

Coursework 03 Specification: Enhanced Personal Finance Tracker (GUI Implementation with Tkinter and OOP)

Overview:

Building on your knowledge of Python, dictionaries, and file I/O, your next challenge is to enhance the Personal Finance Tracker by developing a graphical user interface (GUI) using Tkinter. This advanced version should not only display the information from a provided JSON file but also incorporate object-oriented programming (OOP) concepts for the GUI components. Additionally, your application will include a search function and a sorting feature, similar to a file explorer, to manage and analyze financial transactions more effectively.

Objectives:

1. Integrate a GUI using Tkinter and OOP concepts.
2. Load and display data from a JSON file upon GUI invocation.
3. Implement search and sorting functionalities within the GUI.
4. Ensure the application is user-friendly and robust.

Requirements

GUI Design and Implementation (40 Marks):

1. Utilize Tkinter to develop the GUI, applying classes and objects to encapsulate the components.
2. Ensure the GUI loads the transactions from the provided JSON file when invoked.
3. Design the interface to be intuitive and user-friendly, with clear labels and buttons for various functionalities.

Data Handling and Features (40 Marks):

Search Functionality: Allow users to search for transactions based on attributes such as date, amount, or type of expense. Implement filtering to display only the transactions that match the search criteria.

Sorting Feature: Implement a feature where clicking on a column heading in the transaction display table sorts the data based on that column. The sorting should toggle between ascending and descending order.

JSON Integration: Use the JSON file format for loading and saving transactions. Ensure your application correctly parses the JSON structure as specified in the original assignment.

Testing and Documentation (20 Marks):

Develop a comprehensive test plan to ensure the GUI functions as expected, including tests for loading data, searching, and sorting.

Document your design decisions, class structures, and the functionality of your GUI. Include instructions for running the application and any dependencies that need to be installed.

Submission Guidelines

Submit all the necessary files, including Python scripts, JSON files, documentation, and test plans, through your learning platform. Organize your submission neatly and ensure that the instructions for setting up and running your application are clear and concise.