Personal Finance Tracker: Mastering Your Money

Many struggle to track daily expenses, leading to end-of-month financial shortages. Traditional methods are often tedious and inefficient.

Our Python-based "Personal Finance Tracker" solves this by digitally logging expenses, visualising spending, and providing clear financial insights.

Core Solution: Digital Expense Management

Data Entry

Input date, category, description, and amount for each expense.

Data Persistence

Expenses are saved to a CSV file, ensuring no data loss.

Data Visualisation

Generate graphs to clearly show spending distribution.

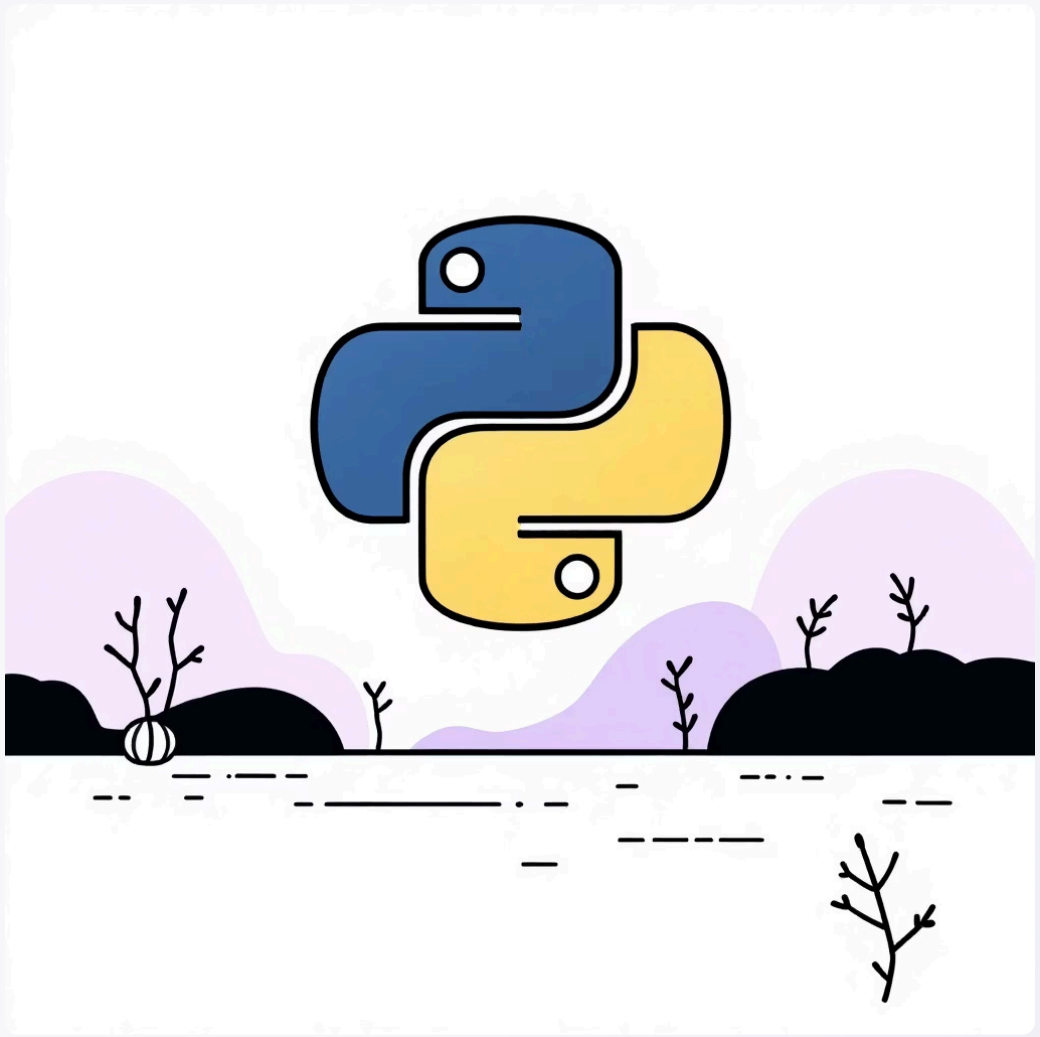
Error Handling

System manages basic input errors, like non-numeric amounts.

Technical Foundations

Software Requirements

- Language: Python 3
- Libraries:
  - pandas (tabular data)
  - matplotlib (plotting graphs)
  - datetime (automatic date logging)



Top-Down Design

Project modularised into manageable functions for ease of development.

01

Main Menu

Controls program flow and user choices.

02

Add Expense

Captures user input and saves to CSV.

03

View Data

Reads and displays CSV data, calculates total sum.

04

Visualisation

Groups data by category and displays a pie chart.

Application Logic: How It Works

Start Program

Initiates the application.

