

Expense Tracker & Splitter

I. INTRODUCTION

The **Expense Tracker & Splitter** application is a web-based solution designed to facilitate effective personal finance management. Built using Streamlit, this application enables users to seamlessly track their personal expenses, visualize spending patterns, and split group expenses among participants. It addresses the need for a user-friendly interface that simplifies financial tracking and enhances collaboration in managing shared expenses.

2. PROJECT SETUP

2.1 PREREQUISITES

Before running the application, ensure that the following software is installed on your machine:

- **Python:** Version 3.x is required for compatibility with the libraries used in this project.
- **Streamlit:** This library is essential for creating the web application.
- **Pandas:** Used for data manipulation and analysis.
- **Plotly:** Utilized for creating interactive visualizations.

2.2 INSTALLATION STEPS

To set up the project, follow these steps:

1. **Install Required Libraries:** Open your terminal or command prompt and run the following command:

```
bash
Copy code
pip install streamlit pandas plotly
```

2. **Run the Application:** Navigate to the directory where your `app.py` file is located and run:

```
bash
Copy code
streamlit run app.py
```

This command will launch the application in your default web browser.

3. APPLICATION OVERVIEW

The **Expense Tracker & Splitter** application provides a holistic view of individual and group expenses. Users can:

- Track personal expenses by categorizing them.
- Visualize spending habits through various charts.
- Split shared expenses easily among multiple participants.

The application features a clean and intuitive user interface, allowing users to navigate between personal and group expense tracking efficiently.

4. CODE STRUCTURE

The code for the application is structured to enhance readability and functionality. Below is a breakdown of its main components:

4.1 IMPORTS

The application begins by importing necessary libraries:

```
python
Copy code
import streamlit as st
import pandas as pd
import plotly.express as px
import plotly.graph_objects as go
from datetime import datetime, timedelta
```

- **Streamlit:** For building the web interface.
- **Pandas:** For managing and analyzing data.
- **Plotly:** For creating interactive visualizations.

4.2 CSS CUSTOMIZATION

Custom CSS is applied to enhance the visual appearance of the application, ensuring a modern and user-friendly design.

4.3 SESSION STATE MANAGEMENT

Streamlit's session state is utilized to maintain data persistence. This allows users to keep track of their expenses across different interactions without losing any data.

4.4 FUNCTION DEFINITIONS

Each function in the code is responsible for specific features of the application:

- **home_page():** Displays the home screen with quick statistics and a form to add expenses.
- **add_personal_expense():** Provides a form for users to input personal expenses.

- **view_personal_expenses():** Allows users to view their expense history with filtering options.
- **visualize_personal_expenses():** Generates visual representations of the user's spending data.
- **add_group_expense():** Enables users to input group expenses and manage contributions from different participants.
- **view_group_balances():** Displays the balance each participant owes or is owed.
- **visualize_split_expenses():** Provides visual insights into group expense distributions.

4.5 MAIN APPLICATION LOGIC

The sidebar navigation enables users to choose between the home page, personal expense tracker, and group expense splitter, ensuring smooth navigation throughout the application.

5. FEATURES

5.1 HOME PAGE

The home page serves as the main dashboard for users, featuring:

- **Welcome Message:** A friendly introduction to the application's functionalities.
- **Quick Statistics:** Displays total expenses, average expenses, and the total number of recorded expenses, providing users with immediate insights into their financial status.
- **Quick Add Expense:** A form that allows users to quickly enter new expenses without navigating away from the home page.

5.2 PERSONAL EXPENSE TRACKER

This section provides tools specifically for individual expense tracking:

- **Add Personal Expense:** Users can enter details including the date, category, amount, and an optional note. This feature encourages users to document their spending habits.
- **View Expense History:** Users can filter their expense records by date range and view a comprehensive history of their expenses, which aids in tracking spending over time.
- **Visualize Expenses:** Users can create visualizations to better understand their spending patterns, using charts such as:
 - **Pie Chart:** Shows the distribution of expenses by category.
 - **Bar Chart:** Displays monthly expenses categorized by type.
 - **Line Chart:** Illustrates cumulative expenses over time.

