Financial Dashboard for Investment Recommendation and Tracking

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Abstract: **The "Financial Dashboard for Investment Recommendation and Tracking" is a comprehensive web-based platform designed to offer personalized investment planning and tracking services. The system collects essential user information such as age, salary, expenses, savings, financial responsibilities, and future goals to generate tailored investment suggestions.**

It recommends a range of investment options, including stocks, mutual funds, fixed deposits (FDs), cryptocurrencies, and commodities, based on each individual's financial situation and risk tolerance. The platform leverages machine learning algorithms, specifically collaborative filtering, and content-based filtering, to analyse user data and preferences for more accurate and personalized investment recommendations.

The collaborative filtering approach uses the preferences of users with similar profiles to suggest suitable investments, while the content-based filtering method focuses on an individual's profile and past behaviour to ensure relevance. These advanced algorithms enhance the platform's accuracy, delivering customized strategies that align with the user's financial goals and risk capacity.

In addition to personalized recommendations, the platform includes a tracking mechanism that monitors the growth of investments over time, offering users real-time insights and performance reports.

Overall, the "Financial Dashboard for Investment Recommendation and Tracking" aims to empower individuals to make informed financial decisions, helping them achieve long-term stability and growth in their investments.

***Keywords*—collaborative filtering, content-based filtering, real-time insights, recommendation system, risk tolerance.**

INTRODUCTION

Managing investments can be challenging, especially with so many options available. The "Financial Dashboard for Investment Recommendation and Tracking" is a user-friendly web-based platform designed to help individuals make smart investment decisions. It provides personalized recommendations based on a person's financial situation, goals, and risk tolerance.

The platform gathers key financial details from users, such as their income, expenses, savings, and responsibilities, to create tailored investment suggestions. It offers a variety of investment options, including stocks, mutual funds, fixed deposits (FDs), cryptocurrencies, and commodities. Using advanced machine learning techniques, the system ensures recommendations are relevant and well-suited to each user's needs. Collaborative filtering analyzes the preferences of similar users to make suggestions, while content-based filtering focuses on an individual's financial profile and past choices.

Beyond just recommendations, the platform also helps users track their investments over time. It provides real-time insights and performance reports, making it easier for users to monitor growth and adjust their strategies as needed.

The "Financial Dashboard for Investment Recommendation and Tracking" is designed to simplify financial planning, helping individuals make informed investment decisions with confidence. By combining smart technology with real-time tracking, it serves as a valuable tool for anyone looking to build and manage their investments effectively.

LITERATURE SURVEY

1. In Sept 2022, Vianna Raffo and Tales Argolo Jesus," Investment portfolio tracking using model predictive control.

In this paper, it explores how Model Predictive Control (MPC)—a technique commonly used in engineering—can be applied to investment portfolio management.

The authors demonstrate how MPC helps investors make smarter decisions by predicting market trends

and adjusting their portfolios dynamically. This approach improves upon traditional methods by continuously optimizing asset allocation while keeping risks under control. Essentially, the paper highlights how advanced mathematical techniques can be used to track and manage investments more effectively in changing market conditions. [1]

2. In May 2023, Man Fai Leung, Abdullah Jawaid, Sai-Wang Ip, Chun-Hei Kwok, and Shing Yan "A portfolio recommendation system based on machine learning and big data analytics".

This study introduces a portfolio recommendation system that leverages machine learning techniques and big data analytics to provide users with profitable stock portfolios and detailed stock analyses through a web application. The system's effectiveness was evaluated using back testing and user evaluation studies, focusing on both user satisfaction and performance metrics. The findings suggest that such a system can effectively meet the expectations of most users and enhance their financial knowledge. This research contributes to the growing body of work on utilizing advanced technologies for portfolio recommendations and highlights the potential of machine learning and big data analytics in the financial industry. [2]

3. In 2023G. Aliskan and R. M. Haralick Jashanjit Singh and John Jenq" A Stock Recommendation System".

It introduces a stock recommendation system using reinforcement learning and ARIMA for time series forecasting. Unlike traditional ANN-based methods, the proposed system incorporates historical market data to enhance predictions.

Utilizing the Yahoo Finance API, it analyzes technical indicators (MACD, RSI) and provides forecasts via a Python-based Tkinter GUI. The system also tracks trending stocks using Google search patterns via the Pytrends API.

Experiments show the Passive Aggressive Classifier outperforms others in predicting market movements. The study highlights the potential of combining technical analysis, sentiment analysis, and AI-driven forecasting to improve stock recommendations.[3]

ADVANTAGES OF THE PROPOSED SYSTEM

Holistic Investment Planning
Generates personalized plans based on income, expenses, savings, goals, and risk level.

Multi-Asset Recommendations
Supports investments in stocks, mutual funds, FDs, cryptocurrencies, and commodities.

AI-Powered Engine
Collaborative Filtering: Recommends based on similar users.

User-Friendly Interface
Simple and intuitive design for all types of users.

