1. Class: ExpenseTracker

This is the heart of the application where all the logic resides.

Attributes

total_budget: Stores the total budget the user enters at the start.

expenses: A list to hold all the added expenses as dictionaries (each dictionary contains date, description, amount, and category).

remaining_money: Tracks how much money is left after deducting all expenses.

Methods

add_expense(date, description, amount, category="General")

Purpose: Adds a new expense.

Steps:

Checks if the amount is greater than zero and less than or equal to the remaining money.

If valid, adds the expense to the expenses list and deducts the amount from remaining_money.

remove_expense(index)

Purpose: Removes an expense by its position in the list.

Steps:

Validates if the index is within the valid range.

If valid, removes the expense and refunds its amount back to remaining_money.

view_expenses()

Purpose: Displays all expenses in a clear, table-like format.

Steps:

If there are no expenses, it prints a message.

Otherwise, it lists each expense with an index, date, description, category, and amount.

view_summary()

Purpose: Shows the total amount spent and the remaining money.

Steps:

Sums up all expense amounts.

Prints the total spent and the remaining budget.

utilize_remaining_money()

Purpose: Suggests how to utilize the remaining money.

Steps:

If money is left, it provides ideas like saving, treating yourself, or donating.

If no money is left, it advises reviewing your expenses.

export_expenses(filename="expenses.json")

Purpose: Saves all expenses to a file.

Steps:

Uses Python's json.dump() to write the expenses list to a file in JSON format.

import_expenses(filename="expenses.json")

Purpose: Loads expenses from a file.

Steps:

Reads the file and updates the expenses list.

Recalculates remaining_money based on the loaded data.

2. Main Function

This is where the program interacts with the user.

Steps in Main Function

Ask for Budget:

Prompts the user to enter a total budget.

Checks if the entered value is valid (greater than zero).

Show Menu:

Repeatedly displays options for managing expenses until the user exits.

Options:

Add Expense:

Prompts the user for:

Date (in YYYY-MM-DD format).

Description (e.g., "Groceries").

Amount (e.g., 50).

Category (optional, defaults to "General").

Calls the add_expense() method.

Remove Expense:

Prompts for the index of the expense to remove.

Calls the remove_expense() method.

View Expenses:

Displays the list of expenses by calling view_expenses().

View Summary:

Shows the total expenses and remaining money using view_summary().

Utilize Remaining Money:

Calls utilize_remaining_money() to display ideas for using leftover money.

Export Expenses:

Saves expenses to a file by calling export_expenses().

Import Expenses:

Loads expenses from a file by calling import_expenses().

Exit:

Ends the program.

3. Example Interaction

Set Budget:

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Enter your total budget: 500

Add Expense:

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Menu:

1. Add Expense

...

Enter your choice (1-8): 1

Enter the date (YYYY-MM-DD): 2024-11-21

Enter the description: Groceries

Enter the amount: 50

Enter the category (default: General): Food

Expense added: Groceries ($50.00).

View Expenses:

markdown

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Enter your choice (1-8): 3

Index Date Description Category Amount

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1 2024-11-21 Groceries Food $50.00

View Summary:

bash

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Enter your choice (1-8): 4

--- Budget Summary ---

Total Expenses: $50.00

Remaining Money: $450.00

Utilize Remaining Money:

diff

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Enter your choice (1-8): 5

--- Ideas for Remaining Money ---

You can still use $450.00 for:

- Saving for future goals.

- Treating yourself with something small.

- Investing in hobbies or education.

- Donating to a good cause.

Remove Expense:

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Enter your choice (1-8): 2

Enter the expense index to remove: 1

Removed expense: Groceries ($50.00).

Exit:

java

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Enter your choice (1-8): 8

Goodbye!

Why It’s Simpler?

The menu provides clear, straightforward options.

Each action is encapsulated in a function, making the code modular and easy to understand.

Error handling ensures invalid inputs (e.g., incorrect indices, invalid dates) are managed gracefully.

Suggestions for remaining money add practical value.

Let me know if you'd like further simplifications!