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The logo for TADAWUL TECH TRADER is overlaid with a line graph. The graph features a series of vertical bars of varying heights, representing data points. A smooth, dark blue line connects the tops of these bars, creating a visual metaphor for a stock price chart or a trend line. The overall design is clean and professional, emphasizing growth and technology.

**TADAWUL**  
TECH TRADER



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## SUPERVISED BY

**DR. MOHAMMED ALNUEM**

## TEAM MEMBERS

- Abdulmohsen Alqahtani
- Osama Alharbi
- Raed almajed

# INTRODUCTION



Tadawul Tech Trader is a platform that enables investors to invest in the Saudi Exchange Market(TASI) through an automated trading using Artificial Intelligence

TADAWUL TECH TRADER

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## PROBLEM

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- Lack of reliable automated trading tools tailored to the Saudi market.
- Barriers to entry for investors (limited time, market understanding)

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# OBJECTIVES AND MOTIVATIONS

# 05

## MOTIVATIONS

- Empower investors with AI tools.
- Drive innovation and inclusion.

## OBJECTIVES

- Develop an AI-driven trading system and risk management.
- Provide a user-friendly platform for customization and backtesting.
- monitor bot performance and adapt to market changes.
- Integrate with APIs for live trading execution.





## TARGET AUDIENCE

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- Individual investors
- Brokers and trading platforms