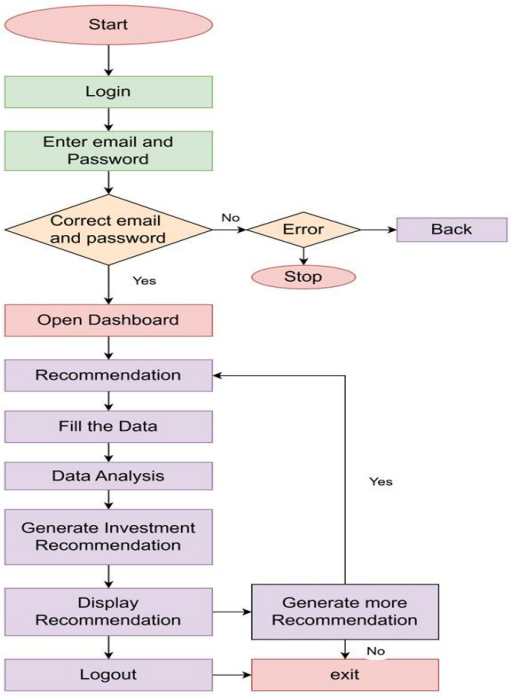
TECHNOLOGIES USED

Technology Stack:

Frontend: HTML, CSS

Backend: Python, PHP
Database: MySQL
IDE: VS Code

IMPLEMENTATION



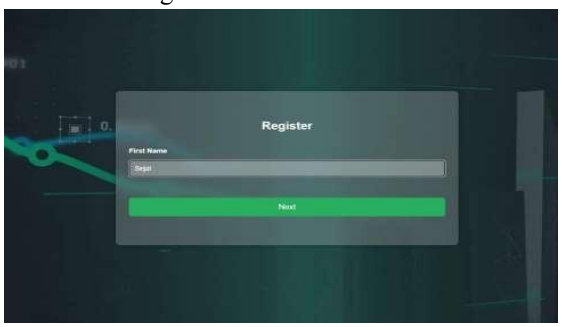
RESULT

Home Page:

In Home Page navigation bar is provided to use all the features of the system easily, which helps to access all features.

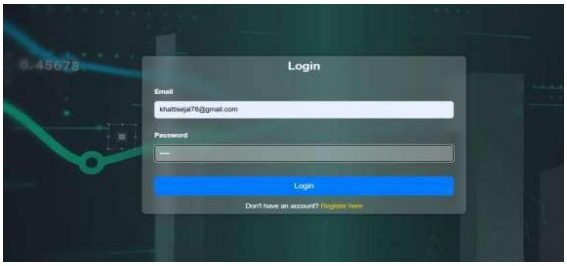
Sign up Page:

In Sign Up Page, the user must fill up the details such as First name, Last name, date of birth, gender, email. Next user must create a strong password and then user have to register.



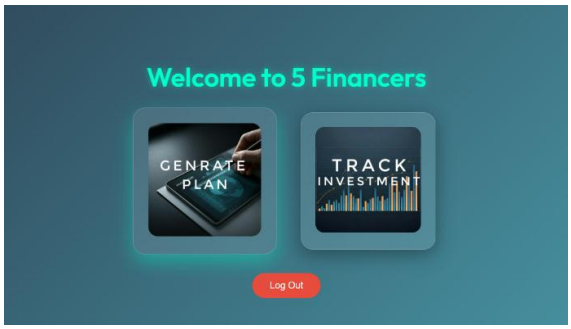
Login Page:

Once Signed, user can enter the correct input and directly login. The below still shows the user interface of the login page.



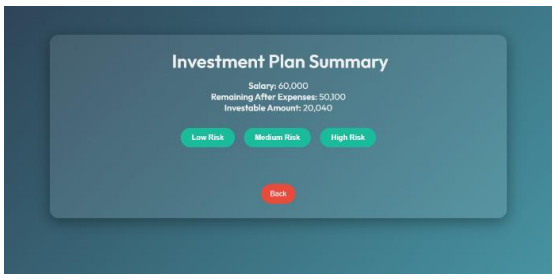
Dashboard:

There are two option which are Generate Plan and Track Investment



Investment Plan Summary:

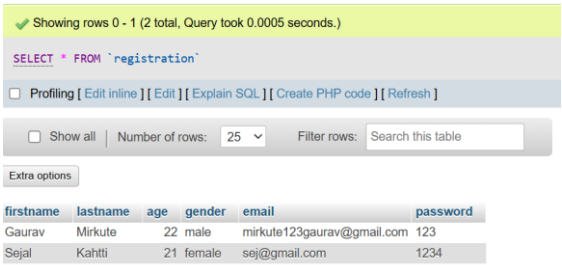
Summary of User's Investment plan which shows the data of user.



Database:

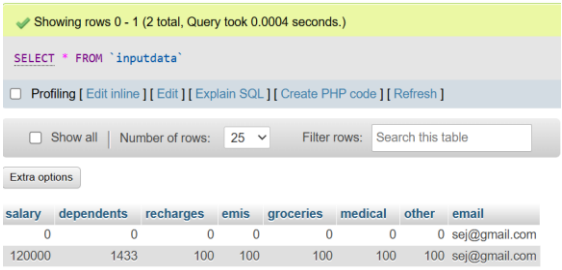
In data base there mainly two tables which are "registration" and "inputdata" which stores the received while registration and plan generation.

