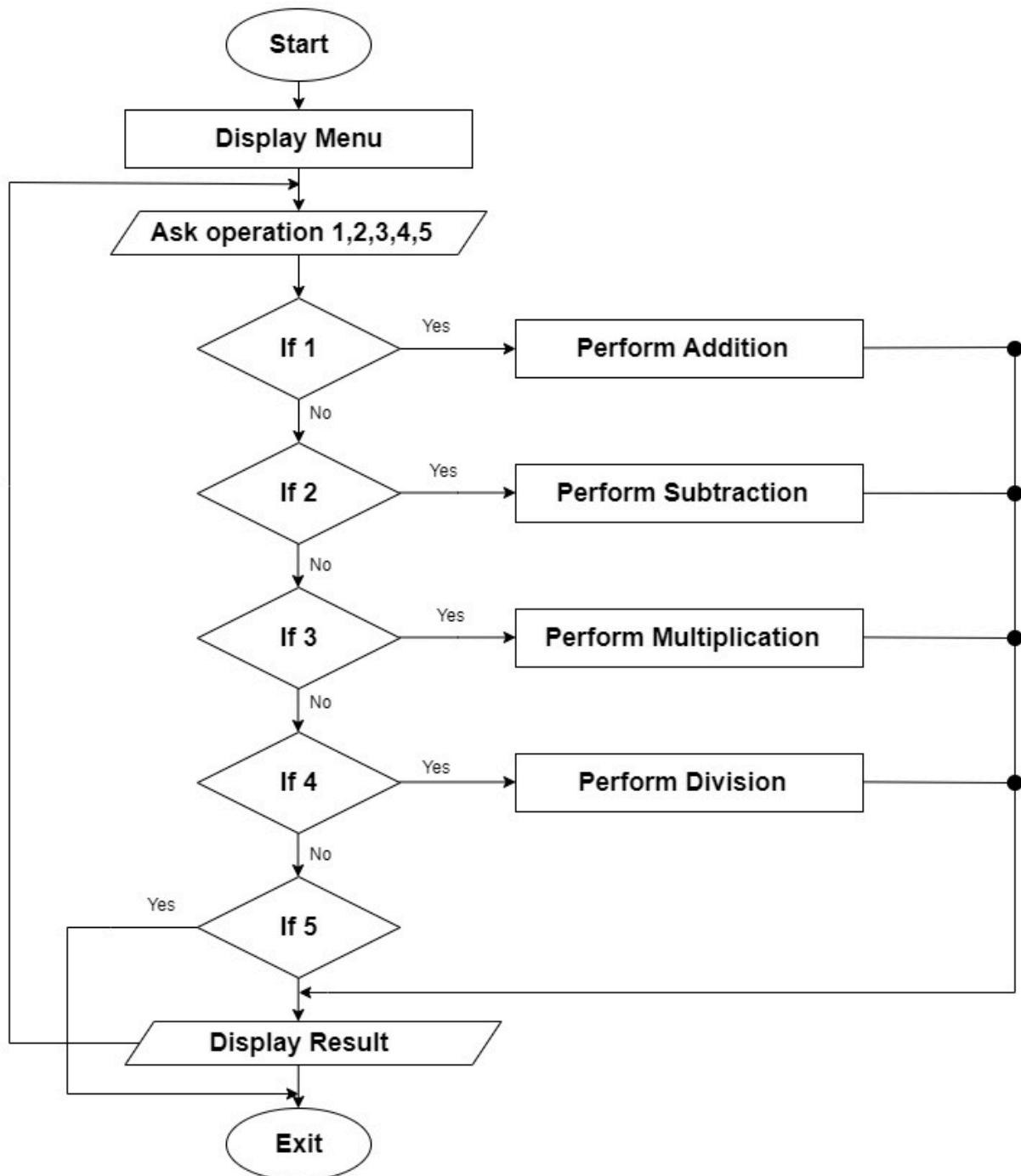
II.How Functions Work:

- Addition: Sums up all the numbers provided.
- Subtraction: Subtracts each subsequent number from the first one.
- Multiplication: Multiplies all the numbers together.
- Division: Divides the first number by each subsequent number, handling division by zero error.

6.Implementation Details:

The calculator is implemented in Python and consists of four main functions: add, subtract, multiply, and divide. Each function takes a list of numbers as input and performs the corresponding mathematical operation.

7. System Design:



8.Input Validation:

User input is validated to ensure it meets the required format. The calculator expects valid numeric inputs separated by spaces. Invalid inputs prompt the user to re-enter the values correctly.

9. Error Handling:

The calculator handles errors gracefully, particularly division by zero. If the user attempts to divide by zero, an error message is displayed, and the calculation is aborted.

10.Extensibility:

The Simple Calculator can be extended to support additional mathematical operations or advanced features. Users can modify the code to add functionality such as exponentiation, square root, or trigonometric functions. It can be further enhanced with the more user friendly UI that the user don't have to enter the operation they can simply click on it through pointing device.

11. Testing:

The calculator code is thoroughly tested using various test cases to ensure accuracy and reliability. Unit tests are employed to verify the correctness of each mathematical operation, and integration tests validate the overall functionality of the calculator.

12. Performance:

The Simple Calculator is designed for efficiency and performance. It utilizes basic arithmetic algorithms to ensure fast calculation times even with large input datasets. Performance optimizations may be implemented as needed based on user feedback and requirements.

13.Conclusion:

The Simple Calculator provides a straightforward solution for performing basic arithmetic operations. With its simple interface and reliable functionality, it serves as a useful tool for quick calculations in various scenarios.

14. Reference:

- GeeksofGeeks:
<https://www.geeksforgeeks.org/>
- Python.org:
<https://www.python.org/>
- Flowchart:
<https://www.draw.io/>