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# EXISTING SOLUTIONS



# METATRADER

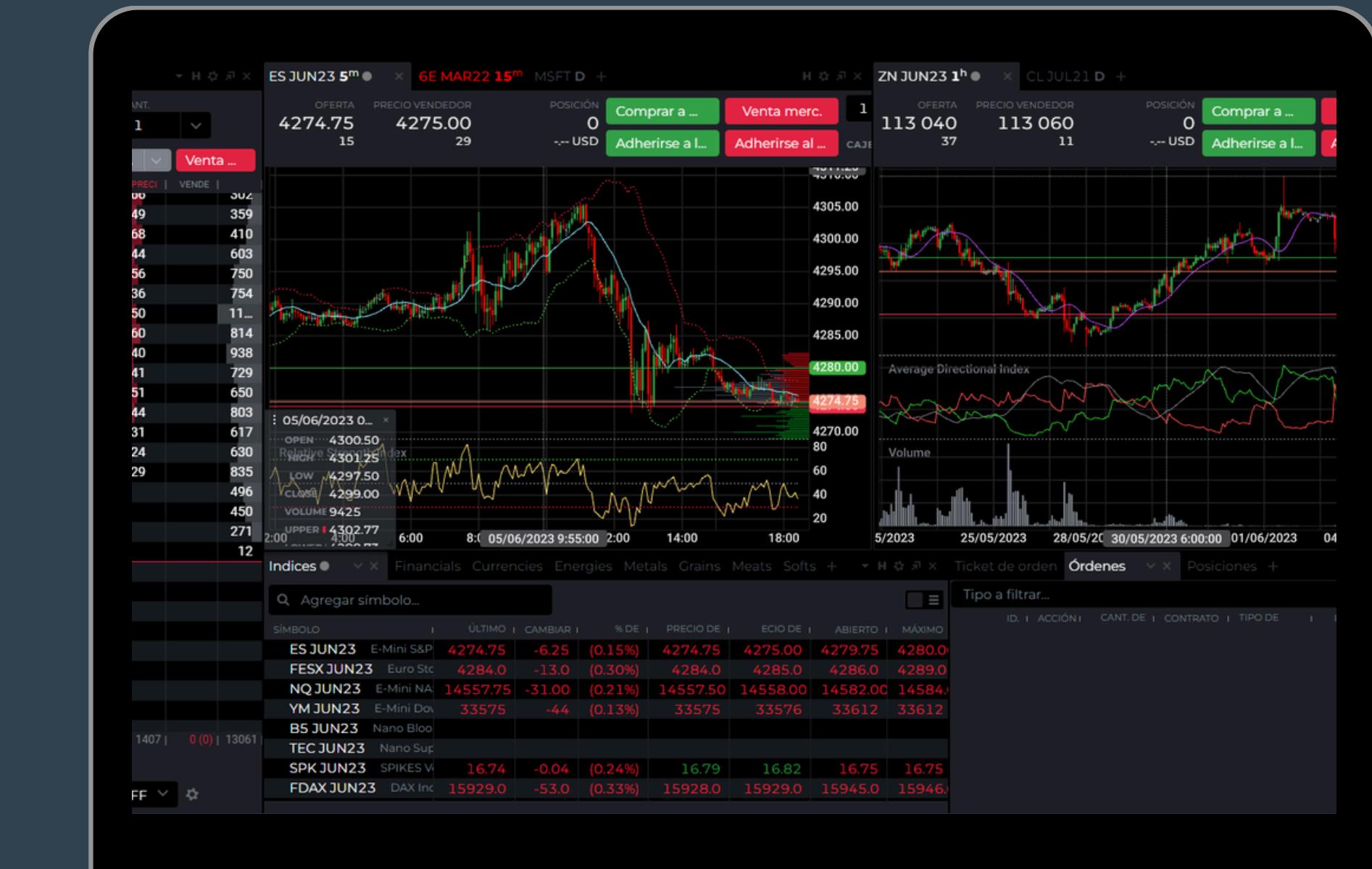
08





# NINJATRADER

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# AUTO TRADING

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A smartphone is shown from a side-on perspective, displaying a website for "Auto Trading". The website has a dark blue background. At the top left is the logo "AA" with the text "التداول الآلي" and "Auto Trading". To the right are links for "ABOUT", "SERVICES", "CONTACT", and a "SIGN IN" button. The main visual on the screen is a stack of glowing blue circuit boards or server components, with a large "AA" logo in the center. To the right of this image, the text "Automated Trading Company" is displayed in large white letters, followed by the tagline "Rise above the market noise .. Automated Trading solutions with precision".

