**Project Title: SimpleBudget: A Personal Finance Tracker**

**Problem Statement**

Handling personal finances can be challenging, particularly for beginners in budgeting. Many people find it hard to monitor their expenses and savings, resulting in financial anxiety. This project seeks to develop a straightforward command-line Python application that enables users to record their expenses and check their financial standing. The significance of this project lies in its potential to improve users' financial awareness and promote healthier spending habits.

**Project Description**

SimpleBudget will be a command-line application that enables users to:

* **Log Expenses**: Users can enter expenses along with categories (e.g., food, shopping, transport).
* **View Expenses**: Users can view a summary of their expenses, sort and filter them by category and total spending.
* **Set Budgets**: Users can set monthly budgets for each category and see if they are within limits.

**Main Components**:

* **Expense**: Represents individual transactions with attributes like amount, date, and category.
* **Budget**: Represents budget goals for different categories.
* **FinanceTracker**: A class that manages expenses and budgets and provides summary methods.

**Goals and Deliverables**

By the end of the semester, we aim to deliver the following features:

* Capability to log expenses, including categories and dates.
* Functionality to view expenses categorized and track total spending.
* Option to set budgets for each category and monitor adherence.

**Stretch Goals**:

* Implement a command to delete or edit logged expenses.
* Add a summary report feature that provides monthly spending insights.
* Introduce file I/O to save and load user data from a JSON file.
* Implement a proper UI , so that user can get better experience when interacting with the tool.

**Target Users**

The primary users of SimpleBudget will be individuals looking to manage their personal finances more effectively. They will interact with the program through a command-line interface, entering expenses, viewing summaries, and setting budgets.

**Preliminary Object-Oriented Design**

The primary design of the project will be object oriented. The design will follow SOLID principles and necessary design patterns as per need. TDD will be implemented and unit testing will be done throughout the development process.

Key classes in the project may include:

* **Expense**: Manages expense details and the functions related to expense such as amount, date, and category.
* **Budget**: Handles budget limits and checks if spending exceeds these limits.
* **FinanceTracker**: Provides methods to log expenses, view summaries, and manage budgets.

**Feasibility and Tools**

This project is feasible within the semester timeframe, given the familiarity with Python and basic OOP principles following tools will be used -

* **Language**: Python 3.
* **Testing Framework**: unittest for unit testing.

**Future Exploration**

As we progress through the course, we anticipate applying advanced OOP concepts such as:

* **Inheritance**: To create different types of expenses (e.g., recurring vs. one-time).
* **Polymorphism**: To handle various budget types and their specific behaviors.
* **Design Patterns**: Exploring patterns like Singleton for managing user sessions or data persistence.