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Expense Tracker - Project

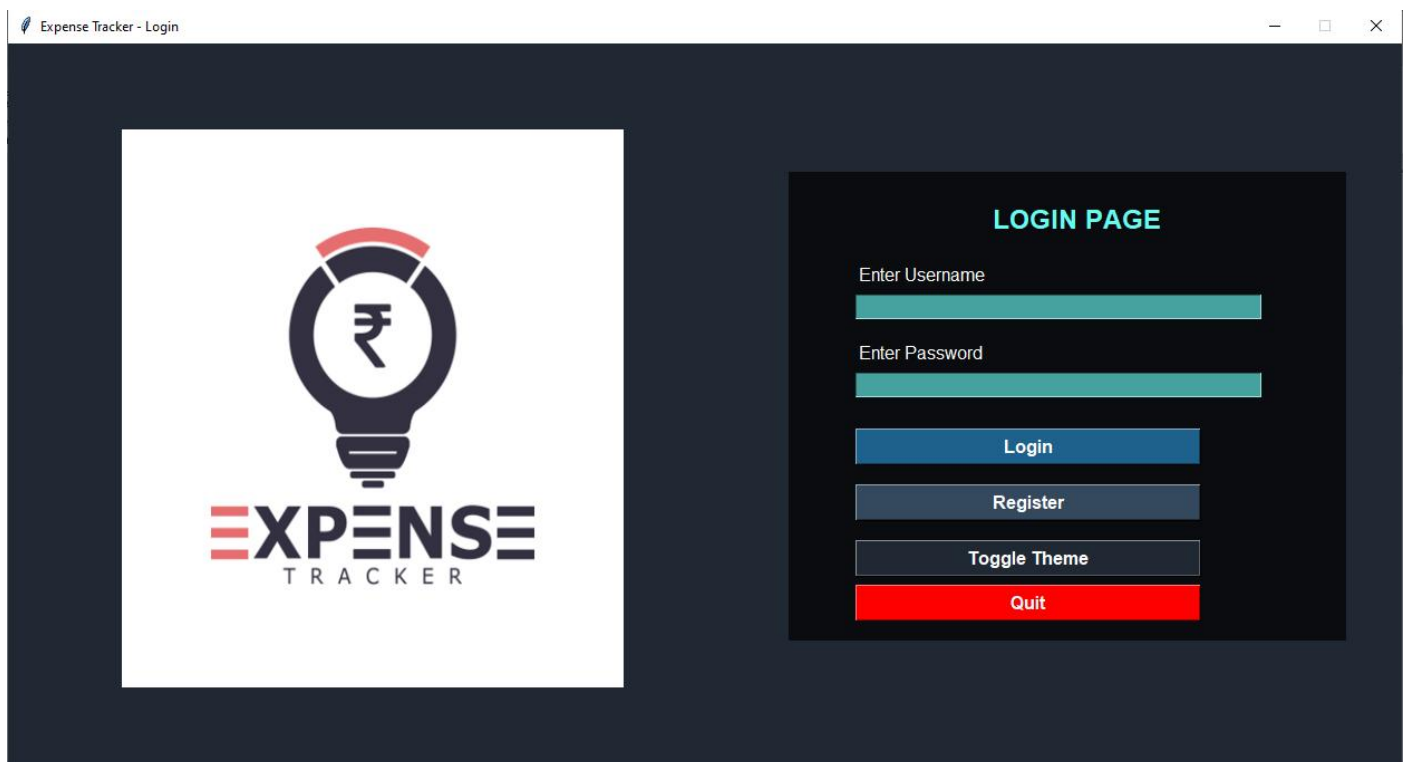
Introduction

The Expense Tracker is a Python-based application that helps users manage their expenses and income efficiently. It provides a user-friendly dashboard for adding, viewing, and analyzing financial records. The application uses **SQLite3** as its database and **Matplotlib for data visualization**. Users can register and log in to maintain personal financial records securely.

Key Features

User Authentication

Sign-up and login system to ensure each user has a private account.



Expense & Income Management

Add, update, and delete expense records (amount, category, description, date).

Add, update, and delete income records (amount, source, date).

Data is stored securely in an **SQLite3 database**.