التداول الآلي  
Auto Trading

ABOUT SERVICES CONTACT SIGN IN

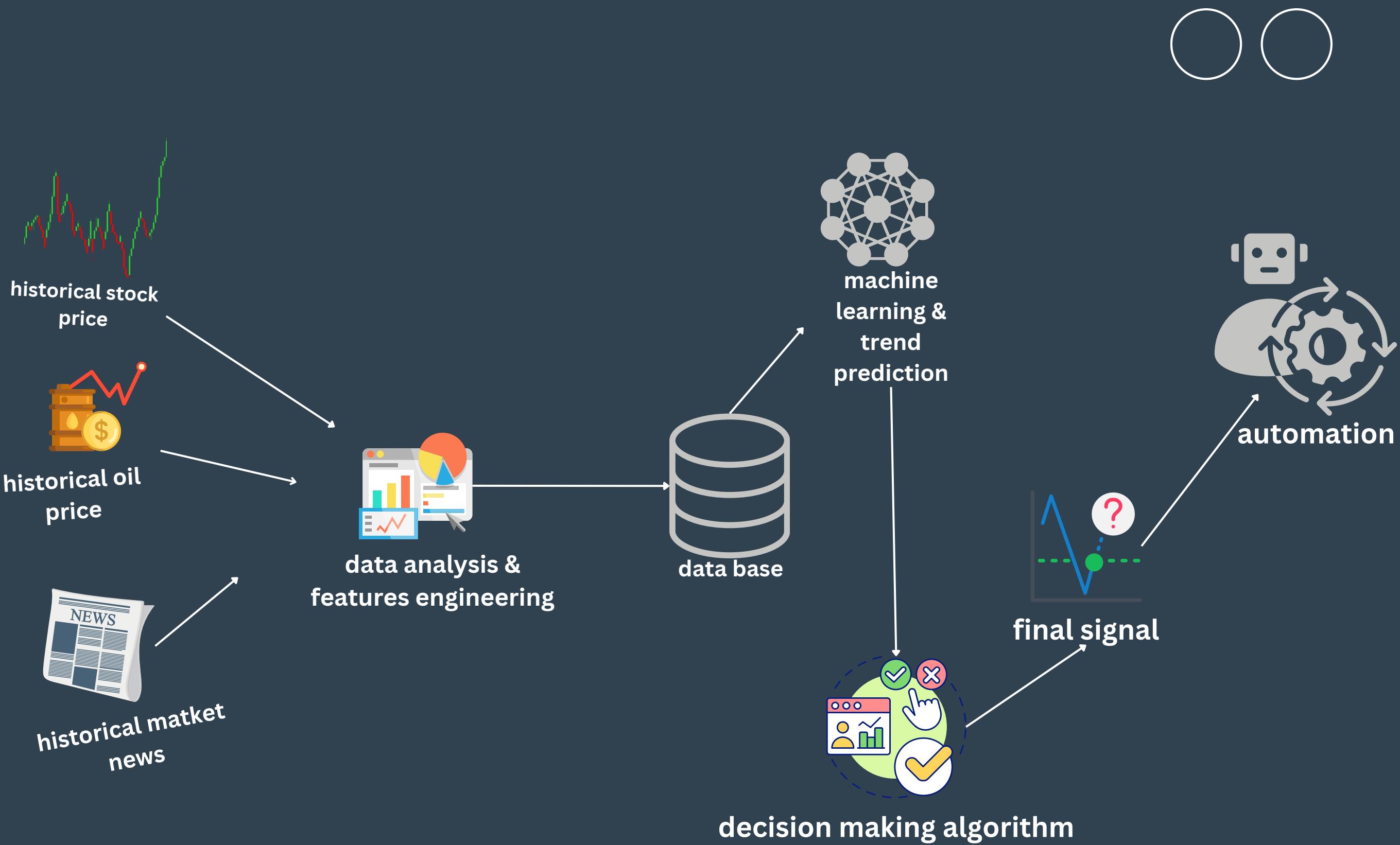
Automated Trading Company

Rise above the market noise ..  
Automated Trading solutions with precision



# INITIAL PROPOSAL

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# DATA ACQUISITION & PREPROCESSING



## DATA ACQUISITION

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- Tadawul eReference Data
- Saudi ExchangeStocks Tadawul API
- Argaam and Marketaux APIs
- Brent Oil historical price

# DATASET

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Company name	Ticker ID	Date	Open price	Highest price	Lowest price	Close price	Volume
Saudi Reinsurance Co.	8200	2010/02/10	12.9	12.9	12.85	12.9	5191406
Saudi Reinsurance Co.	8200	2010/02/13	12.9	12.96	12.79	12.96	4714687
Saudi Reinsurance Co.	8200	2010/02/14	12.9	12.96	12.85	12.9	3533019
Alinma Bank	1150	2010/02/10	9.41	9.45	9.37	9.45	401010899
Alinma Bank	1150	2010/02/13	9.41	9.48	9.41	9.45	393167756
Alinma Bank	1150	2010/02/14	9.48	9.56	9.45	9.56	484667229
Saudi Kayan Petrochemical Co.	2350	2010/02/10	17.85	17.85	17.5	17.6	112031139
Saudi Kayan Petrochemical Co.	2350	2010/02/13	17.55	17.9	17.55	17.9	80609654
Saudi Kayan Petrochemical Co.	2350	2010/02/14	17.95	18.1	17.85	18.05	154690207
Saudi Public Transport Co.	4040	2010/02/10	8.25	8.3	8.25	8.25	2867685
Saudi Public Transport Co.	4040	2010/02/13	8.25	8.35	8.25	8.3	8897551
Saudi Public Transport Co.	4040	2010/02/14	8.3	8.35	8.3	8.3	4419915