5.3 GROUP EXPENSE SPLITTER

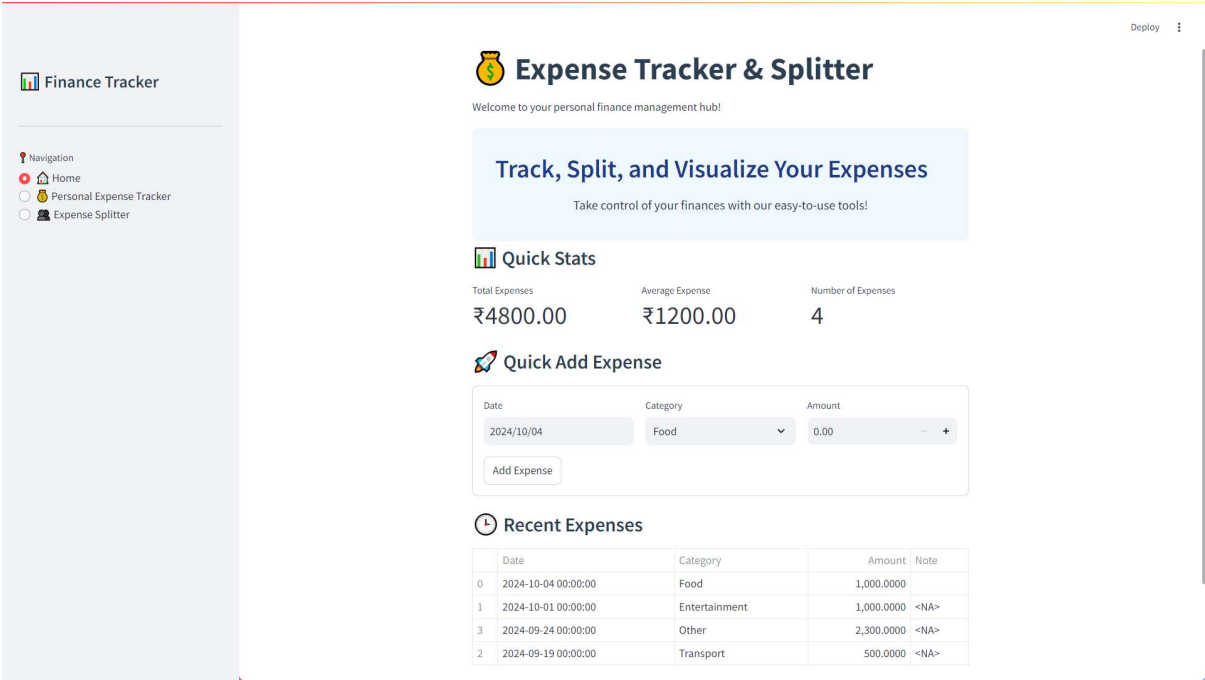
This feature is aimed at managing shared expenses among groups:

- **Add Group Expense:** Users can describe an expense, specify the total amount, and enter the names of participants. They can also input the amount paid by each participant to calculate who owes what.
- **View Balances:** After adding group expenses, this feature displays how much each participant owes or is owed, facilitating clear communication about shared finances.

- **Visualize Split Expenses:** Provides charts that illustrate how much each participant has paid and the balances between them, making it easier to settle debts.

