A
Semester Project-I Report
On

"Financial Portfolio Management and Income Expenses Tracker "

In partial fulfillment of requirements for the degree of

Bachelor of Technology

In

ARTIFICIAL INTELIGENCE AND MACHINE LEARNING

Submitted By

1. Riya Satish Patil

2. Komal Hemaraj Koli

3. Kranti Kishor Wadge

4.Poonam Nana Patil

Under the Guidance of

Prof. N.A Patil

The Shirpur Education Society's

R. C. Patel Institute of Technology, Shirpur - 425405.

Artificial Intelligence and Machine Learning

[2025-26]

The Shirpur Education Society's

R. C. Patel Institute of Technology

Shirpur, Dist. Dhule (M.S.)

Artificial Intelligence and Machine Learning

CERTIFICATE

This is to certify that the Semester Project-I entitled "**Financial Portfolio Management and Income Expense Tracker"** has been carried out by team:

1. **Riya Satish Patil**
2. **Komal Hemraj Koli**
3. **Kranti Kishor Wadge**
4. **Poonam Nana Patil**

under the guidance of **Prof. N.A Patil** in partial fulfillment of the requirement for the degree of Bachelor of Technology in Department of Artificial Intelligence and Machine Learing(Semester-III) of Dr. Babasaheb Ambedkar Technological University, Lonere during the academic year 2025-26.

 Date:

Place: Shirpur

Guide   **Semester Project-I Coordinator**

Prof. N.A Patil   **Prof. M. S. Patil**

H.O.D.   **Director**

Prof. Dr. U. M. Patil   **Prof. Dr. J. B. Patil**

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Institute Vision:

Fostering technical excellence through ethics, sustainable education, innovation and research.

Institute Mission:

To impart high quality Technical Education through:

M1. Innovative and Interactive learning process and high quality, globally recognized instructional programs.

M2. Fostering a collaborative scientific temper among students with ethical responsibility towards the society.

M3. Preparing students from diverse backgrounds to have Aptitude for employment, entrepreneurship and research with a spirit of Professionalism.

M4. To contribute to nation's sustainable development.

Department Vision:

Fostering technical excellence in Artificial Intelligence and Machine Learning through ethics, innovative research, and sustainable education.

Department Mission:

M1. Innovative and interactive learning processes with high quality instructional programs in Artificial Intelligence and Machine Learning.

M2. Fostering a collaborative scientific temper among students with ethical responsibility towards society in AI and ML Applications.

M3. Preparing students from diverse backgrounds to develop Aptitude for employment, entrepreneurship, and research in AI and ML with a spirit of professionalism

ACKNOWLEDGEMENT

Page Index

FIGURE INDEX:

Abstract:

This abstract presents an expense tracker application designed to empower users with financial management tools, enabling them to track income and expenses, and generate reports for informed decision- making and better financial planning. Businesses and individuals alike might benefit from using an expense tracker to keep tabs on and organize their money going out. For keeping tabs on spending and sticking to a budget, it's an invaluable tool. When it comes to managing one's own or one's company's finances, expense monitoring is an absolute must. It improves financial awareness and responsibility by providing a comprehensive perspective of where money is spent. Individuals can avoid overpaying and maximize savings by making and sticking to budgets that are well-organized and classified. When it comes to saving, investing, and managing debt, keeping track of costs is crucial for reaching financial objectives and making educated decisions.

CHAPTER 1: INTRODUCTION

1.1 Overview

The Financial Portfolio Handling and Income-Expense Tracker is a comprehensive financial management web application designed to empower users to manage their investments, expenses, savings, and financial goals.

The system provides various calculators, tracking tools, and personalized dashboards, offering a complete solution to manage personal finance efficiently.

The project includes features like budgeting tools, goal-setting modules, multiple financial calculators, transaction tracking, income-expense handling, and real time data visualization using charts.

Effective financial handling is crucial for long-term stability and wealth accumulation.

A Financial Portfolio Handling and Income Expense Tracker is an essential tool for individuals, families, and businesses to manage, track, and analyze their finances.

This system helps you organize your income, expenses, investments, and savings in a way that allows you to make informed decisions and achieve your financial goals.

