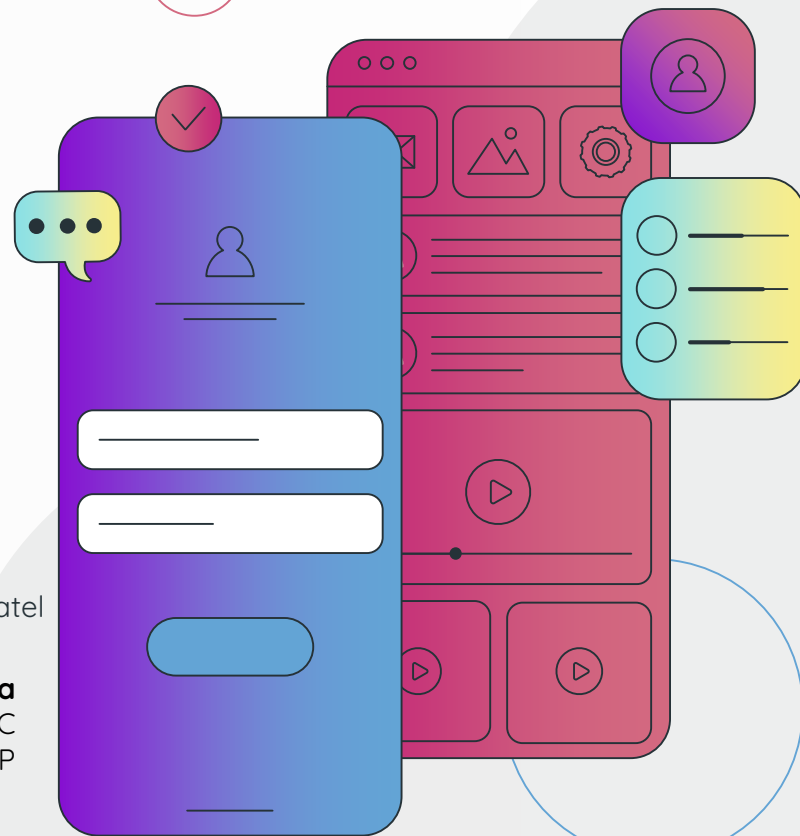


Application of Chatbot to Investment Advising Using DialogFlow

Jhancy Amarshingh, Jin Hui Xu, Shikha C. Patel

Under the guidance of **Dr. Tony Diana**
Data Science Department, UMBC
DATA 690: Special Topics in Data Science: NLP



OUR TEAM



Jhancy Amarsingh

PO48217



Jin Hui Xu

AC39537



Shikha Patel

JF14891

TABLE OF CONTENTS

01

INTRODUCTION

02

FEATURES

03

METHODOLOGY

04

DEMONSTRATION

05

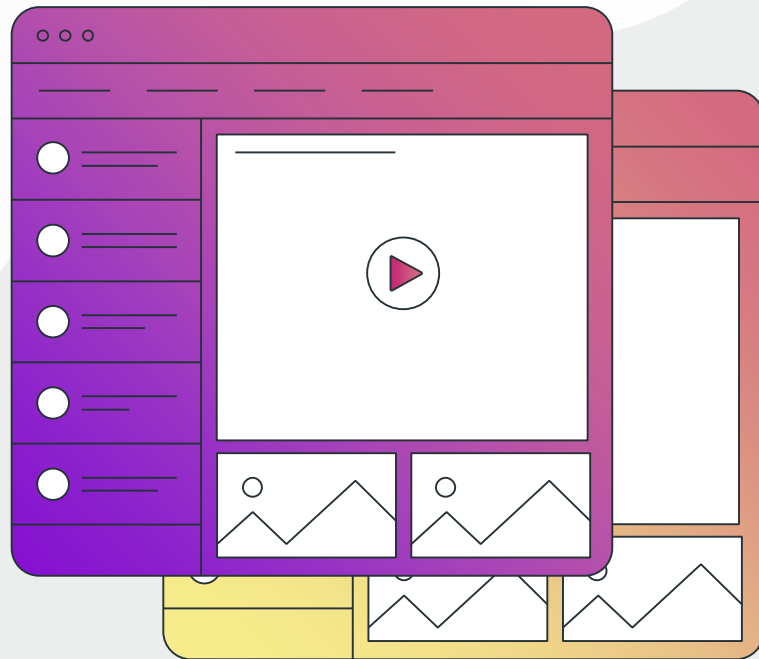
CONCLUSION



INTRODUCTION

What is a Chatbot?