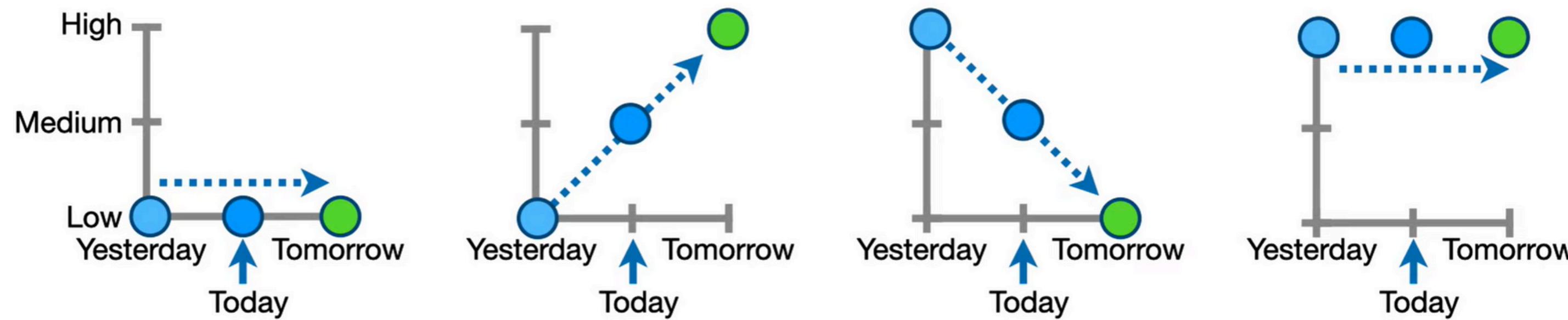
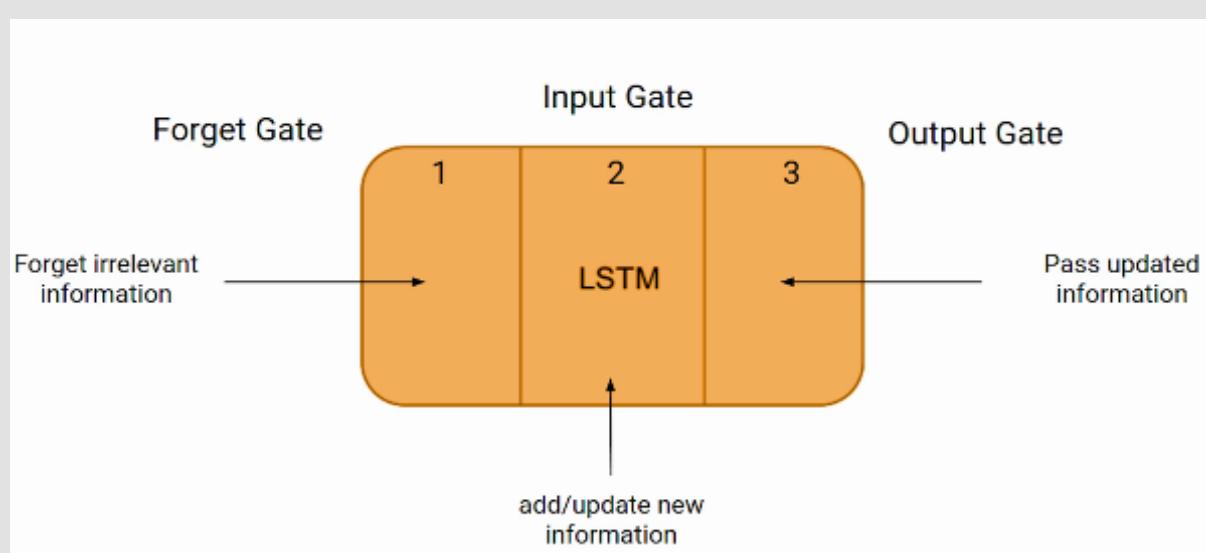
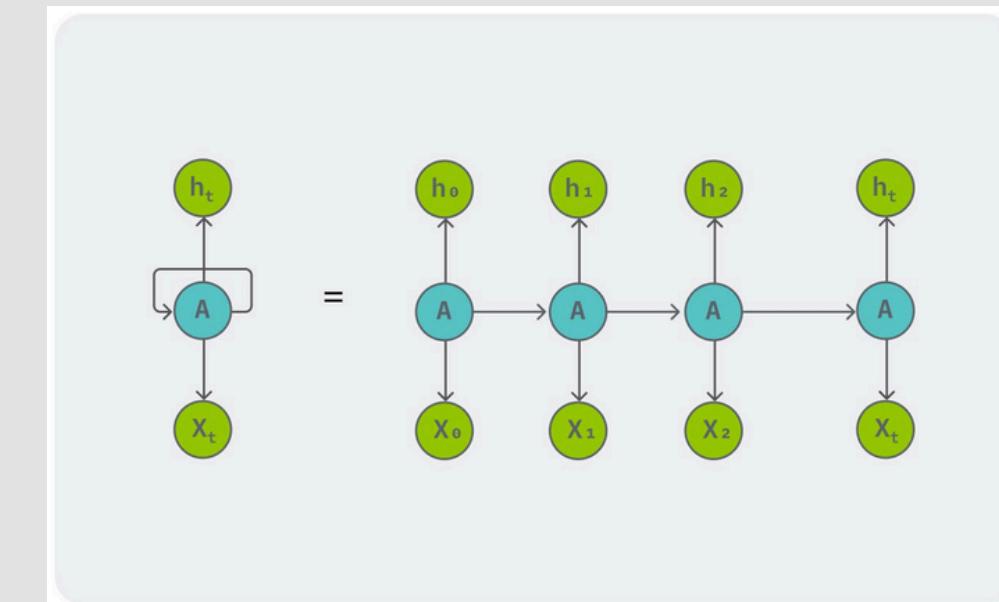