Registration Table:



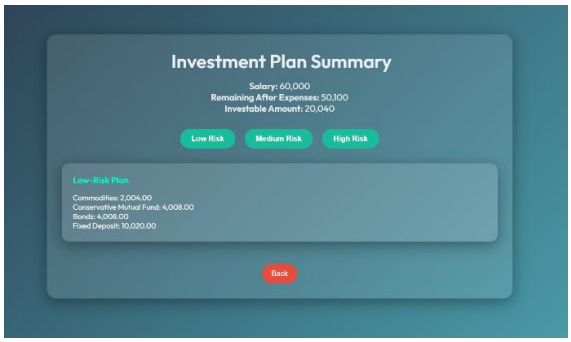
firstname	lastname	age	gender	email	password
Gaurav	Mirkute	22	male	mirkute123gaurav@gmail.com	123
Sejal	Kahtti	21	female	sej@gmail.com	1234

Inputdata table:

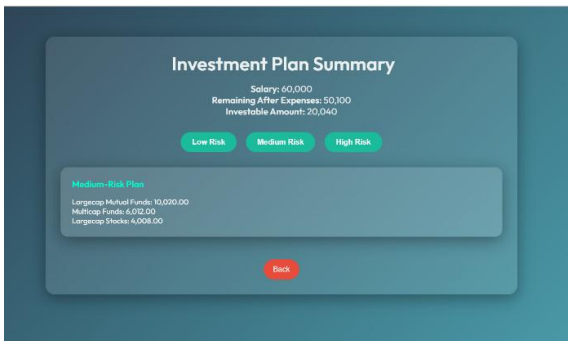


salary	dependents	recharges	emis	groceries	medical	other	email
0	0	0	0	0	0	0	sej@gmail.com
120000	1433	100	100	100	100	100	sej@gmail.com

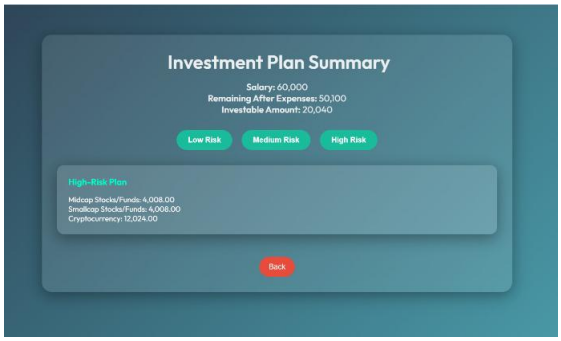
Low Risk Plan:



Medium Risk Plan:



High Risk Plan:



CONCLUSION

In this project, we proposed a comprehensive Investment Recommendation and Tracking System designed to meet the rising demand for personalized financial advice and real-time portfolio management. Unlike traditional systems, this platform analyzes user-specific financial inputs such as income, expenses, savings, responsibilities, and future goals to generate tailored investment plans.

By supporting a wide range of investment options—including stocks, mutual funds, fixed deposits, cryptocurrencies, and commodities—the system offers users a unified platform for holistic financial planning. The incorporation of collaborative filtering and content-based filtering ensures that investment suggestions are not only data-driven but also aligned with individual risk profiles and financial objectives. Furthermore, the inclusion of real-time tracking enables users to stay informed about their investment performance, make timely decisions, and adapt strategies as needed.

This solution empowers individuals to take control of their financial future, providing both intelligence and convenience in managing diverse investments through a single platform.

FUTURE SCOPE

The potential for growth and enhancement of the Financial Dashboard for Investment Recommendation and Tracking is vast. As user needs and market dynamics evolve, the platform can be further expanded and refined in the following ways:

Integration of Deep Learning Models: Future iterations can incorporate deep learning techniques to offer even more accurate and adaptive investment recommendations by understanding deeper patterns in user behaviour and market trends.

Mobile Application Development: Building a dedicated mobile app will allow users to access personalized insights, monitor their portfolios, and receive real-time alerts anytime, anywhere, increasing convenience and engagement.

Support for Global Markets: The system can be extended to include international investment options such as foreign stocks, exchange-traded funds (ETFs), and government bonds, enabling users to diversify their portfolios globally.

Advanced Predictive Tracking: Enhancing the tracking module with predictive analytics will allow users to forecast future performance, analyse different market scenarios, and receive proactive suggestions for portfolio rebalancing and risk management.

Forecasting Market Trends: By integrating real-time market data and predictive algorithms, the system could anticipate market shifts and recommend timely investment adjustments, helping users stay ahead of potential risks and capitalize on emerging opportunities.

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[2] V. Raffo and T. A. Jesus, “Investment portfolio tracking using model predictive control,” *Optimal Control Applications and Methods*, vol. 43, no. 5, pp. 1456–1473, Sep. 2022.

[3] J. Singh and J. Jenq, “A stock recommendation system,” *EPiC Series in Computing*, vol. 89, pp. 94–101, 2023.

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