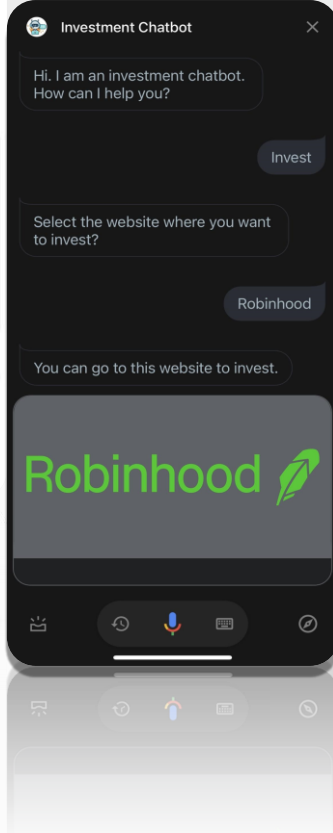
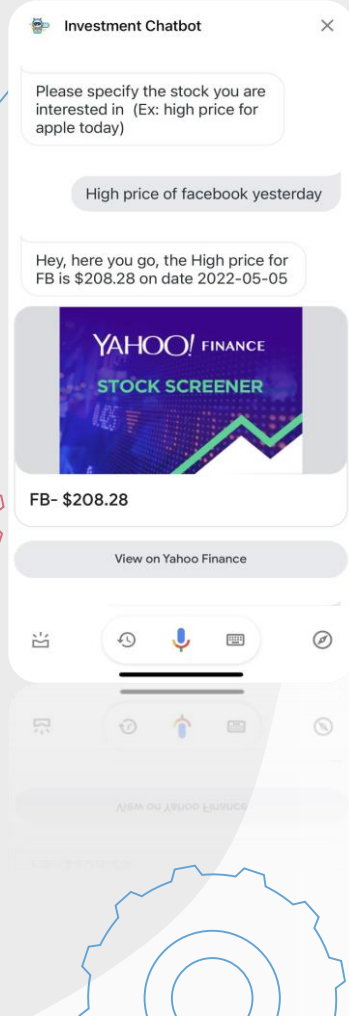
- Apple's Siri
- Amazon's Alexa
- Google's Okgoogle
- Samsung Electronics' Bixby



What Is An Investment Chatbot?

An interface that communicates with financial services to give information and advice to users or any investor.

- Retail Banking
- Investment Management
- Wealth management
- Investment Portfolio



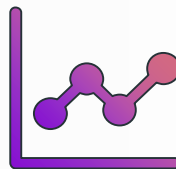
Why our Investment Chatbot is important?