1.2 Problem Statement

Managing personal and business finances effectively is a challenge for many individuals, freelancers, and small business owners. People struggle with tracking their income, expenses, budgets, and investments, often leading to poor financial decisions, overspending, or missed investment opportunities. Existing solutions are either too complex, lack automation, or do not provide a comprehensive overview of financial health.

A. Lack of Centralized Financial Management

Users rely on multiple apps, spreadsheets, and bank statements to track finances, making it inefficient. No single platform integrates income, expenses, budgeting, and investments seamlessly.

B. Difficulty in Expense Tracking & Budgeting

Many people fail to categorize their expenses, leading to overspending. No real-time budget alerts to control unnecessary expenses. Manual tracking is tedious, leading to incomplete financial records.

C. Challenges in Investment Portfolio Management

Investors lack a unified dashboard to track multiple assets (stocks, mutual funds, crypto, and real estate). No real-time performance tracking, making it hard to evaluate investment returns. Difficulty in understanding risk exposure and portfolio diversification.

D. Lack of Financial Insights & Decision Support

 Users do not have access to data-driven insights on their spending habits. No financial forecasting tools to help with long-term planning. Lack of automated tax calculations and reporting.

E. Security & Accessibility Issues

 Many existing financial tracking tools lack strong encryption and data privacy measures. Users want secure cloud-based solutions that sync across mobile, web, and desktop platforms**.**

1.3 Objectives:

The objective of this project is to develop a comprehensive Financial Portfolio Handling and Income-Expense Tracker that enables users to efficiently manage their investments, monitor income and expenses, and make informed financial decisions.

1. Portfolio Management:

Track various financial assets, including stocks, bonds, mutual funds, real estate, and cryptocurrencies. Provide real-time portfolio valuation and performance analysis. Generate insights on asset allocation and risk assessment.

2. Income & Expense Tracking:

Record and categorize income and expenses for better financial planning. Allow users to set budgets and track spending against limits. Generate reports and visual insights to understand financial trends.

3. Financial Insights & Planning:

Provide dashboards with key financial metrics like savings rate, net worth, and cash flow trends. Offer goal-based savings and investment tracking.

4. User Experience & Security:

Design a user-friendly interface for easy navigation. Implement secure authentication and data encryption. Enable multi-device access (web and mobile support).

This project aims to empower users with a clear financial overview, better control over expenses, and smarter investment management to achieve long-term financial goals.

CHAPTER 2: RELATED CONCEPTS

Here is a **Literature Survey** for a project of **Financial Portfolio Handling And Expense Tracker** :

2.1 Literature Survey

Financial portfolio management and income-expense tracking are essential for individuals and organizations to optimize their financial well-being. With the rise of technology, software applications and AI-driven systems have revolutionized financial management by providing automation, insights, and risk management.

This literature survey explores various research papers, tools, and methodologies related to financial portfolio management and income- expense tracking.

Financial portfolio management involves selecting and managing a mix of investment assets to achieve financial goals while balancing risk and returns. Traditional and modern approaches include:

Modern Portfolio Theory (MPT) – Introduced by Markowitz (1952), emphasizing diversification to minimize risk. (Reference No 6)

Capital Asset Pricing Model (CAPM) – Used to determine expected returns on investments based on risk factors.

Risk Management Strategies – Includes hedging, diversification, and asset allocation. (reference No 5)

❖ Existing Systems and Tools

Several portfolio management tools and algorithms exist to assist investors:

Robo-Advisors – AI-driven investment platforms (e.g., Wealthfront, Betterment) that automate asset allocation.

Stock Market Prediction Models – Use AI and ML techniques (e.g., LSTM, Random Forest) to predict stock movements.

Portfolio Optimization Software – MATLAB, Python (using NumPy, Pandas, SciPy, etc.) for data analysis.

❖ Research Studies and Approaches

AI-Based Portfolio Optimization – Studies have explored reinforcement learning and deep learning models for better decision-making. Sentiment Analysis for Market Trends – Text mining and NLP techniques to analyze financial news and predict stock behavior. Blockchain in Portfolio Management – Research suggests blockchain enhances transparency and security in investment tracking. (reference no 4)

❖ Existing Systems and Tools

Manual Tracking (Excel, Google Sheets) – Basic but widely used. Expense Tracking Apps – Examples: Mint, YNAB (You Need A Budget), and Pocket Guard. AI-Based Expense Analysis – Some tools use AI to categorize expenses and predict financial trends.