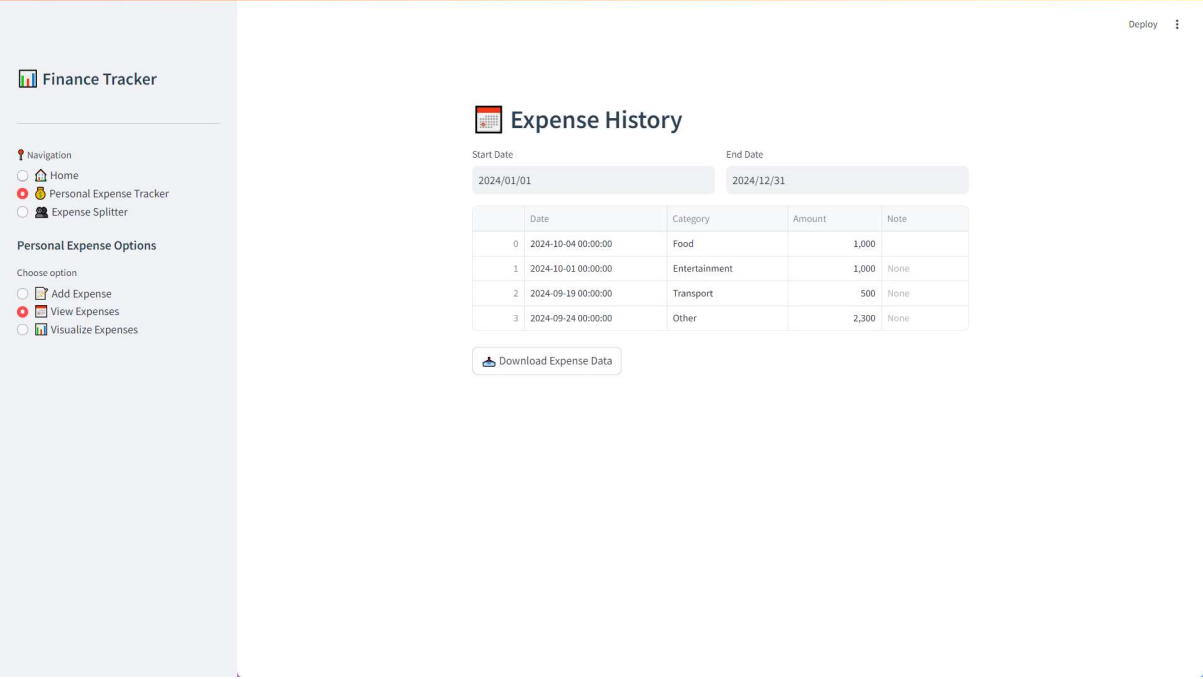
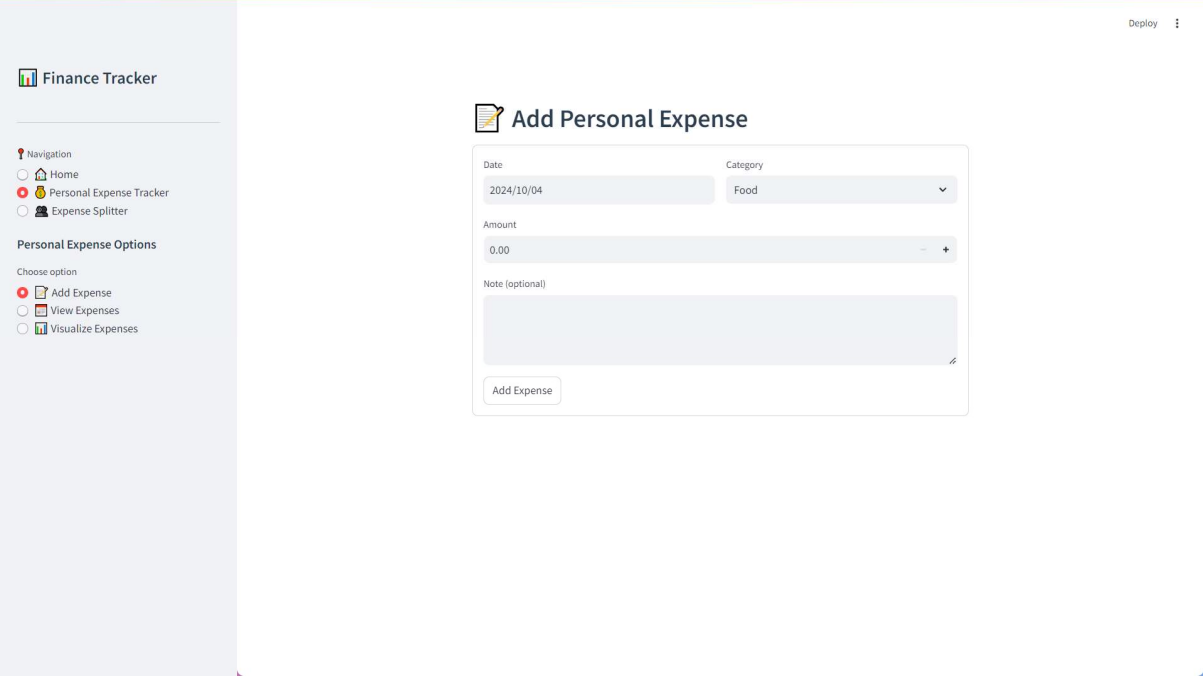
6. SCREENSHOTS