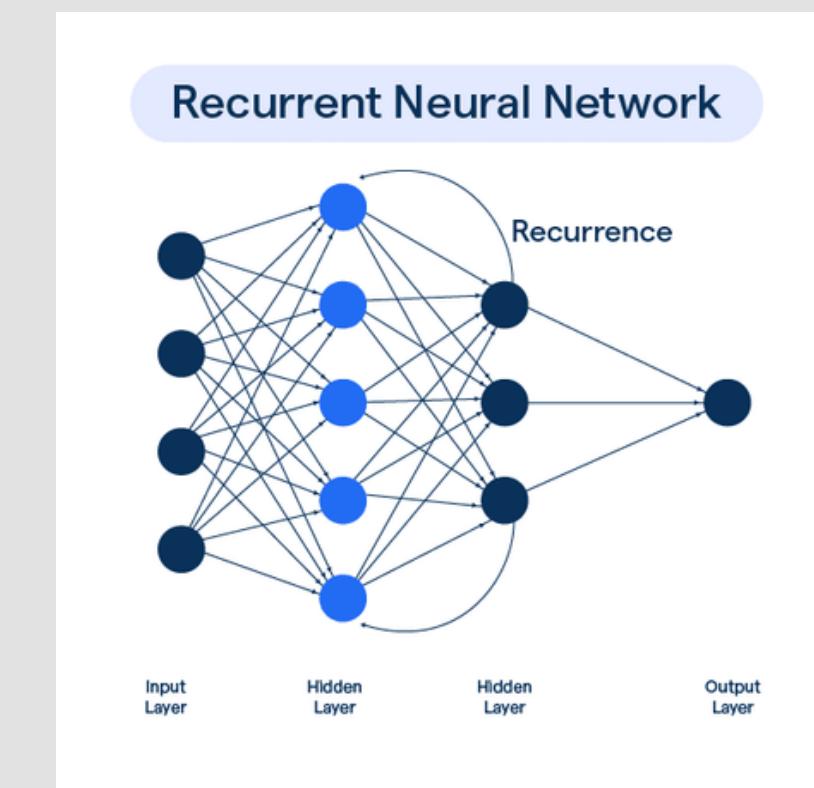
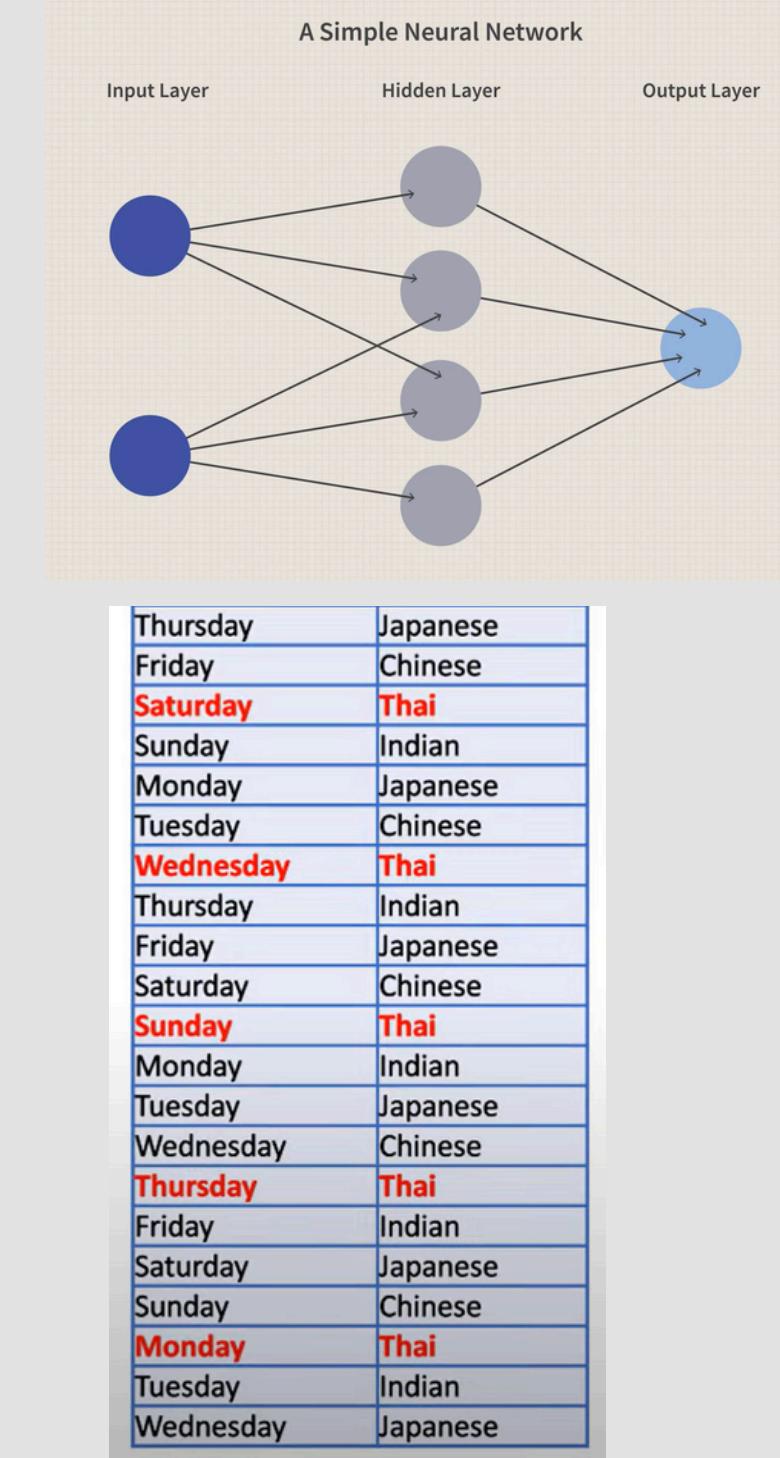
# DATA PREPROCESSING