Display Menu

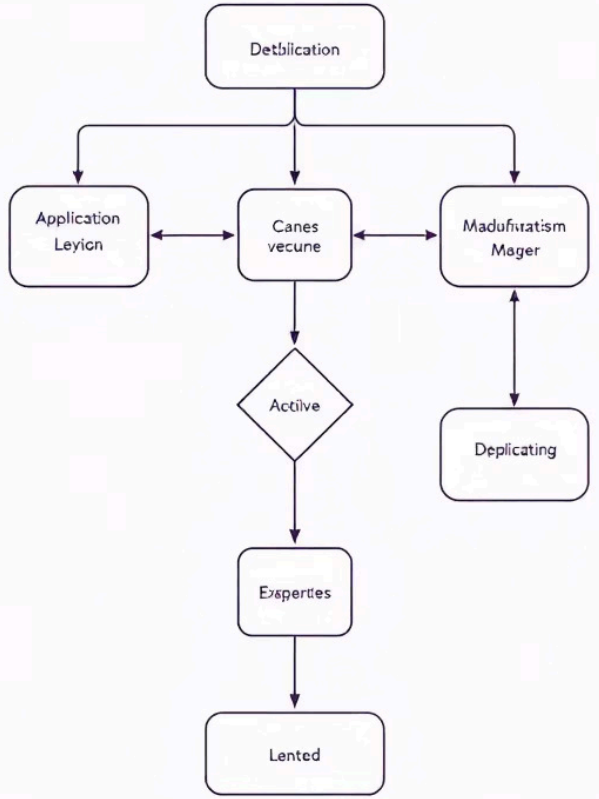
Options: Add, View, Graph, Quit.

User Selection

Program responds based on user choice.

Exit

Terminates the application.



Adding an Expense: Detailed Flow

Get Current Date

Automatically logs the transaction date.

Input Category & Description

User provides details for the expense.

Input Amount

Amount entered with validation for numeric input.

Append to data.csv

New expense record is added to the CSV file.

Viewing and Visualising Data

View History

- Checks for data.csv existence.
- Reads data using Pandas.
- Prints table to console.
- Calculates and displays total amount spent.

Show Graph

- Reads data from data.csv.
- Groups data by 'Category'.
- Sums amounts for each category.
- Generates a clear pie chart using Matplotlib.

Implementation & Refinement

The project was implemented using Python, leveraging key libraries.

1

Data Storage

CSV file (data.csv) served as a simple database.

2

Data Manipulation

Pandas DataFrame facilitated easy CSV read/write operations.

3

Graphing

Matplotlib's `.plot(kind='pie')` visualised spending.

Testing & Fixes

First Run Crash

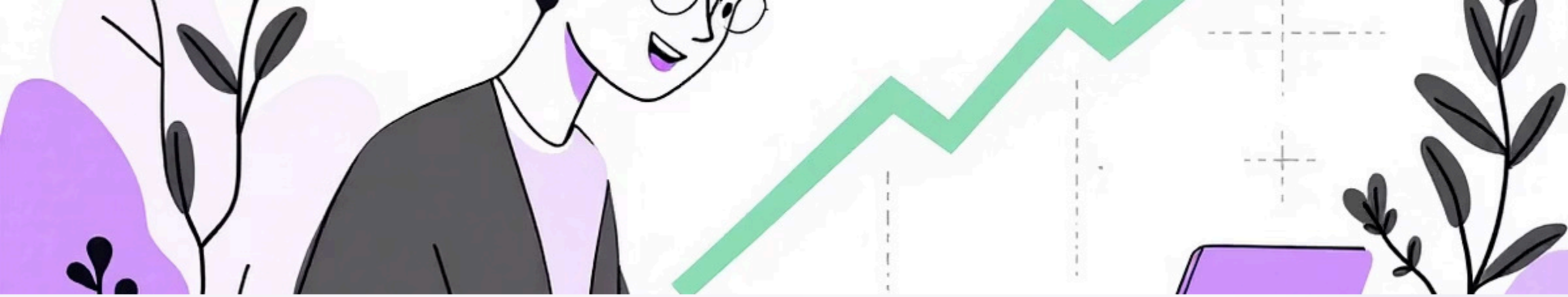
Fixed by adding a try-except block to create missing data.csv.

Invalid Input

Resolved with validation to ensure numeric amount input.

Empty Graph Error

Addressed by displaying "No data found" message if file is empty.



Conclusion & Future Scope

The Personal Finance Tracker successfully helps users manage expenses, showcasing Python's capabilities for file handling and data visualisation.

Future Enhancements

Monthly Budget Limits

Introduce a feature to set and track budget adherence.

Entry Deletion

Allow users to remove specific expense records.

Graphical User Interface (GUI)

Develop a more intuitive visual interface for enhanced user experience.