❖ **Research and Development in Expense Tracking**

Big Data Analytics – Used for financial pattern recognition and forecasting. Machine Learning Models – Applied to automate categorization and detect anomalies in spending behavior. Integration with Banking APIs – Open banking technologies allow real-time

CHAPTER 3: REQUIRMENTS

3.1 Requirement Analysis

The methodology for developing the Financial portfolio Handling and Income Expense Tracker assistance project will involve several stages, including requirements gathering, design, development, testing, and evaluation. The following is a detailed description of each stage:

1. **Design:**

The second stage of the project will involve designing the Financial portfolio Handling and Income Expense Tracker system's architecture, user interface, and database schema. The design will be based on the requirements gathered in the previous stage, and it will be guided by industry best practices and standards.

2. **Development:**

The third stage of the project will involve developing the Financial portfolio Handling and Income Expense Tracker system and various open-source libraries and frameworks. The development process will involve implementing the design, and testing the system's functionality. The development process will be iterative, with regular feedback and reviews from stakeholders.

3. Testing:

The fourth stage of the project will involve testing the Financial portfolio Handling and Income Expense Tracker system's functionality, accuracy, and reliability. The testing process will involve both manual and automated testing to ensure that the system meets the requirements and performs as expected. The testing will also involve simulating various scenarios to identify and address potential issues and vulnerabilities.

4. Evaluation:

The final stage of the project will involve evaluating the Financial portfolio Handling and Income Expense Tracker system's effectiveness in addressing customer needs and improving engagement and satisfaction. The evaluation will involve gathering feedback from students and other stakeholders through surveys, interviews, and focus groups.

3.2 Software Requirements
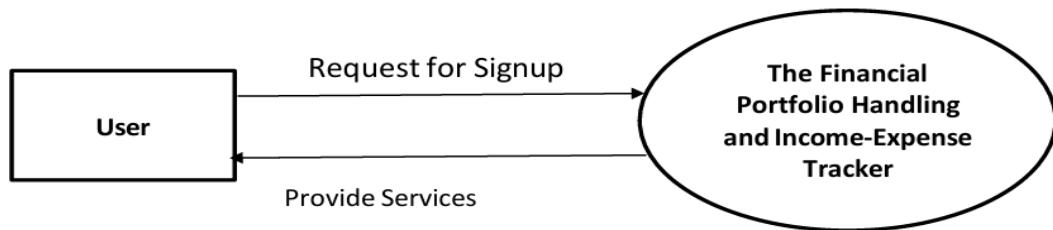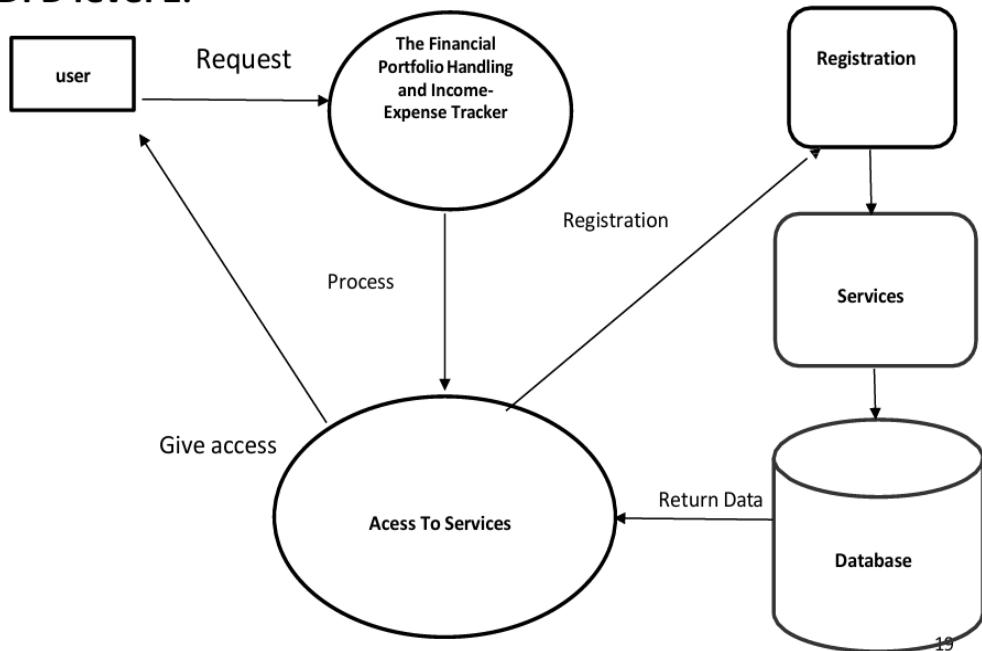
• **Frontend:** HTML5, CSS3, JavaScript, Chart.js