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- Data Cleaning
- Feature Engineering
- Labeling news Data



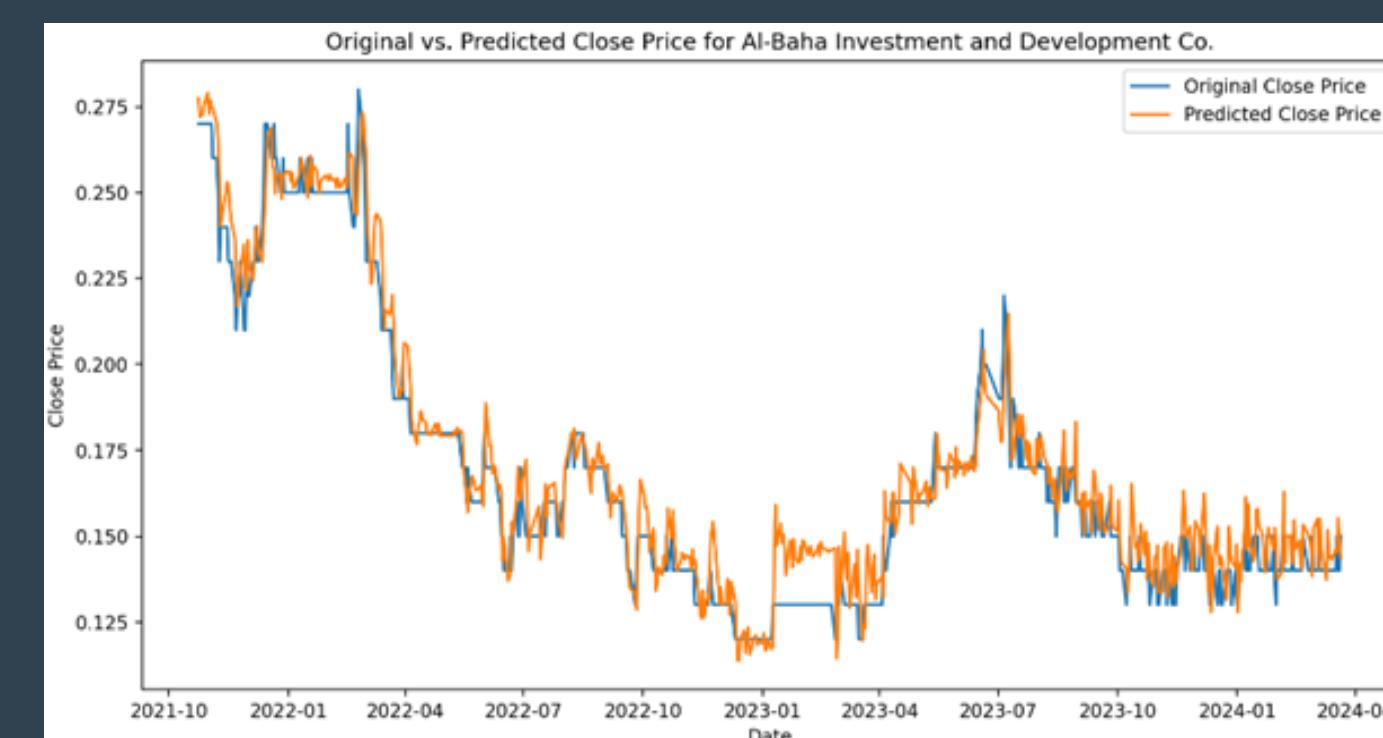
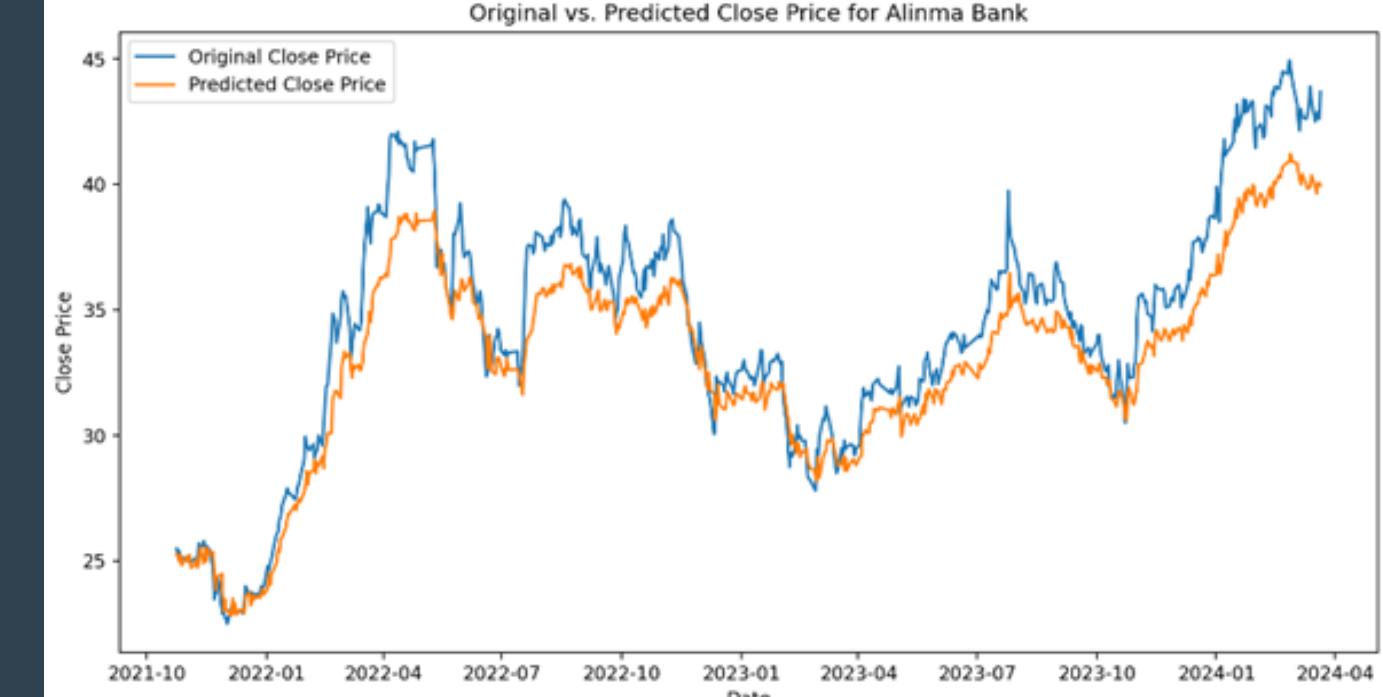
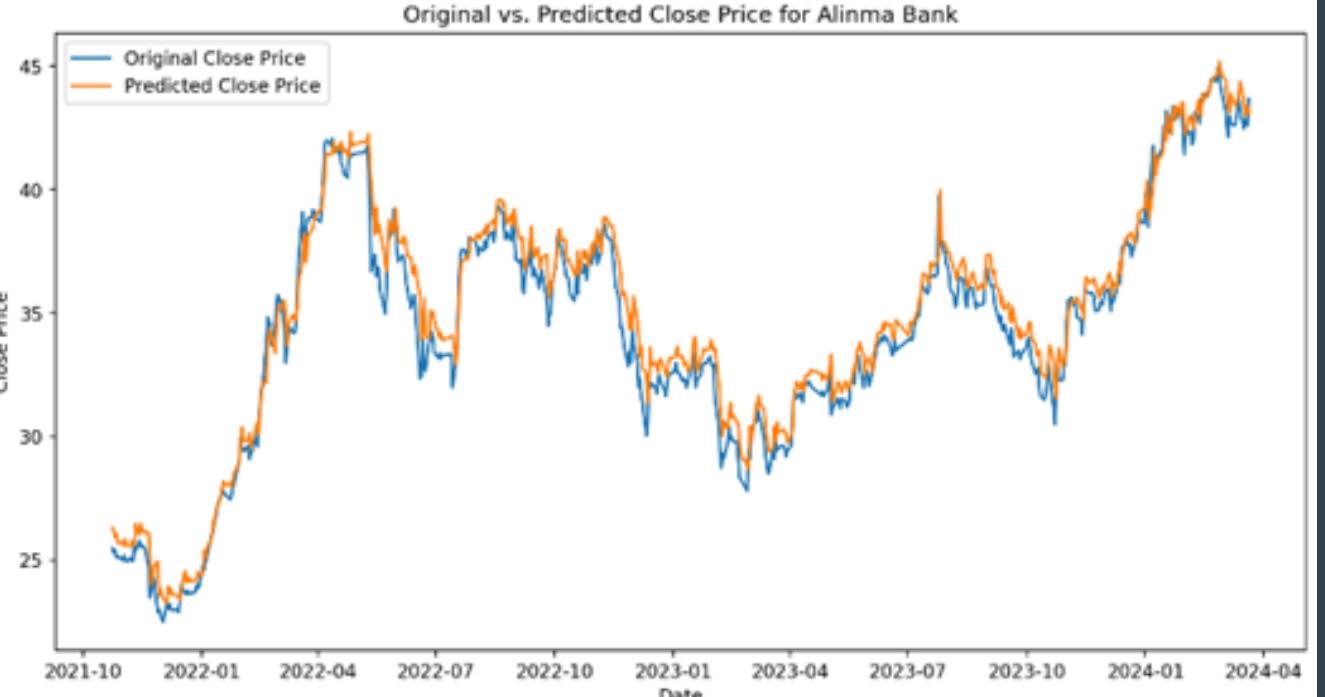
# MODELING & TESTING