**Internet Research
on Investment**



**Guide for
Investment**



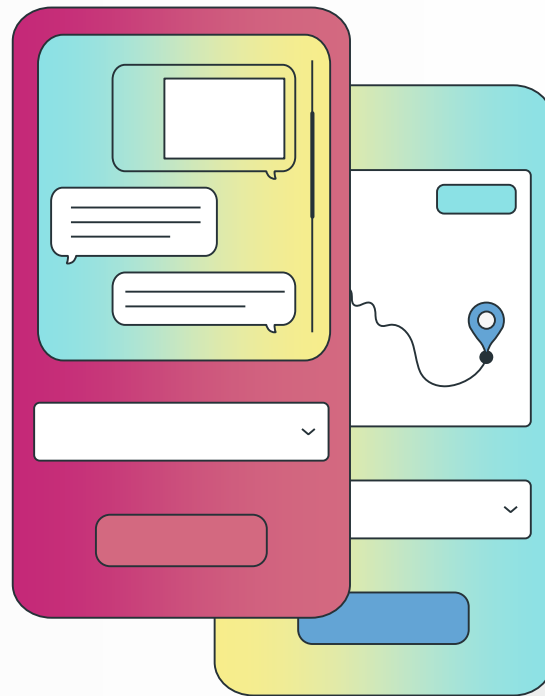
**Forecasting Stock
Prices**



**Recommendation
based on Current
Market**

02

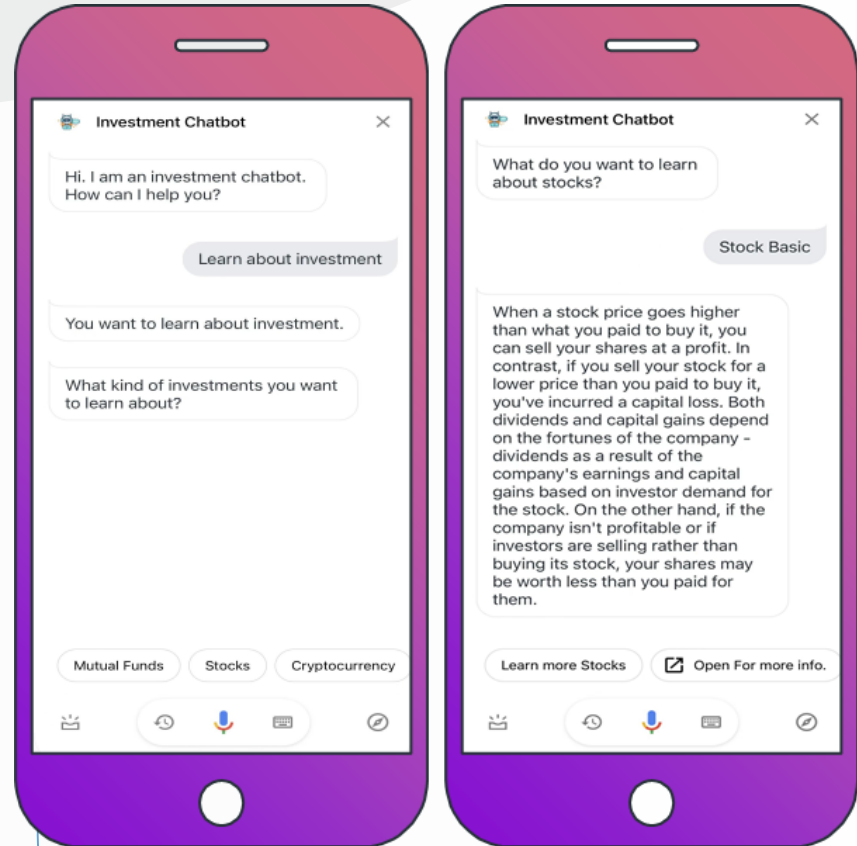
FEATURES



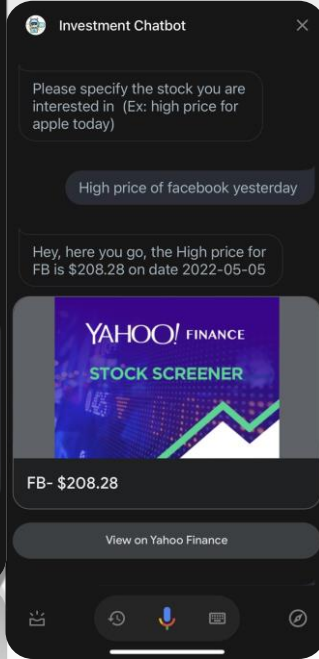
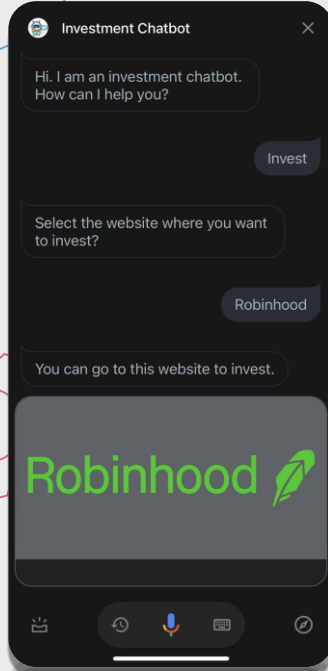
Investment Education

