SYMBIOSIS INSTITUTE OF TECHNOLOGY, PUNE

Constituent of Symbiosis International (Deemed University), Pune

Open-Source Technologies

Continuous Assessment-03

Faculty In-Charge:

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Submitted by:

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Introduction:

The *Expense Tracker* project was developed as part of the *Open-Source Technologies* course to apply open-source development workflows using GitHub.
The goal was to build a functional personal finance tracking web application that enables users to manage income and expenses efficiently. It integrates frontend, backend, and database elements while emphasizing collaborative software development practices such as version control, issue tracking, and project management on GitHub.

Project Overview:

Project Title: Expense Tracker
Objective: To design and implement a web-based application that allows users to record, categorize, and visualize financial transactions, supporting better financial decision-making through real-time insights.
Key Goals:

- Create and manage an open-source project on GitHub.
- Implement CRUD operations using Flask and SQLite.
- Develop a responsive frontend using HTML, CSS, and JavaScript.
- Apply collaborative debugging, issue creation, and enhancement practices.

Features Implemented:

Feature	Description
Add / Edit / Delete Transactions	Perform CRUD operations on income or expenses.
Categorize Income & Expenses	Group transactions under custom categories for detailed insights.
Real-Time Summary	Display total income, expense, and remaining balance dynamically.
Pagination	Show 5 records per page for smoother navigation.
Category-wise Chart	Visualize expense distribution using Chart.js.
Input Validation	Ensure correct and sanitized user input.
SQLite Integration	Maintain persistent data storage with an embedded database.

Tech Stack:

Component	Technology Used
Frontend	HTML, CSS, Vanilla JavaScript
Backend	Python (Flask Framework)
Database	SQLite
Visualization	Chart.js
API Communication	Fetch API + Flask CORS
Version Control	Git & GitHub

Project Structure:

```
Expense_Tracker/
├── app.py            # Flask backend with REST APIs
├── index.html        # Frontend user interface
├── finance.db        # SQLite database file (auto-generated)
├── README.md         # Project documentation
└── requirements.txt  # Python dependencies
```

GitHub Repository and Issue Management:

The project was maintained using open-source best practices:

- Branch management for feature updates and fixes
- Issue tracking for bugs and enhancements
- Collaborative documentation of problems and resolutions
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#	Issue Title	Type	Status	Reported By
1	Title tag missing closing bracket causes browser tab name issue	Bug	Closed	Alok Chawat
2	Pagination offset miscalculation in /list route	Bug	Closed	Alok Chawat
3	Summary route returns zero income due to typo	Bug	Closed	Aman Prajapati

#	Issue Title	Type	Status	Reported By
4	IndexError in dict_from_row() due to wrong index access	Bug	Closed	Chakravarthula Prabhat
5	Amount casting error in /add route	Bug	Closed	Chirag Tekwani
6	Chart re-renders overlap due to missing destruction of previous instance	Bug	Closed	Siddhant Bhosale
7	Incorrect Database Mentioned in README	Documentation	Closed	Aditya Sthawarmath
8	Typo in “Flask CROS” instead of “Flask CORS”	Documentation	Closed	Aditya Sthawarmath

All issues were collaboratively tracked and resolved on GitHub.

Challenges Faced:

- Integrating Flask and JavaScript using Fetch API.
- Managing database schema and input validation.
- Debugging asynchronous rendering and chart updates.
- Resolving Git merge conflicts and maintaining version consistency.

Learnings and Outcomes:

The team gained practical experience in:

- Developing a full-stack web application using open-source tools.
- Using GitHub for team collaboration, version control, and issue management.
- Designing REST APIs and establishing frontend-backend communication.
- Collaborative problem-solving and effective project management.

This project enhanced the team’s technical proficiency and teamwork capabilities in an open-source environment.

Conclusion:

The Expense Tracker successfully delivers an intuitive and interactive personal finance management tool. It effectively demonstrates open-source development methodologies and highlights the benefits of teamwork, code transparency, and iterative improvement.