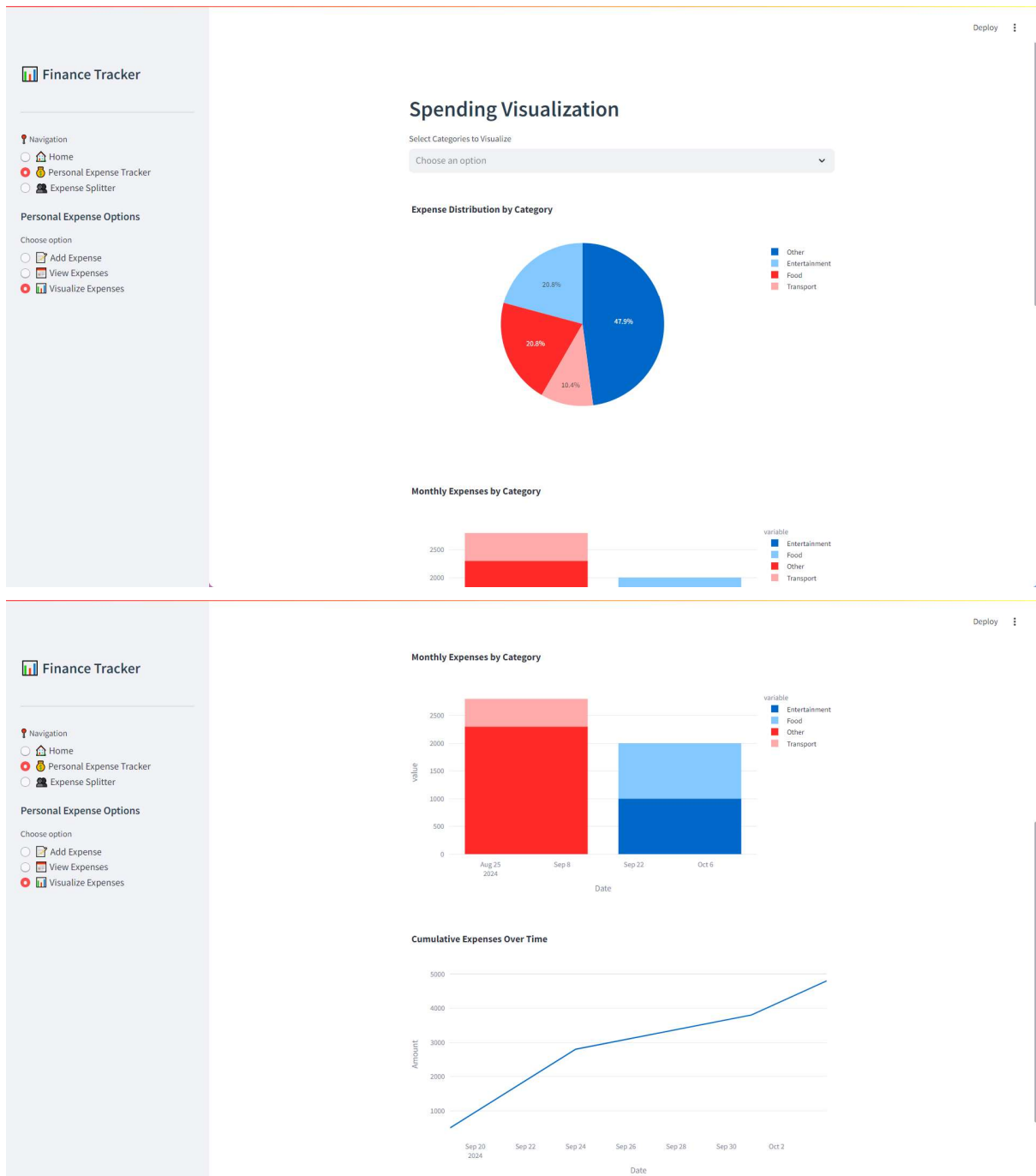
6.1 HOME PAGE SCREENSHOT



Screenshot of the Home Page showing quick statistics and the quick add expense feature.

6.2 PERSONAL EXPENSE TRACKER SCREENSHOT





Screenshot of the Personal Expense Tracker page for adding and viewing expenses.

6.3 GROUP EXPENSE SPLITTER SCREENSHOT

Deploy

Finance Tracker

Navigation

- Home
- Personal Expense Tracker
- Expense Splitter

Group Expense Options

Choose option

- Add Group Expense
- View Balances
- Visualize Split Expenses

Add Group Expense

Description of Expense

VIT to Vellore City

Total Amount

300.00

Participants (comma-separated)

Vd, Pr

Enter the amount paid by each participant:

Amount paid by Vd

0300

or enter amount for Vd

300

Amount paid by Pr

0300

or enter amount for Pr

0

Split Expense

Group expense added successfully!