The screenshot shows a web application titled "Expense Tracker - Expense and Income". The interface is divided into two main sections. On the left, there is a sidebar with a welcome message "WELCOME, hasan!". Below this, there are input fields for "EXPENSE AMOUNT:", "CATEGORY:", "DESCRIPTION:", and "DATE (YYYY-MM-DD):", followed by a green "SUBMIT EXPENSE" button. Further down, there are input fields for "INCOME AMOUNT:", "SOURCE:", and "DATE (YYYY-MM-DD):", followed by a green "SUBMIT INCOME" button. At the bottom of the sidebar are two buttons: a blue "VIEW RECORDS" button and a red "LOGOUT" button. The main content area on the right is titled "EXPENSE RECORD DETAILS" and contains a table with the following data:

Category	Amount	Date	Description
hostel fee	8000.0	2025-03-22	rent
cheezious	2500.0	2025-03-22	food
Aftari	17000.0	2025-03-22	food
sehri	5000.0	2025-03-22	
treat	3000.0	2025-03-22	food
fine	1000.0	2025-03-22	challan

Below the expense table, there is a section titled "INCOME RECORD DETAILS" with a table containing the following data:

Source	Amount	Date
parents	20000.0	2025-03-22
online	10000.0	2025-03-22
lottery	10000.0	2025-03-22

At the bottom of the main content area, there are two buttons: a green "EXPORT TO CSV" button and an orange "VISUALIZE RECORDS" button.

Data Visualization

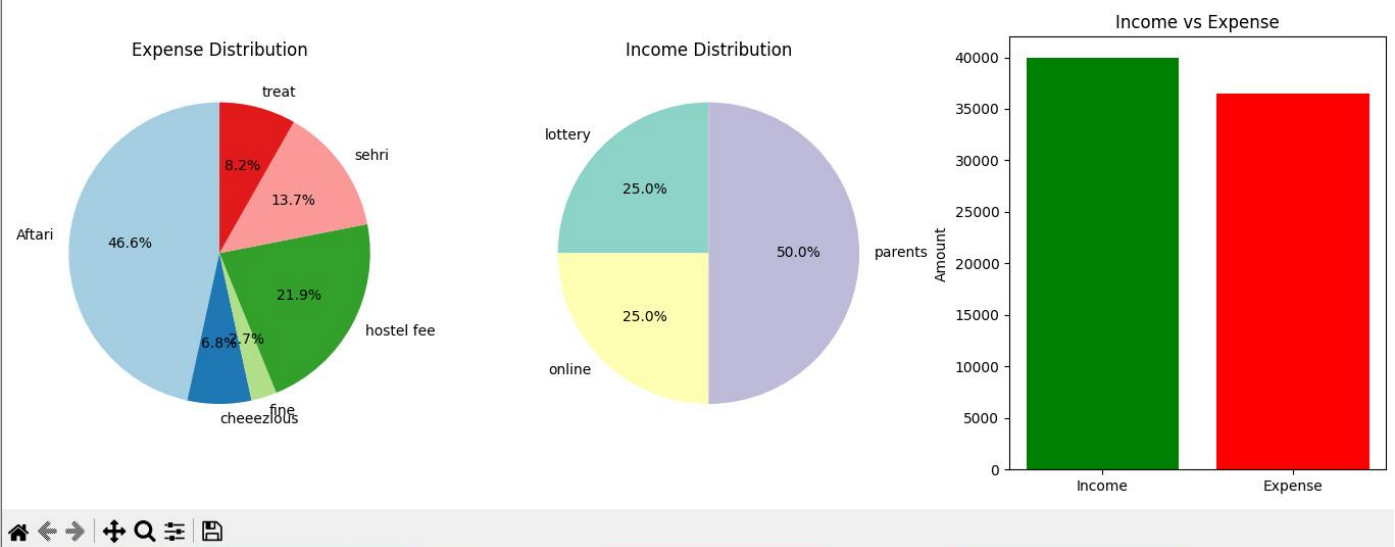
Pie Charts for both expenses (by category) and income (by source).

Bar Chart comparing total income vs. total expenses.

Clicking the "**Visualize Records**" button displays a separate 1250x650 window with financial insights.

The visualization window has distinct background colors for better readability.

Figure 1



Save Data as CSV

Users can export expense and income records as a **CSV (EXCEL) file**.
Allows easy integration with external applications like Excel.

