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Final project

Finance assistant

Goal: The goal of this project is to create an automated system for tracking personal finances. Instead of relying on multiple apps or manual spreadsheets, the system records spending, income, savings, and investment activity in a single code. It aims to make finances easy to read by automatically sorting transactions and plotting how they are distributed across different categories such as food, transport, bills, income, gifts or freelance. It is also able to track savings growth over time, and monitor the performance of an investment portfolio.

Functions:

Working principle: The system operates through a command-driven interface where the user inputs natural-language-style commands such as “spent 10 coffee” or “salary 1200.” Each command is parsed to extract the amount, determine whether it is income or expense, and assign it to the correct category based on keyword rules. These transactions are stored in a CSV file, forming the core dataset for analysis.

Savings are tracked separately. The user can manually transfer money into or out of savings, or allow the system to automatically calculate monthly leftover income and move it into savings. Each savings change is recorded with a date, enabling accurate cumulative plotting.

The investment component focuses on S&P 500 exposure. Users can buy or sell shares, and the system fetches real-time index prices to calculate cost basis, current value, and profit. Every buy or sell action also creates a historical snapshot, stored in a dedicated portfolio history file. This allows the portfolio’s value to be plotted over time, independent of the current share count.

Visualization functions generate pie charts for income and expenses, as well as line charts for savings and portfolio performance. Timeframe filters

(day, week, month, or custom ranges) allow users to zoom in on specific periods.