



Incubating Minds,
Catalyzing Careers

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PROJECT TITLE

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ABSTRACT

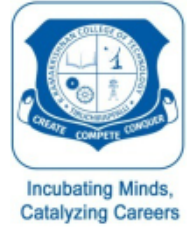
In the evolving landscape of retail investing, novice users often face challenges in understanding market dynamics and making informed decisions due to limited financial literacy. This paper presents an interactive, gamified investment recommendation system designed to guide beginner investors through real-time stock analysis, educational content, and personalized investment suggestions.

OBJECTIVE

- To fetch real-time stock data using the Alpha Vantage API, analyzes short-term market trends (bullish, bearish, or sideways), and provides investment suggestions based on the user's risk tolerance and balance.
- To calculate key indicators like the Relative Strength Index (RSI), visualizes price trends through charts, and compares multiple stocks.
- To support learning, it offers a beginner-friendly investment guide and curated video recommendations.
- All user data, including points, badges, and investments, is saved in a persistent JSON profile for future sessions.



LITERATURE SURVEY



S.No.	Paper Title	Year	Remark
1			
2			
3			



LITERATURE SURVEY



S.No.	Paper Title	Year	Remark
4			
5			
6			



LITERATURE SURVEY



S.No.	Paper Title	Year	Remark
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EXISTING SYSTEM



- ❑ Provides beginner-friendly investment guide and YouTube videos to educate users.
- ❑ Fetches 14-day stock data from Alpha Vantage API and analyzes trends (bullish, bearish, sideways).
- ❑ Stores user profiles with points, badges, and investment history in a local JSON file.
- ❑ Recommends investment amounts based on market trend and risk tolerance, with alternative stock suggestions.
- ❑ Uses matplotlib to visualize stock trends.

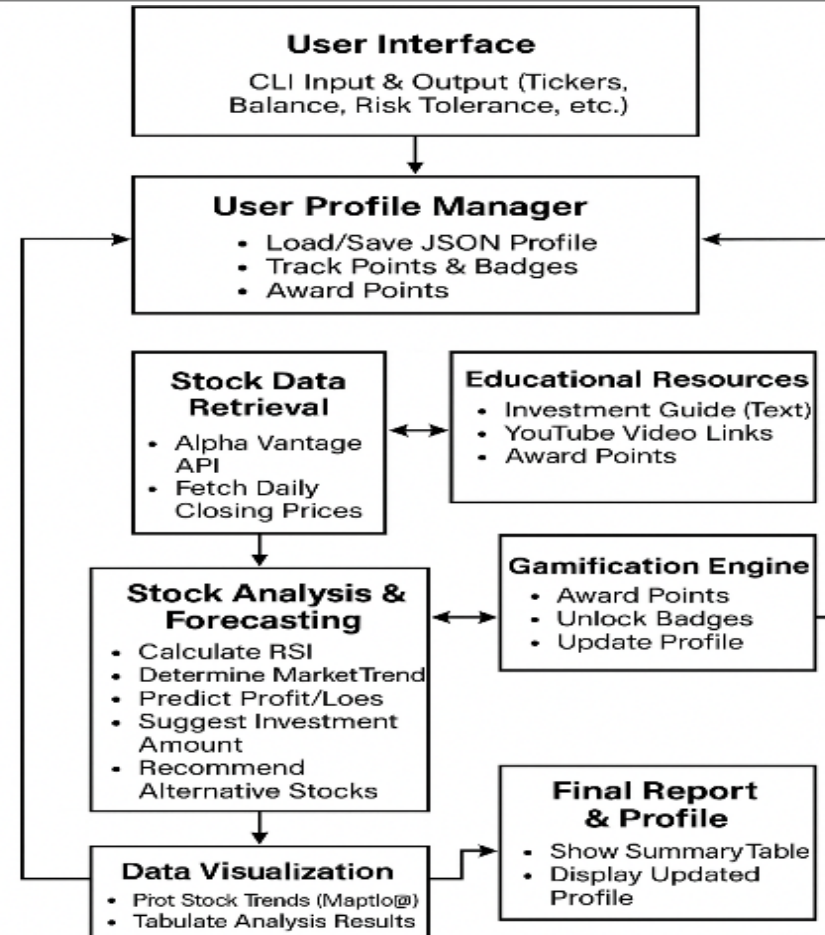


PROPOSED SYSTEM



- ❑ Integrates real-time stock updates and sends push notifications for alerts on price changes, trend reversals, or RSI signals.
- ❑ Moves to a web-based dashboard with persistent cloud storage for user profiles and multi-device access.
- ❑ Implements machine learning for personalized investment recommendations based on risk behavior and market conditions.
- ❑ Adds interactive quizzes, learning checkpoints, and AI-powered Q&A support for better user education.