Provide definitions and information

- Mutual Funds
- Bonds
- Stocks
- Cryptocurrency



Information Retrieval



Investment tools



Real-time stock chart and price query

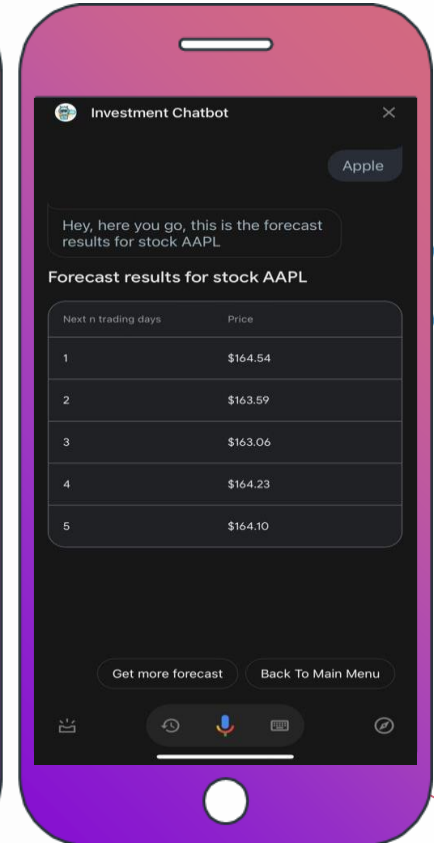
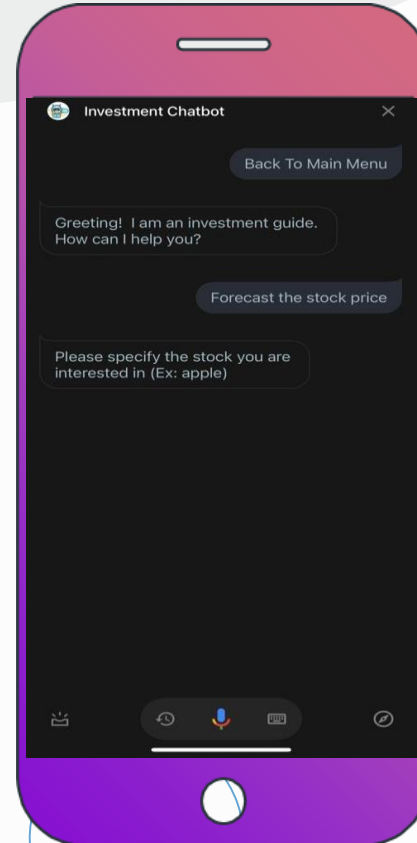
Stock Price Forecast



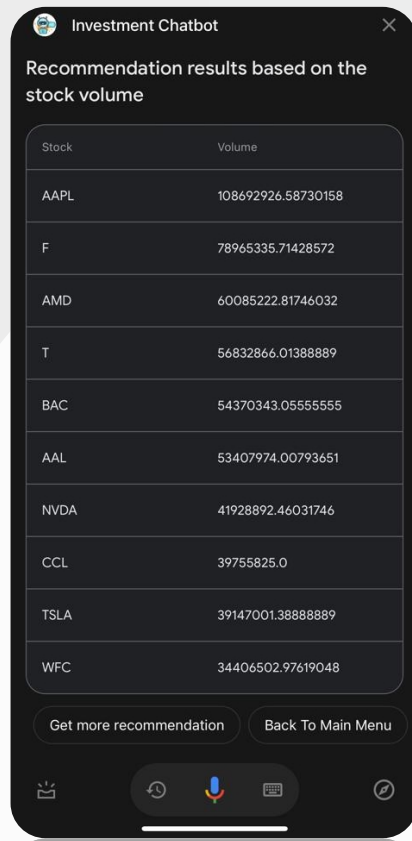
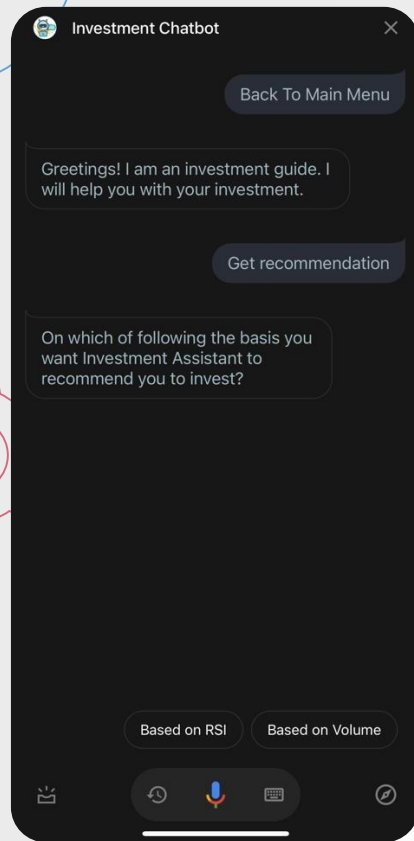
Time Series Analysis



