



OPTIWEALTH

STOCK MARKET INVESTMENT STRATEGY

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A large, ornate golden bull statue is positioned on the left side of the slide. Behind it is a dark, curved background featuring a digital stock market ticker with red numbers and a grid of glowing red dots, suggesting a connection between traditional finance and modern data analysis.

INTRODUCTION

- Picture having a tailored financial advisor powered by machine learning algorithms.
- Investment recommendations based on your risk tolerance and objectives.
- This system optimizes portfolios for maximum returns and long-term wealth growth, crucial for managing risk effectively amidst complex financial markets.

PROBLEM STATEMENT

There is absence of tailored investment advice. The project develops a personalized recommendation system for investors. It leverages machine learning and financial modeling to optimize portfolio allocations and strategies based on risk tolerance, investment horizon, and market conditions, enhancing wealth accumulation.

OBJECTIVE

The primary goal is to create a tailored recommendation system that enhances portfolio allocations and compounding strategies by considering individual risk tolerances and investment timelines.





BUSINESS UNDERSTANDING

As financial services providers, there is critical importance of guiding clients towards sound investment decisions. Clients seek personalized investment advice aligned with their financial goals, risk preferences, and time horizons.

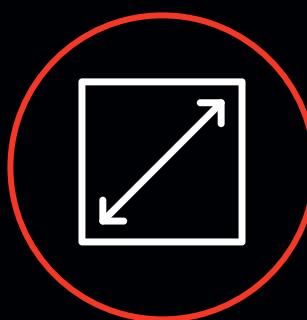
TARGET AUDIENCE

Our platform caters for a diverse audience including those seeking personalized stock portfolio recommendations including financial institutions, financial advisors and investors.

DATA UNDERSTANDING



Data Source
59,754 instances,
each with 6
features



Data size
Historical stock
market data obtained
from Yahoo finance
via web scraping



Relevance to the Project
Provides insights into the
historical performance of
top 11 companies listed on
the Nasdaq exchange

EXPLORATORY DATA ANALYSIS

A short summary of the data's structure to uncover patterns and relationships of variables

RESULTS

The Opening stock price exhibits a horizontal trend from 2000 to 2012 followed by an upward trend over the years 2016 to 2024.



