

# **IU University of Applied Sciences**

M.Sc. in Computer Science

Exposé (11/2024)

Name: Neha Shivanagouda Patil

Matriculation Number: 102210531

Course Name: Project: Computer Science Project

Course Code: DLMCSPCSP01

Tutor: Ali Mehmood Khan

## **Exposé: Developing a Comprehensive Personal Finance Management Tool: Enhancing Financial Literacy and Empowering Users**

### **Introduction**

In an era when there is a growing tendency towards lack of saving as well as having a very low level of proper economic status, managing of personal economy at large becomes an important but hard endeavor for many people. The project seeks to create a \*Personal Finance Management Tool\*, which in this case offers individuals an all encompassing and flexible manner or mode of managing their financial transactions anytime and anywhere. It uses a combination of Flask, SQLAlchemy, and Chart.js technologies to build a simple yet powerful application that will enable its user to understand their financial situation, set objectives, and recommend options to meet those objectives.

### **Problem Definition**

The main problem addressed is the absence of a web based or a mobile based application that assists in consolidating and coordinating several sources from which the revenue could be coming, controlling the flow of money out, and objectives in which money is supposed to be kept to spend in future. Current apps for managing personal wealth and expenditures are quite narrow-prism and do not allow to get the proper portrait of the financial status, nor advise how to obtain one which again causes poor financial choices.

### **System Design and Architecture**

The system follows the standard Model-View-Controller (MVC) framework and hence is good for expansion and maintenance. It includes:

Frontend: Created in JS, HTML, and CSS to ensure interactivity with the end user.

Backend: Implemented in Flask for business processes and http requests.

Database: Done through SQLAlchemy for data storage and enabling on request spatial and temporal metrics.

Major areas of focus include income, expenses and the ability to set a target level to keep the money with the graphical representation of the data for better understanding of spending behavior.

## **Implementation**

The tool supports basic features such as user login, adding income and expenses, setting saving targets and monthly review. There are several technologies employed in the development of the tool including Flask, which is used for backend, SQLAlchemy for data management and Chart.js for visualizations. Some of the major features are protecting the account of the user with a password, automated estimation of the financial data and offering advice suited to the user.

## **Testing and Validation**

The system was tested at all levels, including unit, integration and system testing in order to establish compatibility and reliability of the system. Use cases confirmed the authentication of the user, CRUD (create, read, update, delete) with respect to financial entries, and correctly performed monthly revenues and expenses reporting. All the functionalities were validated as per requirements provided at the start of the project.

## **Analysis and Results**

As reported by users who were asked to try the tool, there were noticeable changes toward greater financial management and literacy. The fact that the tool provided a means to observe one's expenses, personalizes saving plans and offers a visual presentation instantly convinced the users to make better financial decisions.

## **Challenges and Future Enhancements**

One of the challenges was ensuring that the financial information of the users was protected through complex computations. Future enhancements include adding machine learning for predictive analytics, improving data visualization, and implementing a cloud-based architecture for scalability.

## **Conclusion**

The Personal Finance Management Tool is one of the solutions that contribute to better management of finances. It allows users to optimize their decision-making processes, helps them stay on track with their set financial goals, and ultimately helps to increase their financial stability in the longer run. With future improvements, the tool has the capability to enhance individuals' comprehension of finances and their financial wellbeing.