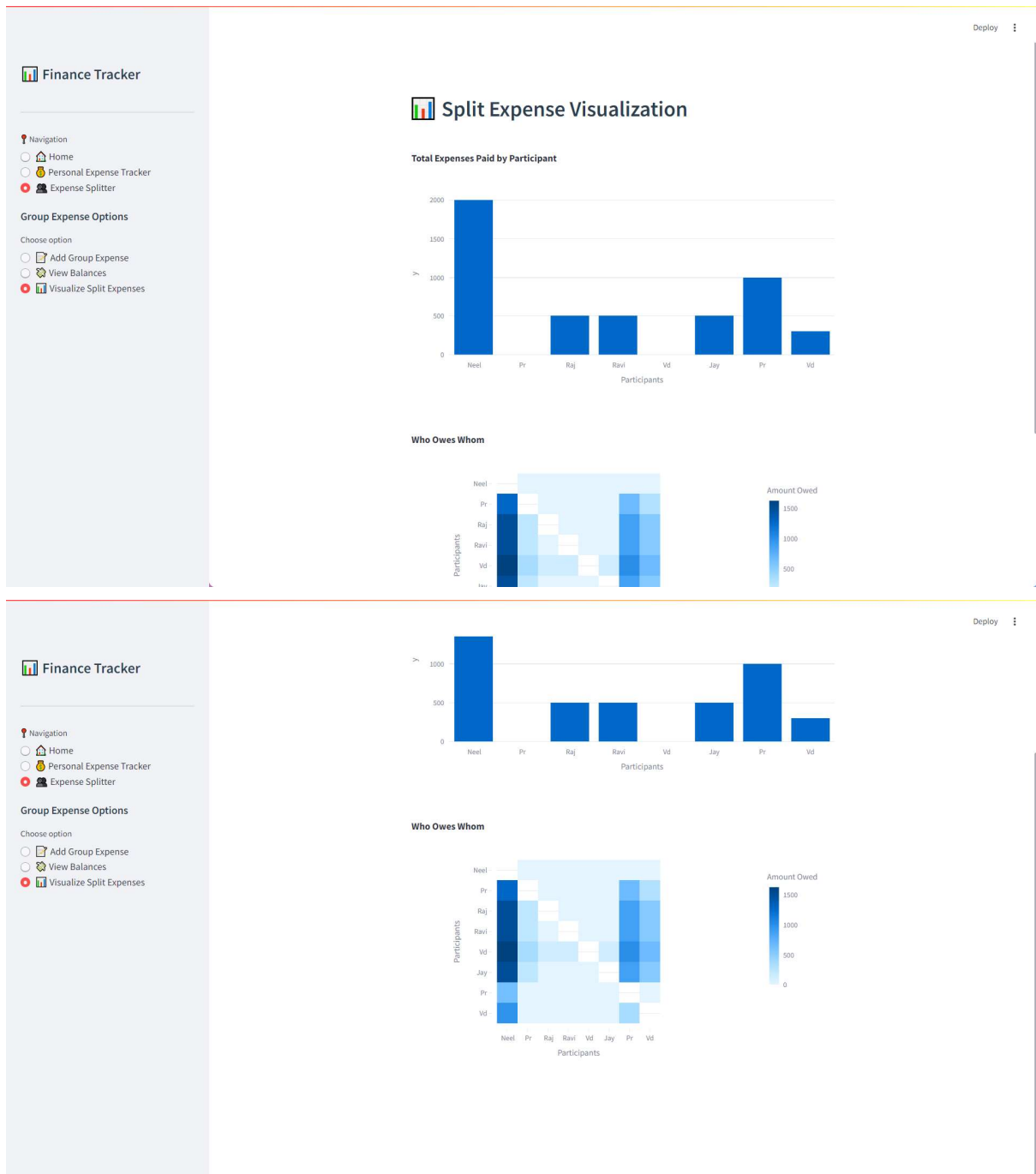
Deploy

View Balances

	Description	Total	Participants	Paid	Owes
0	Fr	1,000	Pr	1,000	-500
0	Fr	1,000	Vd	0	500
1	Food	1,000	Jay	500	-250
1	Food	1,000	Neel	0	250
1	Food	1,000	Raj	500	-250
1	Food	1,000	Ravi	0	250
2	Movie	2,500	Jay	0	625
2	Movie	2,500	Raj	0	625
2	Movie	2,500	Neel	2,000	-1,375
2	Movie	2,500	Ravi	500	125

Total Balances

Participants	Owes
Neel	-1,125
Pr	150
Raj	375
Ravi	375
Vd	500
Jay	375
Pr	-500
Vd	-150



Screenshot of the Group Expense Splitter page where users can add group expenses and view balances.

7. CONCLUSION

The **Expense Tracker & Splitter** application provides an intuitive platform for individuals and groups to manage their financial activities effectively. By offering features that allow users to track personal expenses, visualize spending habits, and manage shared costs, the application enhances financial awareness and collaboration among users. This project serves as a practical tool for anyone looking to improve their financial management skills.