FinTrack: A Personal Finance Management System

A Project Report Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Computer Applications (MCA)

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Abstract

FinTrack is a web-based personal finance management system developed using the Django framework to assist users in tracking their income, expenses, financial goals, and transactions. The system provides a user-friendly interface with features like a financial dashboard, transaction logging, category management, and goal tracking. This project report details the development process, including system analysis, design, implementation, and testing phases. FinTrack aims to improve financial awareness and decision-making by offering a centralized platform for managing personal finances. The project demonstrates the application of full-stack web development principles and meets the requirements for the IGNOU MCA final-year project submission.

1 Introduction

1.1 Background

Managing personal finances effectively is a challenge for many individuals due to the lack of centralized and user-friendly tools. Manual methods or fragmented applications often lead to inefficiencies, errors, and poor financial planning. FinTrack addresses this problem by providing a web-based platform where users can log their transactions, categorize income and expenses, set financial goals, and monitor their progress through an intuitive dashboard.

1.2 Objectives

The primary objectives of FinTrack are:

- To develop a robust personal finance management system using Django.
- To implement features like transaction tracking, category management, and financial goal setting.
- To provide a visual dashboard for insights into income, expenses, and goal progress.
- To ensure data security, scalability, and maintainability.
- To demonstrate proficiency in full-stack web development and database management.

1.3 Scope

FinTrack focuses on personal finance management, allowing users to track income and expenses, manage transaction categories, and set financial goals. The system is designed for individual users and can be extended to support additional features like budget forecasting and multi-currency support in the future.

2 System Analysis

2.1 Problem Statement

The lack of an efficient system for managing personal finances often results in poor financial planning and oversight. Users need a centralized platform to track their financial activities, set goals, and gain insights into their financial health. FinTrack addresses this by providing a comprehensive solution for transaction logging, categorization, and goal tracking.

2.2 Requirements

2.2.1 Functional Requirements

- User authentication for secure access.
- Dashboard to display total income, expenses, balance, and goal progress.
- Transaction management (add, edit, delete) with details like title, category, amount, type, and date.
- Category management (add, edit, delete) for organizing transactions.
- Goal tracking with target amounts, saved amounts, and progress visualization.

2.2.2 Non-Functional Requirements

- The system should be responsive and accessible on multiple devices.
- Ensure data security through user authentication and secure database storage.
- The application should be scalable to handle additional features in the future.

3 System Design

3.1 Architecture

FinTrack follows Djangos Model-View-Template (MVT) architecture:

- **Models**: Represent database tables for users, transactions, categories, and goals.
- **Views**: Handle business logic and process user requests.
- **Templates**: Render the user interface using HTML, CSS, and JavaScript.

3.2 Database Design

The database (SQLite) includes the following tables:

- **User**: Stores user credentials (username, password).
- **Transaction**: Stores transaction details (title, category, amount, type, date).
- **Category**: Stores category details (name, type: income/expense).
- **Goal**: Stores goal details (title, target amount, saved amount, status).

3.3 User Interface Design

The UI includes:

- A dashboard displaying total income, expenses, balance, and a pie chart for goal progress.
- Transaction and category management pages with tables for listing, editing, and deleting records.
- Responsive design for accessibility on desktops and mobile devices.

4 Implementation

4.1 Technologies Used

- **Backend**: Python, Django Framework
- **Frontend**: HTML, CSS, JavaScript (with Bootstrap for styling)
- **Database**: SQLite
- **Version Control**: Git
- **Development Environment**: Visual Studio Code

4.2 Development Process

The project was developed in the following phases:

1. **Setup**: Initialized the Django project and configured the development environment.
2. **Model Creation**: Defined models for users, transactions, categories, and goals.
3. **View Implementation**: Created views to handle user requests and business logic.
4. **Template Design**: Designed templates for the dashboard, transaction list, category list, and goal tracking.
5. **Integration**: Integrated the frontend with the backend and tested the application.

5 Testing

5.1 Testing Approach

The application was tested using the following methods:

- **Unit Testing**: Tested individual components like user authentication and transaction logging.
- **Integration Testing**: Ensured that all modules (dashboard, transactions, categories, goals) worked together seamlessly.
- **User Acceptance Testing**: Validated the application with sample users to ensure usability.

5.2 Test Cases

- **Login Functionality**: Verified that users can log in with correct credentials.
- **Transaction Management**: Tested adding, editing, and deleting transactions.
- **Goal Progress**: Ensured that the pie chart accurately reflects goal progress.

6 Results and Discussion

FinTrack successfully provides a platform for users to manage their finances. The dashboard offers a clear overview of financial health, while the transaction and category management features allow for organized record-keeping. The goal tracking feature motivates users to achieve their financial targets. The application is responsive, secure, and easy to use, meeting the project objectives.

7 Future Scope

- Integration of budget forecasting using machine learning.
- Support for multiple currencies to cater to international users.
- Deployment on a cloud platform like Heroku or AWS.
- Enhanced security with two-factor authentication.
- Export functionality for financial reports in PDF/Excel format.

8 Conclusion

FinTrack is a comprehensive personal finance management system that addresses the challenges of financial tracking and planning. Developed using Django, the project demonstrates the application of full-stack web development principles and meets the requirements for the IGNOU MCA final-year project. The system is scalable and can be extended with additional features to enhance its functionality.

References

- Django Documentation: `https://docs.djangoproject.com/`
- Python Documentation: `https://www.python.org/doc/`
- IGNOU MCA Project Guidelines: `http://www.ignou.ac.in/`