Forecast 5 days
realtime stock price



Stock Recommendation



Technical Indicators



Rational Decisions

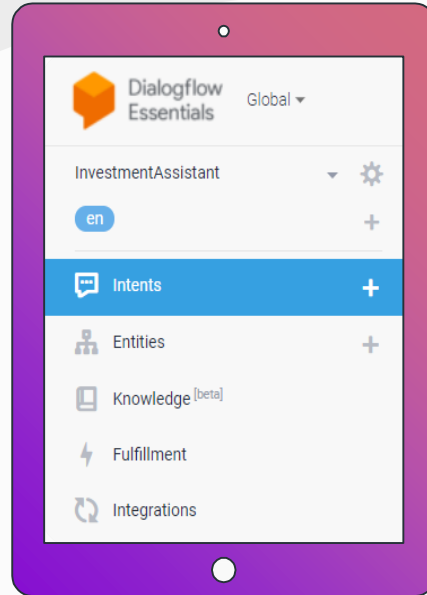


METHODOLOGY

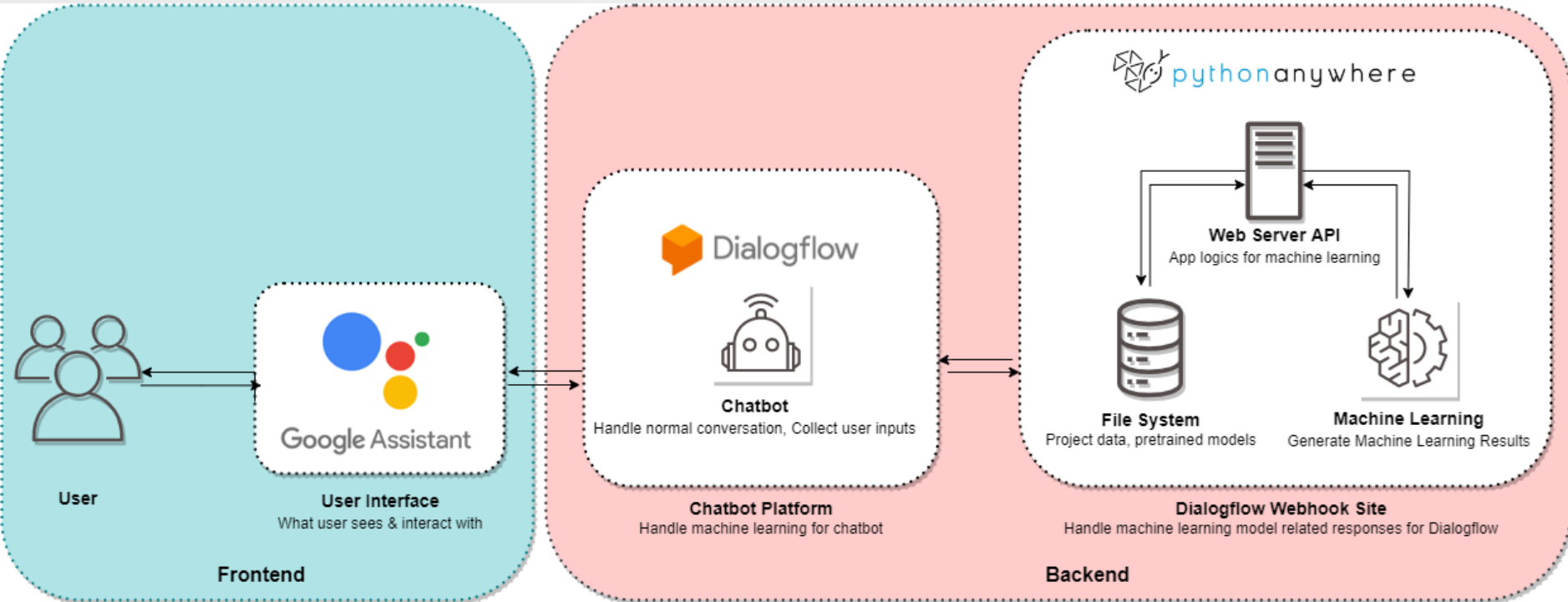
Chatbot Development

NLP techniques

- POS Tagging
- Tokenization
- Stemming
- Stop Words
- Term Reinforcement

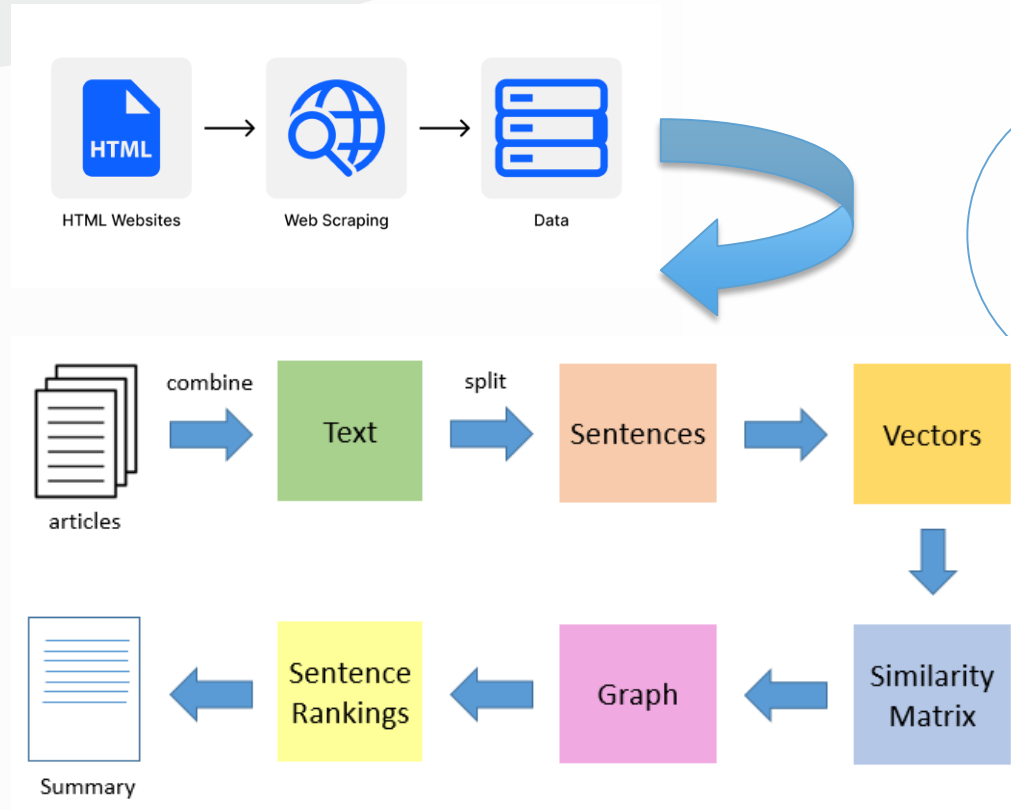