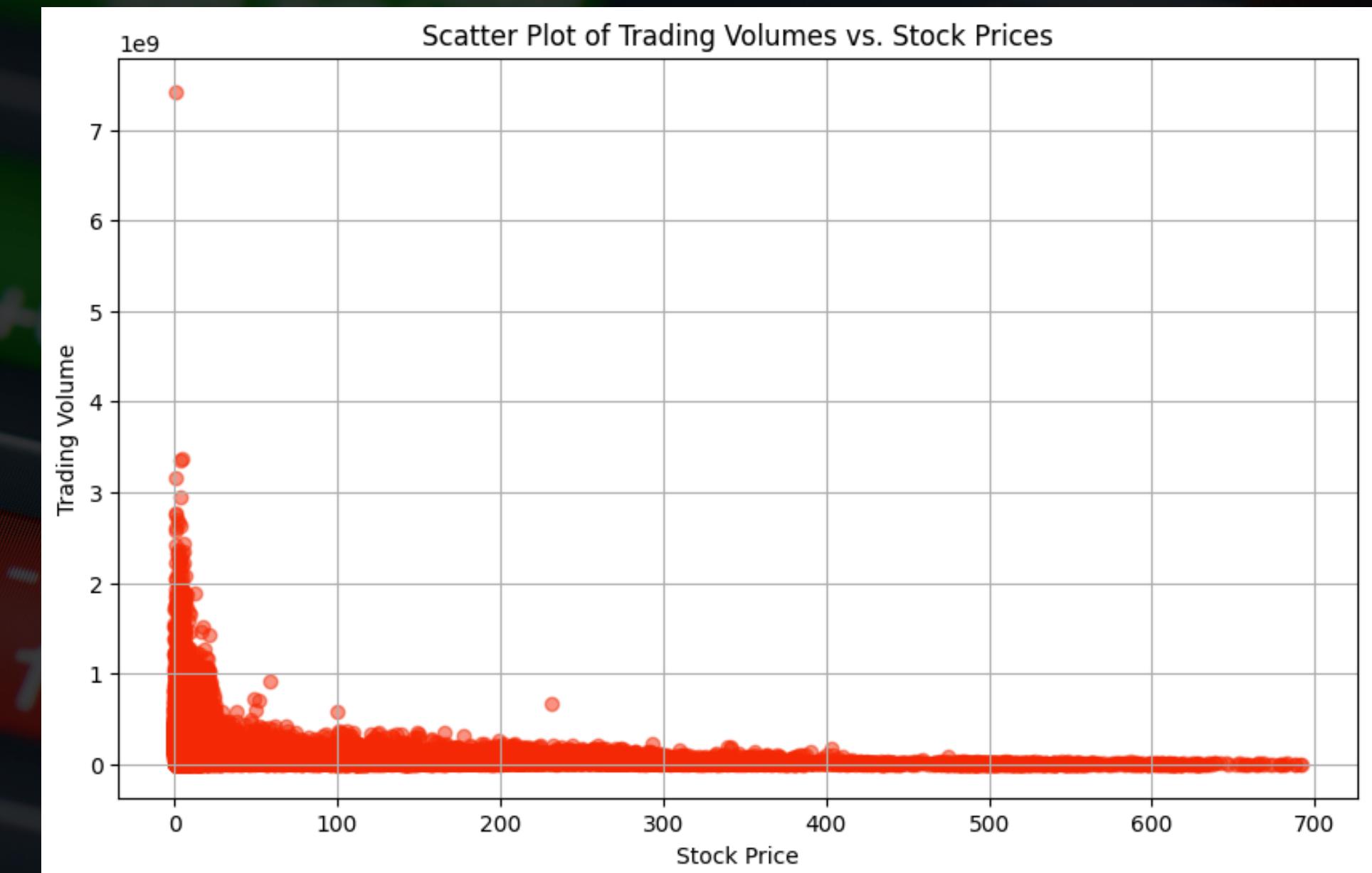
RESULTS

The Closing stock price exhibits a horizontal trend from 2000 to 2012, an upward trend over the years 2016 all through to 2024.



