# Personal Finance Manager Web Application

Nirwan Vimukthijith Jayathissa

March 31, 2025

## Project Overview

The Personal Finance Manager (PFM) is a user-friendly web-based application designed to help individuals track their income and expenses, making it easier to maintain control over their financial health. It allows users to log and categorize transactions (either as income or expenses), monitor their balance, and generate detailed reports. The application is designed to be simple yet effective, providing users with a clear understanding of their financial status in real time.

## Core Features

### 1. Transaction Management

- Add transactions: Users can log their income or expense transactions, specifying the transaction type, category, amount, notes, and date.

- Edit/Delete transactions: Users can update or remove any previously logged transactions.

- Track balance: The balance is automatically updated based on new transactions, reflecting the total income minus expenses.

### 2. Categorization

- Dynamic category updates: Categories are dynamically updated based on whether the user selects Income or Expense.

- Custom categories: Users can define multiple categories for both income (e.g., Salary, Freelance) and expenses (e.g., Food, Rent).

### 3. Transaction History

- Display a chronological list of transactions, including key details like type, category, amount, note, and date.

- Users can view the entire history or filtered records based on specific criteria.

### 4. Balance Calculation

- Automatic balance update: The application automatically calculates and displays the current balance, which updates every time a new transaction is added.

### 5. PDF Report Generation

- Users can generate a downloadable PDF report that summarizes their transaction history and balance for a specific period, offering a snapshot of their financial status.

## Technologies Used

- **Backend:** Python, Flask (Web framework)

- **Database:** SQLite (for storing transactions)

- **Frontend:** HTML, CSS (for designing the user interface)

- **PDF Generation:** FPDF (for generating PDF reports)

- **JavaScript:** To dynamically load categories based on transaction type (Income/Expense)

## Database Structure

The application uses a simple SQLite database with a table called `transactions` that stores the following fields:

- `id`: Unique identifier for each transaction.

- `type`: Specifies whether the transaction is an "Income" or "Expense".

- `category`: The category of the transaction (e.g., Salary, Rent, Food).

- `amount:` The monetary amount of the transaction.

- `note:` An optional note associated with the transaction.

- `date:` The date when the transaction took place.
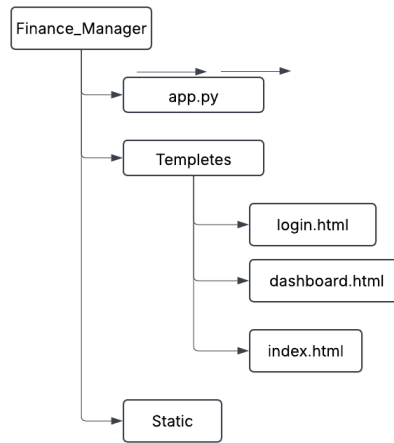
## Server Structure



Figure 1: This is the structure of the Server file.

## Deployment

The Personal Finance Manager is hosted on a local server but can be deployed to cloud platforms (e.g., AWS, Heroku) for broader access. Users can access the application via a web browser, where they can manage transactions, track their balance, and generate financial reports.

## Use Case

This application is ideal for:

- **Personal Finance Management:** Users can track their income and expenses, making it easier to manage monthly budgets and monitor spending.

- **Financial Reporting:** Users can generate detailed reports of their financial status for any time period.

- **Simplified Record Keeping:** The system serves as a digital logbook to record all financial transactions, ensuring users never lose track of their financial history.

# Objective

The primary objective of the Personal Finance Manager is to provide individuals with a comprehensive tool to manage their finances easily, enabling them to:

- Track and categorize income and expenses efficiently.

- Maintain a current balance to keep financial health in check.

- Generate reports for informed financial analysis and planning.

- Store and access transaction history digitally.

# Future Enhancements

## 1. Multiple User Support

- User Registration and Login: Each user will be able to register an account and securely log in to their own financial dashboard.

- Personalized Data: Each user will have their own data, including transactions, balance, and categories, ensuring privacy and personalized finance management.

- Account Recovery: Implement a feature to reset passwords and secure accounts further.

## 2. Multiple Currency Support

- Currency Selection: Users can select their preferred currency when adding transactions.

- Currency Conversion: Real-time exchange rate integration will automatically convert currencies when needed, allowing users to manage finances across different currencies.

- Custom Exchange Rates: Option for users to manually set exchange rates for specific periods.

## 3. Group Budgeting Feature

- Shared Budgeting: Users can collaborate with others to track shared expenses, ideal for group events or joint financial goals.

- Individual Contributions: Each group member can add their transactions, and the platform will calculate how much each member owes or has contributed.

- Group Reports: Generate reports showing the overall budget, individual contributions, and remaining balance.

## 4. Advanced Transaction Filtering

- Filter Options: Users can filter transactions by date, category, amount, type (Income/Expense), and currency.

- Custom Reports: Enable users to create custom reports for specific time frames (e.g., weekly, monthly, yearly).

## 5. Data Security and Privacy

- Encryption and Authentication: Strong security protocols will be implemented to protect users' sensitive financial data.

- Data Privacy: Each user's data will be encrypted and isolated, ensuring privacy.

- Backup and Restore: Automated backups will ensure that users' financial data is safe and recoverable.

## 6. Enhanced Reporting and PDF Generation

- Graphical Insights: In addition to basic reports, the system will generate graphs and charts to give users a better understanding of their financial situation.

- Customizable Reports: Users can generate reports based on specific periods, categories, or transaction types.

- Export Options: Users will be able to export reports in PDF and Excel formats for further analysis.

## 7. User Interface Enhancements

- Mobile-Friendly: The application will be optimized for use across all devices, ensuring that users can manage their finances on the go.

- User Experience Improvements: The user interface will be made more intuitive with improved navigation, interactive charts, and modern design elements.

# Conclusion

The Personal Finance Manager Web Application is an evolving project that aims to provide a comprehensive solution for managing finances, both personally and within groups. By supporting multiple users, currencies, group budgeting, and advanced transaction filtering, the application will become an even more powerful tool for financial tracking and planning. The planned enhancements will increase the application's flexibility, security, and usability, making it a robust tool for individuals looking to take control of their financial future. As the platform evolves, it will continue to meet the growing needs of users who require efficient, digital financial management solutions.

# Next Steps

- Feature Development: Focus on implementing multiple user support and group budgeting in the next phases.

- Testing & Deployment: Perform testing on the cloud platform and deploy the updated version for broader access.

- Feedback & Iteration: Collect user feedback to continuously improve the application.