SYSTEM ARCHITECTURE





MODULE 1 : Data Processing Module



- **Stock Data Fetching:** Retrieves historical stock data (14 days of closing prices) using Alpha Vantage API.
- **Price Change and Trend Calculation:** Calculates daily price changes to determine stock trends (Bullish, Bearish, or Sideways).
- **Relative Strength Index (RSI) Calculation:** Computes the RSI to evaluate the momentum and potential overbought/oversold conditions of a stock.
- **Investment Amount Calculation Based on Risk and Trend:** Determines the investment amount based on the user's risk tolerance and stock trend prediction.



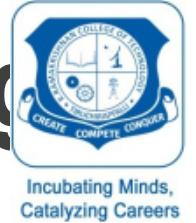
MODULE 2 : Feature Selection Module



- **Stock Ticker (Symbol):** The stock symbol (ticker) is the primary feature used for fetching the stock data.
- **Closing Prices:** The closing prices ('4. close') for the last 14 days are selected for trend and prediction analysis.
- **Price Change:** The percentage change in stock prices between consecutive days is used to identify market trends (Bullish, Bearish, or Sideways).
- **RSI:** The Relative Strength Index (RSI) is calculated as a feature to assess the momentum and potential overbought/oversold conditions of the stock.



MODULE 3 : Model Selection And Training



- It calculates technical indicators like **RSI** and computes price percentage changes to assess stock trends (Bullish, Bearish, or Sideways).
- Based on the calculated trend, it estimates the potential profit or loss for a given investment, adjusting for the user's **risk tolerance**.
- The system uses predefined rules to suggest investment actions, alternative stocks, and trend predictions, without using machine learning or model training.



MODULE 4 :Performance Metrics Module



- **Trend Accuracy:** Compares predicted market trends (Bullish, Bearish, Sideways) with actual stock movements.
- **Profit/Loss Calculation:** Measures estimated profit/loss based on predicted price changes versus actual performance.
- **RSI Evaluation:** Assesses the RSI value to identify potential buy/sell signals (overbought/oversold)
- **Investment Return:** Calculates return on investment (ROI) by comparing predicted profit/loss with actual market performance.

OUTPUT

Beginner-Friendly Investment Guide

1. Understanding Stock Market Basics:

- Stocks represent ownership in a company.
- Prices fluctuate based on supply, demand, and market conditions.
- Common order types:
 - * Market Order: Buy/sell immediately at the current price.
 - * Limit Order: Buy/sell at a specific price or better.
 - * Stop-Loss Order: Automatically sell if the price drops to a set level.

2. Key Stock Metrics Explained:

- P/E Ratio (Price-to-Earnings): Measures valuation; lower is usually better.
- EPS (Earnings Per Share): Shows company profitability.
- Market Cap: Total market value of a company's shares.
- Dividend Yield: Percentage return from dividends.
- RSI (Relative Strength Index): Measures stock momentum (above 70 = overbought, below 30 = oversold).

3. Risk Assessment for New Investors:

- Low Risk: Blue-chip stocks, index funds (e.g., S&P 500 ETFs).
- Medium Risk: Large companies with strong growth (e.g., tech stocks, healthcare).
- High Risk: Small-cap stocks, crypto, speculative investments.

4. Investment Strategy Tips:

- Diversify your portfolio to reduce risk.
- Start with long-term investments.
- Avoid emotional trading—stick to your strategy.
- Use stop-loss orders to protect investments.

5. Suggested Beginner-Friendly Stocks:

- Tech Giants: AAPL (Apple), MSFT (Microsoft), GOOG (Google).
- Dividend Stocks: KO (Coca-Cola), JNJ (Johnson & Johnson), PEP (PepsiCo).





OUTPUT



🏆 You earned 5 points! Total: 130

📺 Recommended Investment Videos for Beginners:

1. Stock Market Basics
2. How to Read Stock Charts
3. Investing Strategies for Beginners
4. Technical Analysis Basics

Enter the number(s) of the video(s) you want to watch (comma-separated): 2

Opening: How to Read Stock Charts...