RESULTS

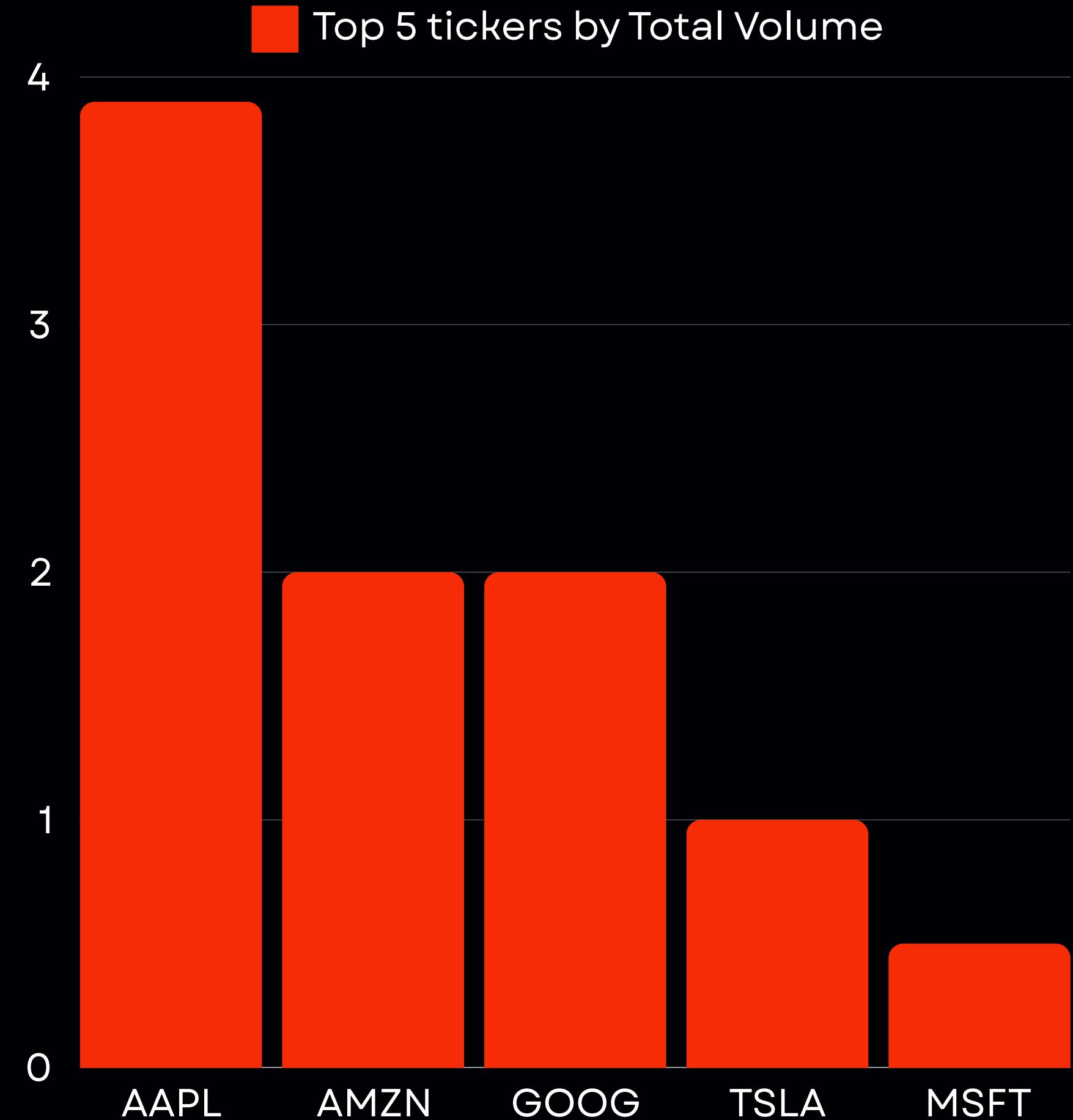
-From the scatter plot,
The higher the stock price the lower
the trading volume and the lower
the stock price the higher the
trading volume



RESULTS

The top 5 tickers with the largest volume of traded stocks are:-

- AAPL - Apple
- AMZN - Amazon
- GOOG - Google
- TSLA - Tesla
- MSFT - Microsoft



MODELING

Three models were implemented:

1. Decision trees

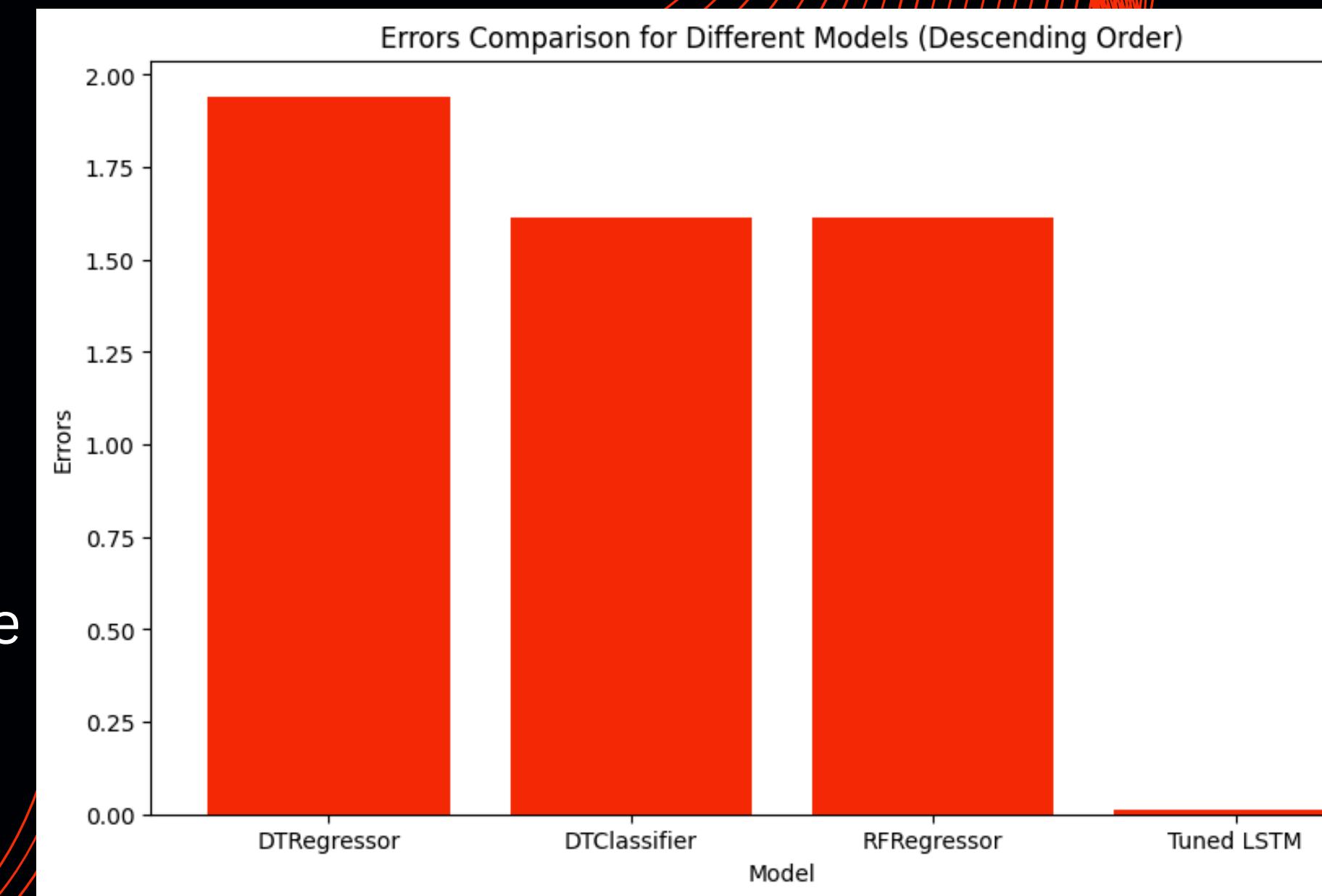
-Classifier

-Regression

2. Random Forest

3. Long Short Term Memory(LSTM)

- Analysis of the three models shows the LSTM model was selected as it outperformed the rest with the lowest Root Mean Squared Error(RMSE)



Metrics

Models

**Root Mean
Squared error**

**Backtesting
returns(%)**

**Risk adjusted
returns(Sharpe
ratio)**

Decision Tree Regressor

1.94152

137.838117

0.434264

Random Forest Regressor

1.61459

13346.592751

0.711592

Long Short Term Memory

0.01329

111.21972

4.090798

DEPLOYMENT DEMO

OPTIWEALTH

Login Successfull

GOOG META NFLX AMD TSLA AMZN SBUX QCOM MSFT CSCO



Invest with Confidence

powered by data driven insights

Stock Portfolio Recommendation

210

205

200

price volume

Apple (AAPL)

Alphabet Inc (GOOG)

Meta (META)

Netflix (NFLX)