Chatbot Fulfillment and Webhook

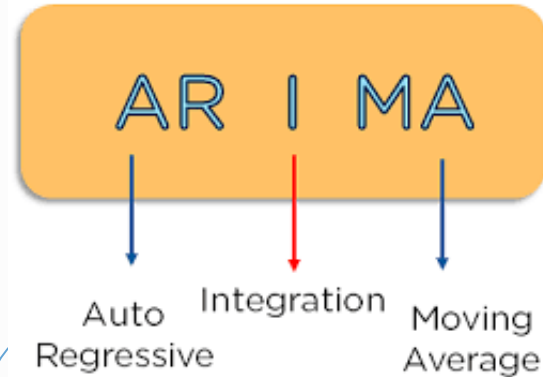
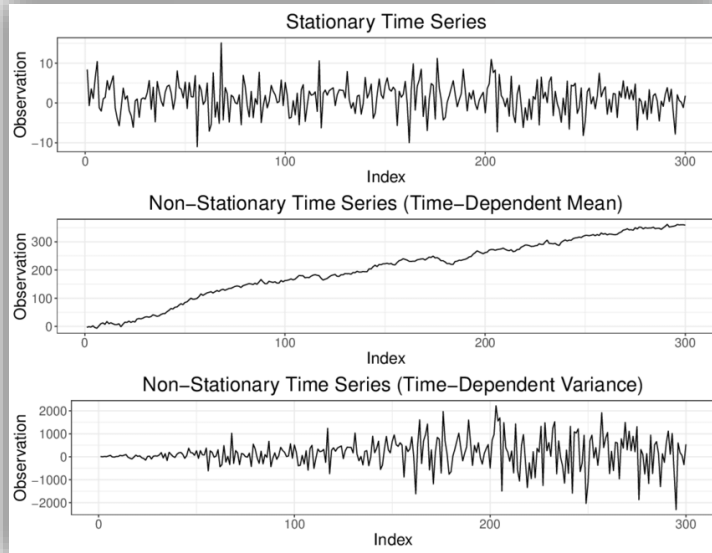


Text Summarization

- **Web Scraping** – BeautifulSoup
- **Text cleaning**
- **Text summarization** - Gensim summarization



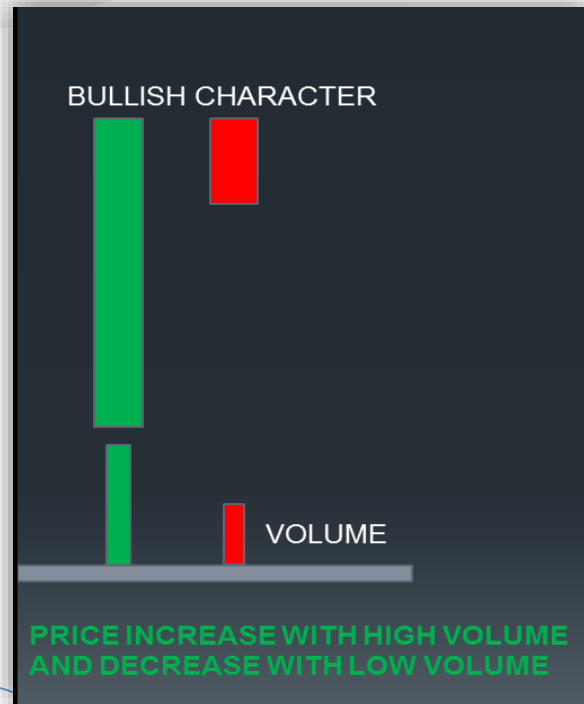
Time Series Forecasting



Recommendation system



Relative Strength Index





04

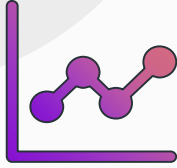
DEMONSTRATION



CONCLUSION

Limitation & Future Scope

LIMITATIONS



Graphs or Charts

Does not allow to present graphs or charts



Attractive UI

Google Assistant does not allow customized/ attractive UI



Language Compatibility

Compatible with no other language than English.

