PYTHON LAB REPORT

Submitted in partial fulfillment of requirements for the award of

Bachelors of Computer Applications

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1. Greeting Function (funtion.py)

This simple Python script is designed to greet the user.
It contains a function called `greet_user(name)` that takes a user's name as input. If a name is provided, it returns a personalized greeting. If not, it defaults to greeting the user as "Guest."

This kind of script is helpful in learning how to work with functions, conditionals, and string formatting in Python.

2. Linear Equation Solver (solve_linear_equation.py)

This program solves linear equations of the form `ax + b = 0`.
It considers all edge cases:
- If `a` is zero and `b` is also zero, the solution is infinite.
- If `a` is zero but `b` is not, there's no solution.
- Otherwise, it calculates the value of `x` using the formula `x = -b/a`.

This project introduces the concept of conditional logic, mathematical operations, and return values in Python.

3. Star Pattern and Line Graph (star and graph.py)

This file contains two separate functionalities:
1. **Star Pattern Printing**: It prints a right-angle triangle pattern made of asterisks (`*`). This is a classic beginner exercise to understand loops.
2. **Graph Plotting**: It uses the `matplotlib` library to draw a simple line graph with x and y values. This part introduces basic data visualization in Python.

Combining both gives a creative twist: one part strengthens logical thinking, while the other introduces external libraries and visualization.

4. GUI Calculator (tinker_calculator.py)

This project creates a basic calculator using the `tkinter` library in Python.
It includes buttons for digits and operations (+, -, *, /), and allows users to perform calculations through a graphical interface.

Key learning points include:
- GUI development using tkinter
- Event-driven programming
- Input validation and error handling
- This project demonstrates how Python can be used to build interactive applications.

5. GUI Greeting App (tinker_greet.py)

This is another tkinter-based project that takes a user's name through an input field and greets them when a button is clicked.
If no name is entered, it defaults to greeting the user as "Guest."

This project is great for understanding GUI basics, event handling, and interacting with user input.