** Programming Language: Python 3.x**

** SIMPLE CALCULATOR**

*A simple calculator that can perform basic arithmetic operations like addition, subtraction, multiplication and division. We will explore two implementations for the same*

* ***Graphical User Interface (GUI)***
* ***Calculator using Python (Tkinter)***

***Objective:***

* *The goal of this project is to develop a simple* ***calculator application*** *using Python's built-in Tkinter module.*
* *It performs* ***basic arithmetic operations*** *such as addition, subtraction, multiplication, and division through a graphical interface.*

***Tools and Technologies:***

* ***Programming Language: Python 3.x***
* ***GUI Library****: Tkinter*
* ***Platform****: Cross-platform (Windows, Mac, Linux)*
* ***IDE: [Any - e.g., VS Code, PyCharm, IDLE]***

***Features:***

* *GUI-based interface*
* *Supports addition, subtraction, multiplication, and division*
* *Real-time input and result display*
* *Clear button to reset calculations*
* *Handles multiple operations in sequence*

***Working of the Calculator:***

***1. Tkinter Window Setup***

* *Tk() is used to create the main application window.*
* *geometry() defines the window size.*
* *resizable(0, 0) disables resizing.*
* *title() sets the window title as "Calculator".*

***2. Input Field***

* *A StringVar() variable stores and updates the expression.*
* *An Entry widget displays the input and result.*

***3. Button Functionality:***

* ***btn\_click(item)****: Adds clicked number or operator to the current expression.*
* ***bt\_clear()****: Clears the input field and resets the expression.*
* ***bt\_equal()****: Evaluates the current expression using eval() and shows the result.*

***4. Buttons and Layout***

* + - *Buttons are organized into a frame using grid() layout manager.*
    - *Buttons include digits (0–9), operations (+, −, ×, ÷), clear (C), and equals (=).*

***5. Expression Evaluation***

* + - *eval() is used to compute the string expression like "4+5\*2" and return the result*

***Learning Outcomes:***

* + *Gained hands-on experience in creating GUI applications*
  + *Understood event-driven programming in Python*
  + *Learned how to manage layouts and user interaction using Tkinter*
  + *Practiced string manipulation and logic implementation*

***Conclusion:***

* *This project successfully implements a functional GUI calculator. It demonstrates core programming concepts such as variables, functions, conditionals, loops, and GUI design. It is a foundational project that paves the way for more complex applications using Python.*