FUTURE SCOPE

Language Compatibility

Other languages like Spanish, Chinese, Hindi, etc

Trading API

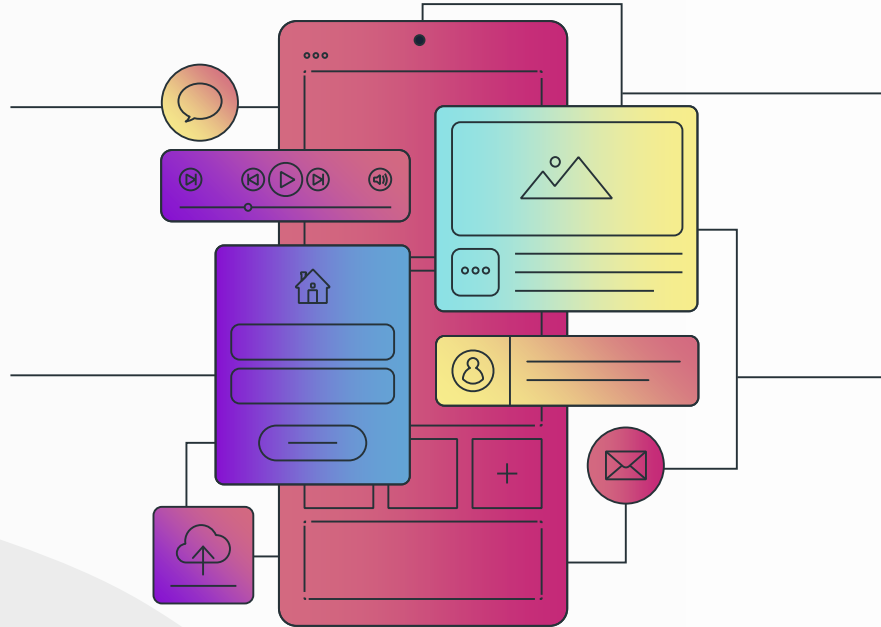
Places the trading orders after the conversation.

Prediction & Recommendation

EPS, Price-to-Earnings Ratio, Return on Equity (ROE) Money Flow Index (MFI), Simple Moving Average (SMA), and Bollinger Bands

Mutual Funds, Bonds & Crypto-by-crypto

Price predictions and recommendations also based on Neural Networks



REFERENCES

- Dasagrandhi, C. S., (2022). 22 reasons why investing in Chatbots is no longer an option. Blog. Retrieved May 1, 2022, from <https://blog.vsoftconsulting.com/blog/22-reasons-why-investing-in-chatbots-is-no-longer-an-option>
- Karnam, M. (2019, September 24). How to build an investment management chatbot. IBM. <https://www.ibm.com/cloud/blog/announcements/build-investment-management-chatbot>
- Hwang, Sewoong & Kim, Jonghyuk. (2021). Toward a Chatbot for Financial Sustainability. Sustainability. 13. 3173. 10.3390/su13063173.
- D3VTech. (2021, August 2). The AI Behind Google Dialogflow - How it Differs from Other Conversational AI | Cloud Insights | D3V Technology Solutions. <https://www.d3vtech.com/insights/the-ai-behind-google-dialogflow-how-it-differs-from-other-conversational-ai>
- Mitchell, C. (2022, February 10). How to Use Volume to Improve Your Trading. Investopedia. <https://www.investopedia.com/articles/technical/02/010702.asp>
- Hwang, S.; Kim, J. Toward a Chatbot for Financial Sustainability. Sustainability 2021, 13, 3173. <https://doi.org/10.3390/su13063173>
- Botbot.AI. (2018, February 2). Banking & Investment - Chatbot for Enterprise Productivity. Botbot.AI. <https://botbot.ai/solutions/banking-investment-chatbot/>
- Dhaduk, H. (2021, July 18). Stock market forecasting using Time Series analysis With ARIMA model. Analytics Vidhya. <https://www.analyticsvidhya.com/blog/2021/07/stock-market-forecasting-using-time-series-analysis-with-arima-model/>
- Fernando, J. (2022, February 19). Relative Strength Index (RSI). Investopedia.
- Finra. (n.d.). Learn to Invest | FINRA.org. <https://www.finra.org/investors/learn-to-invest>



THANKS!

CREDITS: This presentation template was created by **Slidesgo**, including icons by **Flaticon**, infographics & images by **Freepik**