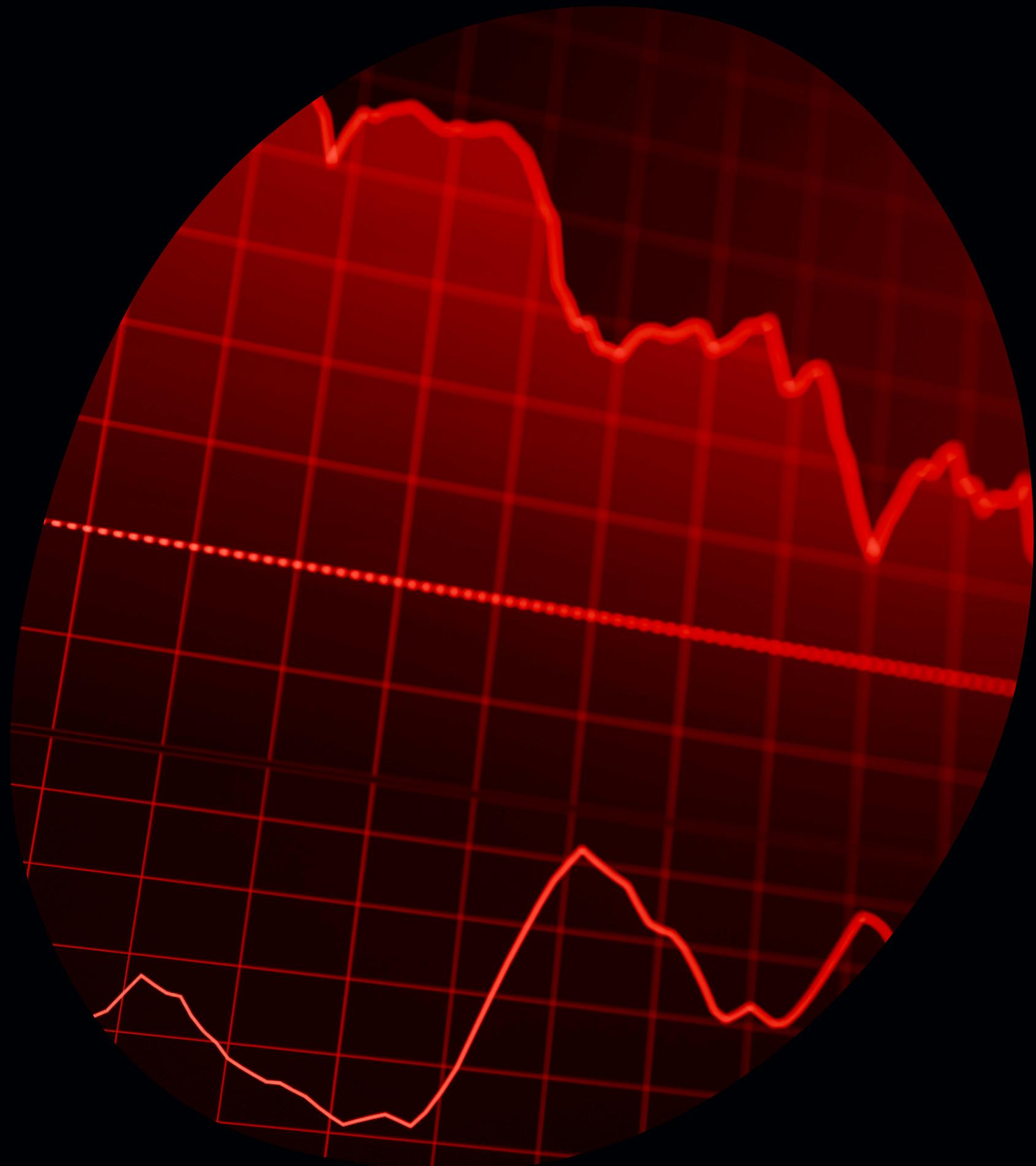
Adv Micro Dev (AMD)

Tesla (TSLA)

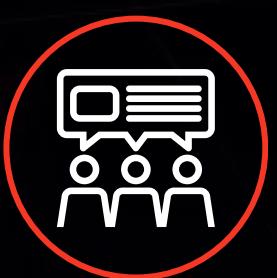
Stock Symbols

CONCLUSIONS

- Our stock portfolio recommendation system, utilizing machine learning models, showed strong performance in predicting future trends for stocks.



RECOMMENDATIONS



User Feedback Integration



Inclusion of Additional Sectors



Monitor and Evaluate Performance



Stay updated with market trends, regulatory changes, and technological advancements

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THANK
YOU