A1		fx		Category					
	A	B	C	D	E	F	G	H	
1	Category	Amount	Date	Description					
2	Hostel Rent	8000	3/22/2025	rent					
3	KFC	1000	3/22/2025	food					
4	burgers	2000	3/22/2025	food					
5	aftari	20000	3/22/2025	food					
6	treat	3500	3/22/2025	food					
7	jim	8000	3/22/2025	jim fee					
8	clothes	4000	3/22/2025	eid					
9									
10	Source	Amount	Date						
11	parents	35000	3/22/2025						
12	projects	5000	3/22/2025						
13	loan	10000	3/22/2025						
14	ATM	5000	3/22/2025						
15	saving	3000	3/22/2025						
16	gift	1000	3/22/2025						
17	prize	2000	3/22/2025						
18									
19									

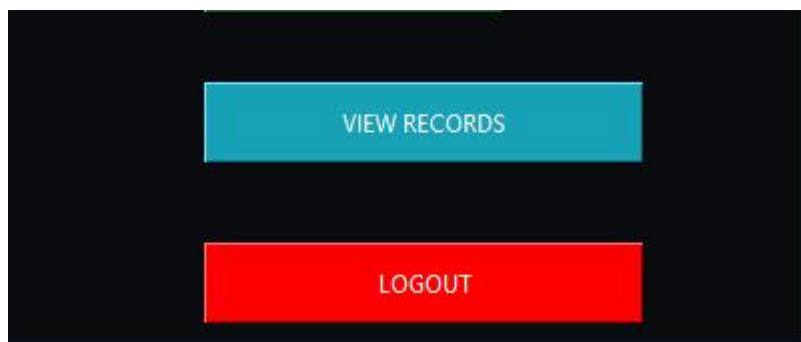
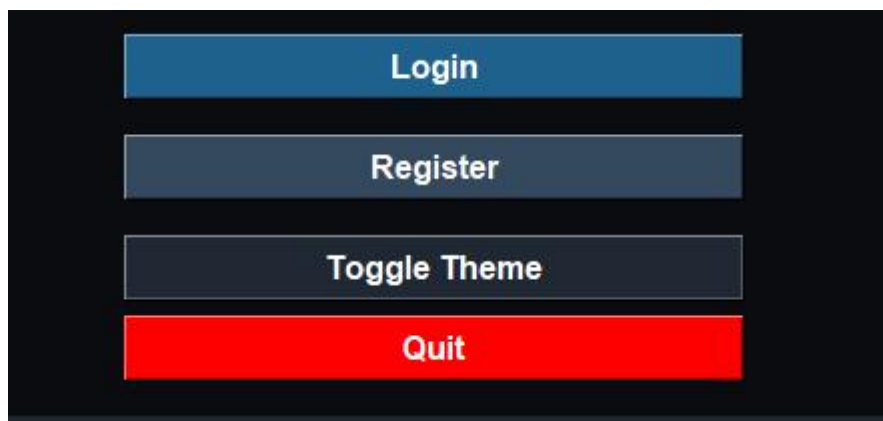
Dark & Bright Mode

Users can switch between **Dark Mode** and **Bright Mode** for better readability. UI dynamically adapts based on user preferences.

Logout & Quit Buttons

Logout Button: Logs out the current user and returns to the login screen.

Quit Button: Exits the application safely.

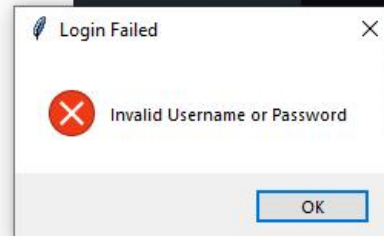


Error Handling & Validation

Invalid Input Handling: Ensures users enter correct data formats (e.g., numeric values for amounts).

Database Integrity Checks: Prevents duplicate or inconsistent entries.

Try-Except Blocks: Captures unexpected errors and provides meaningful messages.



Secure & Efficient Backend

SQLite3 Database: Ensures efficient storage and retrieval of records.

Optimized Queries: Enhances performance for large datasets.

Working Details

User Authentication & Data Access

The user signs up or logs in using their credentials.

Upon successful login, the system fetches and loads only that user's expense and income records.

Adding Expenses & Income

The user enters details like amount, category/source, description, and date.

Clicking the '**Add Expense**' or 'Add Income' button saves data into the SQLite database.

The table updates dynamically to reflect the new entry.

Viewing & Managing Records

The system displays a table of expenses and income.

Data Visualization

Clicking 'Visualize Records' opens a 1250x650 window.

It displays three graphs:

Expense Pie Chart (Grouped by category).

Income Pie Chart (Grouped by source).

Bar Graph Comparing Income vs. Expenses.

The graphs update in real-time based on stored data.

Exporting Data to CSV

Clicking the '**Export to CSV**' button saves expense and income records as a CSV file.

The user can choose the save location.

User Logout & Exit

Logout Button clears session data and redirects the user to the login screen.

Quit Button closes the application safely.

Conclusion

This Expense Tracker provides a seamless and secure platform to manage personal finances. With its robust data visualization, user authentication, and export capabilities, it ensures an optimal experience for tracking financial activities.