🏆 You earned 5 points! Total: 135

Enter stock tickers (comma-separated): A,AA

Enter risk tolerance (high/low): low

Enter your investment balance: 565788

Stock	Trend	Predicted %	RSI	Investment (\$)	Profit/Loss	Alt Stocks
A	Sideways	+0.26%	60.0821	\$84868.20	\$219.78 (Profit)	QQQ, SPY, DIA
AA	Sideways	+0.21%	53.0445	\$84868.20	\$181.86 (Profit)	DIA, SPY, VTI

🏆 You earned 10 points! Total: 140

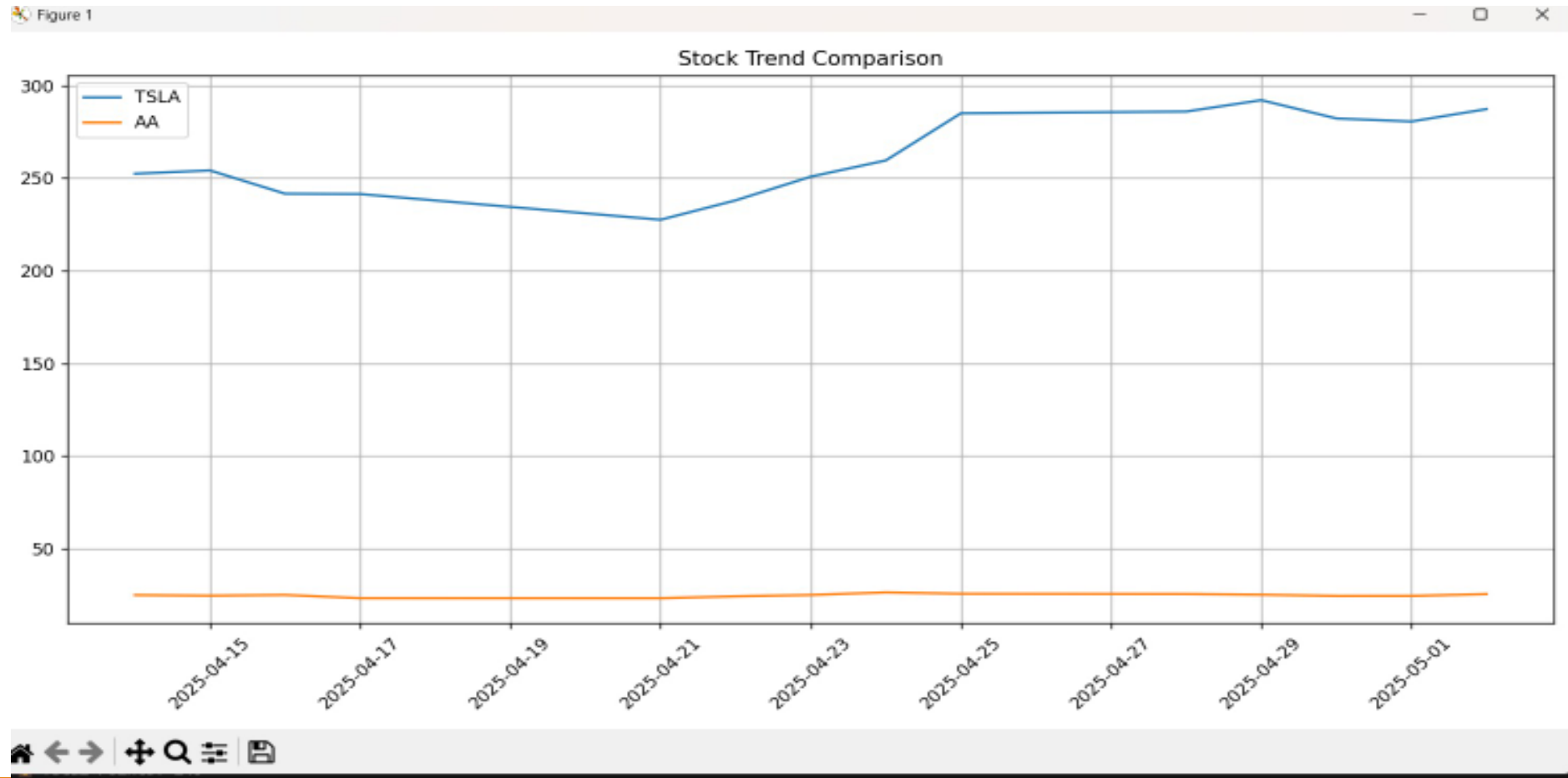
🔖 User Profile:

🏆 Total Points: 140

🏆 Badges: First Step, 🏆 First Step, 🌟 Rising Star, 🧙 Market Wizard

👤 No investments made yet.

OUTPUT





CONCLUSION & FUTURE ENHANCEMENT



- ❑ Implement real-time stock data fetching to provide up-to-date trend analysis and investment suggestions.
- ❑ Add functionality for users to track their stock portfolio, including buying, selling, and monitoring individual stock performance over time.
- ❑ Integrate news sentiment analysis and social media monitoring (e.g., Twitter, Reddit) to enhance stock predictions based on market sentiment.



REFERENCES



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3. Using social media mining technology to assist in price prediction of stock market, Yaojun Wang ; Yaoqing Wang, 2016 IEEE International Conference on Big Data Analysis (ICBDA)



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Thank You