• **Backend:** PHP (for user management and calculators**)**

• **Database:** MySQL (for storing user data, transactions, and goals)

• **Libraries:** Chart.js for graphs, HTMLPDF for generating downloadable PDFs

• **Styling:** Google Fonts (Roboto) and CSS animations for an engaging interface

CHAPTER 4: IMPLEMENTATION

The implementation phase of Financial portfolio Handling and Income Expense Tracker System transforms the theoretical design into a working, functional application. This includes developing the frontend and backend, integrating the database, managing income and expenses, and enabling features such as calculations, setting goals, report generation etc.

4.1 Algorithm (Pseudocode):

1.User Signup/Login: Users register and log in to access the personalized dashboard..

2. Portfolio Management: Users add investments and view performance metrics.

 3. Expense Tracking: Daily expenses are recorded, categorized,

4. Financial Goal Setting: Users define financial goals with

5. Calculators: Various calculators help users plan and forecast investments**.**

DFD level 0:

DFD level 1:

This figure 4.1 shows data flow diagram of the Financial portfolio Handling and Income Expense Tracker System.

4.2 Snapshots of Outputs (Stepwise)
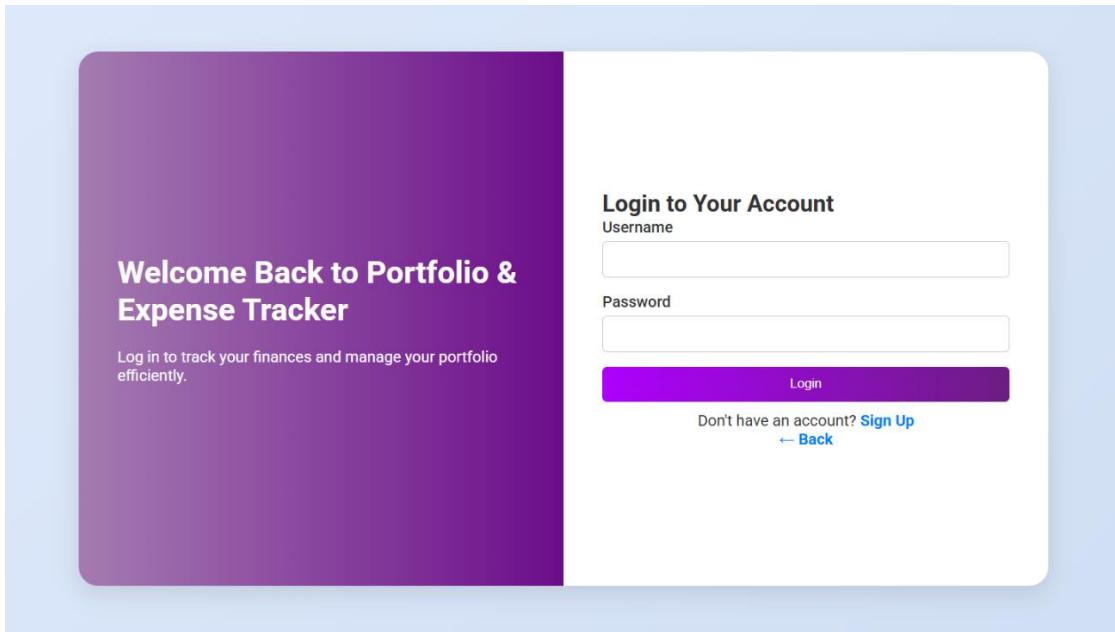
Figure 4.2: Login Page

This figure 4.2 shows the Login Page .
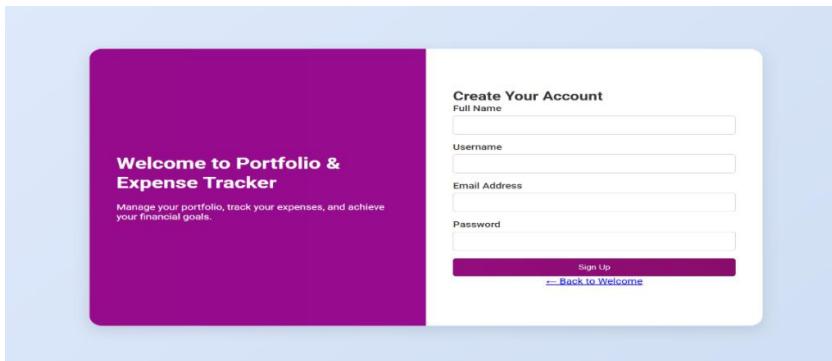
Figure 4.3: Sign Up
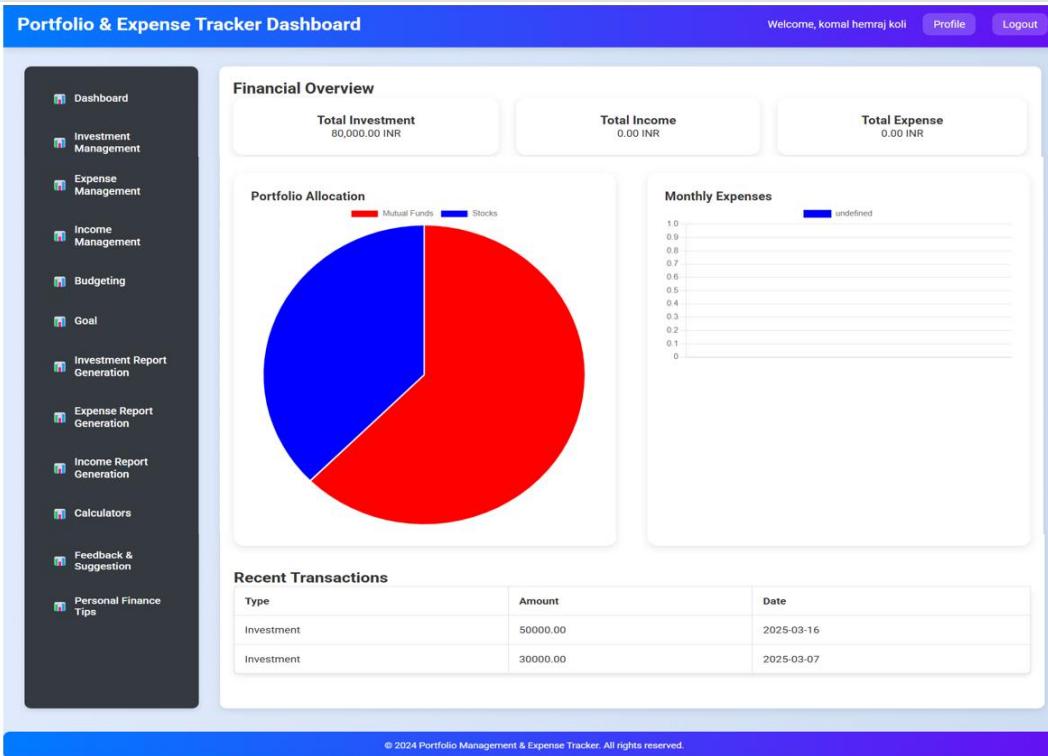
Figure 4.4: Home Page
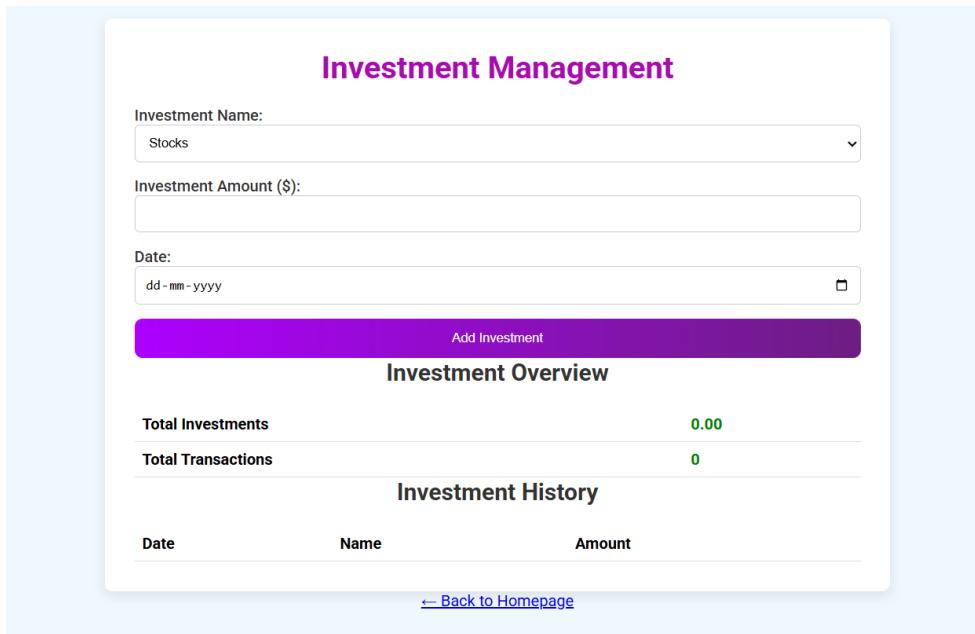
Figure 4.5: Investment Management

