Personal Expense Tracker

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# Purpose

The ExpenseTracker class is designed to help users manage their personal finances by tracking expenses and monitoring spending against a set budget. It allows users to record their expenditures, categorize them, and see how much they are spending over time.

* The ExpenseTracker class is designed to manage personal expenses using a pandas DataFrame to store details like ID, Date, Description, Amount, and Category.
* The tracker includes functionality for loading and saving data from/to CSV and text files for expenses and budget, respectively.
* Core features include adding, viewing, tracking against a budget, deleting expenses, and viewing monthly spending summaries.
* A menu-driven interface is implemented for user interaction, including a main menu and a dedicated budget menu.

# Additional Features

In addition to meeting the requirements of the project, the following features were implemented

* **Saving and Loading Budget:** The code includes functionality to save and load the budget from a separate text file (budget.txt).
* **Monthly Spend View:** The **view\_monthly\_spend** method calculates and displays spending per month, indicating if each month is over or under budget. This provides a more detailed breakdown than just the total spending vs. budget.
* **Delete Expense Functionality:** The **delete\_expense** method allows the user to remove a previously entered expense.
* **Budget Menu:** The code includes a dedicated **budget\_menu** to organize budget-related actions, providing a clearer user interface.
* **Icons for Budget Status:** The **view\_monthly\_spend** method uses icons (✅, 🤝, 🚨) to visually indicate the budget status for each month.
* **Welcome Message:** A welcome message is displayed when the application starts.
* **File Not Found Handling:** The **load\_csv** and **load\_txt** methods include specific messages when the expense or budget files are not found.
* **Alternate Exit:** An option to save and exit is available on the main menu.

# Methods

## \_\_init\_\_ Method

The **\_\_init\_\_** method initializes the **ExpenseTracker** class. It sets up the file names for storing expenses (expenses.csv) and the budget (budget.txt). It also creates empty lists to hold the expense data and sets the initial budget to zero. In addition, It calls **load\_files()** to load any existing expense or budget data from the specified files when the tracker is started.

## File Handling Methods

The file handling methods are responsible for reading from and writing to the expense and budget files.

* **load\_csv()** reads expense entries from the **expenses.csv** file. It handles cases where the file doesnt exist or contains invalid data format.
* **load\_txt()** reads the budget amount from the **budget.txt** file. It also checks if the file exists and if the content is a valid number.
* **load\_files()** is a helper method that calls both **load\_csv()** and **load\_txt()** to load all data at once.
* **save\_expenses()** writes the current list of expenses to the expenses.csv file.
* **save\_budget()** writes the current budget amount to the budget.txt file.
* **save\_files()** calls both **save\_expenses()** and **save\_budget()** to save all data simultaneously.

## Core Functionality Methods

These methods provide the main features for interacting with the expense data and budget:

* **add\_expense()** prompts the user to enter details (date, category, amount, description) for a new expense and adds it to the list after validating the input format.
* **view\_expenses()** displays all the recorded expenses in a readable format.
* **set\_budget()** allows the user to input and set their monthly budget.
* **track\_budget()** calculates the total amount spent from the recorded expenses and compares it to the set budget, informing the user if they are within, on, or over budget.
* **delete\_expense()** shows the user a numbered list of expenses and allows them to select and remove an expense by its number.
* **view\_monthly\_spend()** calculates and shows the total amount spent for each month, indicating whether the spending for that month was within, on, or over the budget.

## Menu Methods

The menu methods are responsible for the user interface:

* **print\_menu()** is a helper method that displays a given menu with numbered options and their descriptions.
* **budget\_menu()** displays and handles the options related to budget management (setting budget, viewing monthly spend, returning to main menu).
* **menu()** is the main interactive loop of the application. It displays the primary menu options (add, view, track budget, save, exit) and calls the corresponding methods based on user input. It continues to display the menu until the user chooses to exit.

# How to use the Personal Expense Tracker

To use the Expense Tracker, follow these steps:

1. **Run the Application**
   1. Ensure you have Python installed.
   2. Save the provided code as a Python file (e.g., expense\_tracker.py).
   3. Open a terminal or command prompt.
   4. Navigate to the directory where you saved the file.
   5. Run the script using the command: python expense\_tracker.py
   6. The application will start and load any existing expenses.csv or budget.txt files.
2. **Main Menu**
   1. Once the application is running, you will see the main menu with numbered options.
   2. Enter the number corresponding to the action you want to perform and press Enter.

A screenshot of a computer program

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1. **Adding an Expense**
   1. Select option **1** from the **main menu** ("Add expense").
   2. You will be prompted to enter the following details:
      1. **Date** (YYYY-MM-DD): Enter the date of the expense in the specified format (e.g., 2023-10-27).
      2. **Category:** Enter the category of the expense (e.g., Food, Transport, Utilities).
      3. **Amount:** Enter the numerical amount of the expense (e.g., 25.50).
      4. **Description:** Enter a brief description of the expense (e.g., Groceries from supermarket).

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1. **Viewing Expenses**
   1. Select option **2** from the **main menu** ("View expenses").
      1. All your recorded expenses will be displayed in a list format.

A close up of a sign

AI-generated content may be incorrect.

1. **Tracking Budget**
   1. Select option **3** from the **main menu** ("Track budget").
      1. This will take you to the Budget Menu and automatically show your total spending compared to your budget.

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1. **Setting/Updating Budget**
   1. Select option **1** from the **Budget Menu** ("Set budget").
      1. Enter your monthly budget amount when prompted.

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1. **Viewing Monthly Spend**
   1. Select option **2** from the **Budget Menu** ("View monthly spend").
      1. The total spending for each recorded month will be displayed, along with an indicator of whether the spending was within, on, or over budget.

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1. **Saving Data**
   1. Select option **4** from the **main menu** ("Save expenses and budget").
   2. This will save your current expenses to expenses.csv and your budget to budget.txt.



1. **Exiting the Application**
   1. Select option **5** from the **main menu** ("Save expenses and budget then exit") to save your data and close the application.

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* 1. Select option **6** from the **main menu** ("Exit (no save)") to close the application without saving any recent changes.

