K.R. MANGALAM UNIVERSITY
THE COMPLETE WORLD OF EDUCATION

SCHOOL OF ENGINEERING AND TECHNOLOGY
COMPUTER SCIENCE AND ENGNEERING
COMPUTER SCIENCE FUNDAMENTALS & CAREER PATHWAYS
COURSE CODE:- ETCCCP105
ASSIGNMNET 3
REPORT ON :-

"*Build & Document a Mini Project Using GitHub and VS Code*"

Submitted to:- Mr.Rajesh Kumar
SCHOOL OF ENGINEERING & TECHNOLOGY
CSE

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Section:- B
Semester:- 1st (ODD)

1:- Introduction

This mini project is a simple console-based Calculator developed using Python. It performs basic arithmetic operations such as addition, subtraction, multiplication, and division. The project was created using Visual Studio Code and version-controlled using Git and GitHub.

2:- Objectives

The primary objective of this project is to understand Python programming basics, implement functions, handle user input, and manage errors. A secondary objective was to use Git for project management and host the repository on GitHub.

3:- Tools & Technologies Used

- Spyder
- Visual Studio Code
- Git (Version Control)
- GitHub (Repository Hosting)

https://github.com/ramanrajcoder/calculator-python-github-and-git

Features Implemented

This calculator mini-project includes a set of well-designed and fully functional features that demonstrate the application of Python fundamentals. The key features implemented are:

- **Addition of Two Numbers**
  A dedicated function allows the user to input two numbers and returns their sum. This helps users perform quick arithmetic operations with accuracy.
- **Subtraction of Two Numbers**
  A subtraction function enables the user to subtract one number from another. It includes basic validation and ensures correct output for both positive and negative results.
- **Multiplication of Two Numbers**
  The multiplication feature allows users to multiply two values. This function is useful for a wide range of calculations and demonstrates the use of simple arithmetic operators in Python.
- **Division with Zero-Handling**
  Division has been implemented safely by including a **Zero Division Error** check. If the user tries to divide a number by zero, the program displays a friendly error message instead of crashing.
- **Simple and Interactive Console-Based Menu**
  The calculator includes a user-friendly, text-based menu that guides the user to choose an operation. After selecting the operation, the program asks for input values and displays the result. The loop-based structure allows the user to perform multiple operations until they choose to exit.

5. Git & GitHub Workflow

To maintain proper version control and ensure clear documentation of the development process, a structured Git workflow was followed:

- **Meaningful Commits**
  Each stage of the development—setup, writing calculation functions, adding menu logic, handling errors, and testing—was saved as separate, meaningful commits. This provides a clean commit history and makes it easy to track project progress.
- **Project Files Organized in Folders**
  Supporting files such as README.md and .gitignore were added to maintain project clarity. A separate docs/ folder was created to store additional documentation, screenshots, and workflow notes.
- **Repository Setup on GitHub**
  After completing the project, a new GitHub repository was created. All project files were added, committed, and pushed to GitHub using proper commands. This ensures the project is safely stored online, easy to review, and ready for submission.
- **Best Practices Followed**
  Clean commit messages, proper folder structure, and a well-written README were included to reflect good GitHub standards. The repository now acts as a portfolio element demonstrating your understanding of version control systems.

6. Conclusion

This mini-project proved to be an excellent learning experience in both Python programming and version control using Git & GitHub. The calculator program successfully implements the four basic mathematical operations while ensuring error-handling and smooth user interaction. Throughout the development process, you gained hands-on experience in writing clean, modular functions, structuring a Python project, and maintaining an organized Git workflow.

Overall, the project meets all required objectives, works efficiently, and demonstrates a clear understanding of essential programming concepts and collaborative software development practices.


```
Python 3.12.4 | packaged by Anaconda, Inc. | (main, Jun 18 2024, 15:03:56) [MSC v.1929 64 bit (AMD64)]
Type "copyright", "credits" or "license" for more information.

IPython 8.25.0 -- An enhanced Interactive Python.

In [1]: runfile('C:/Users/RAMAN RAJ/OneDrive/Desktop/untitled0.py', wdir='C:/Users/RAMAN RAJ/OneDrive/Desktop')
=== Simple Calculator ===
Operations: +  -  *  /
Enter first number: 45
Enter operator (+ - * /): /
Enter second number: 5
Result: 9.0
Do you want to calculate again? (yes/no): no
Exiting calculator...

In [2]:
```