Figure 4.6: Expense Management

Figure 4.7: Income Management

4.3 Result Discussion

The developed system "Financial Portfolio Handling and Income-Expense Tracker" was successfully implemented and tested. The project demonstrated its effectiveness in providing a centralized platform for managing investments, income, and expenses. Users can log in securely, record financial transactions, generate analytical reports, and visualize their data using graphs and tables. During testing, all modules—including login authentication, income and expense entry, investment tracking, and feedback submission—performed accurately. Each test case passed successfully, confirming the reliability of the system. The reports generated provided meaningful insights into the user's financial activities, helping in budget analysis and investment monitoring.

The user interface proved to be intuitive and visually appealing, ensuring smooth navigation. The integration of Chart.js enabled real-time visualization of financial data, improving user understanding of income–expense trends and portfolio performance. Performance testing showed that the system responded within acceptable time limits, and security testing confirmed that user credentials and financial data remained protected through proper authentication.

Key Observations:

The login and registration modules worked seamlessly, ensuring only authorized users can access personal data. Investment, income, and expense management modules accurately recorded and displayed user entries. The

report generation feature provided clear summaries between specified dates, assisting in decision-making. The system was compatible across various devices and browsers.

All test cases (TC_1–TC_11) passed, indicating strong functionality and reliability.

Overall Result:

The implemented system met all functional and non-functional requirements stated in the methodology. It provided Ease of use through a user-friendly interface. Efficiency in financial record management. Accuracy in transaction handling and report generation.

Security through authentication and controlled data access.

Thus, the project successfully achieved its objective of creating a reliable, secure, and efficient financial management tool that enhances users' control over their finances.

CHAPTER 5: CONCLUSION

The Financial Portfolio Handling and Income-Expense Tracker is a practical, user friendly platform for personal finance management. By combining budgeting tools, investment tracking, goal setting, and financial forecasting calculators, it empowers users to take control of their financial future. With a focus on real-time data visualization, secure access, and diverse financial tools, this project ensures that users can plan, monitor, and achieve their financial goals efficiently this abstract covers all the essential aspects of your project and provides a clear and comprehensive overview for presentations or documentation purposes. Effective financial management is crucial for individuals, freelancers, and small business owners to maintain financial stability and achieve long-term financial goals. This project aims to provide a comprehensive, user-friendly, and secure platform to track income, expenses, budgets, and investments in one place.

References:

1 Investopedia (www.Investopedia.com)- Articles on investment, budgeting and personal finance

2 Yahoo finance (finance.yahoo.com) - Stock market and investment tracing APIs

3 Morning Star (www.morningstar.com)- Investment research and financial analysis

4 Books- Thaler-R.H.(2015).misbehaving: the making of behavioral economics.

5 Bogle , J. C. (2017). The little book of common sense investing: the only way to guarantee your fail share of stock market returns.

6 Research and papers - Markowitz, H. (1952). portfolio selector. The journal of finance, 7(1), 77-91.