# TESTING

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LSTM

MSE: 0.0001  
R2: 0.9136

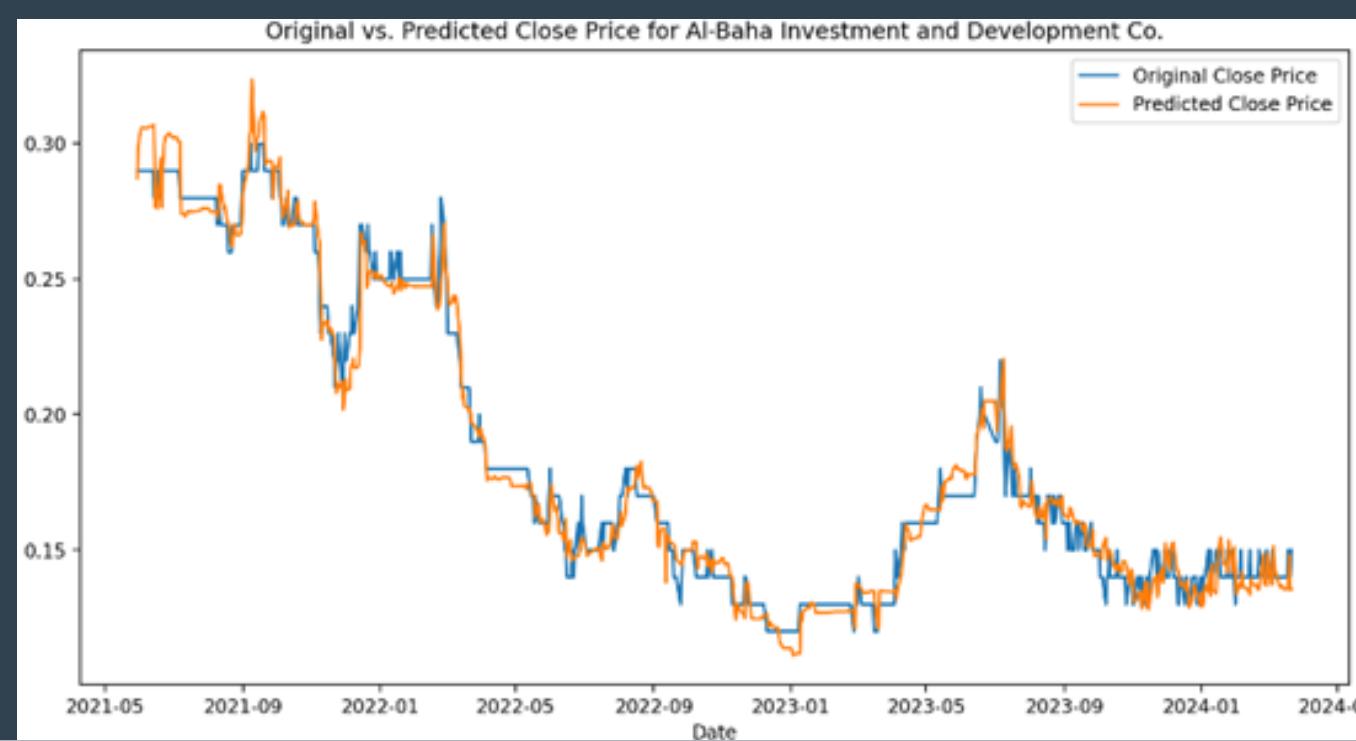
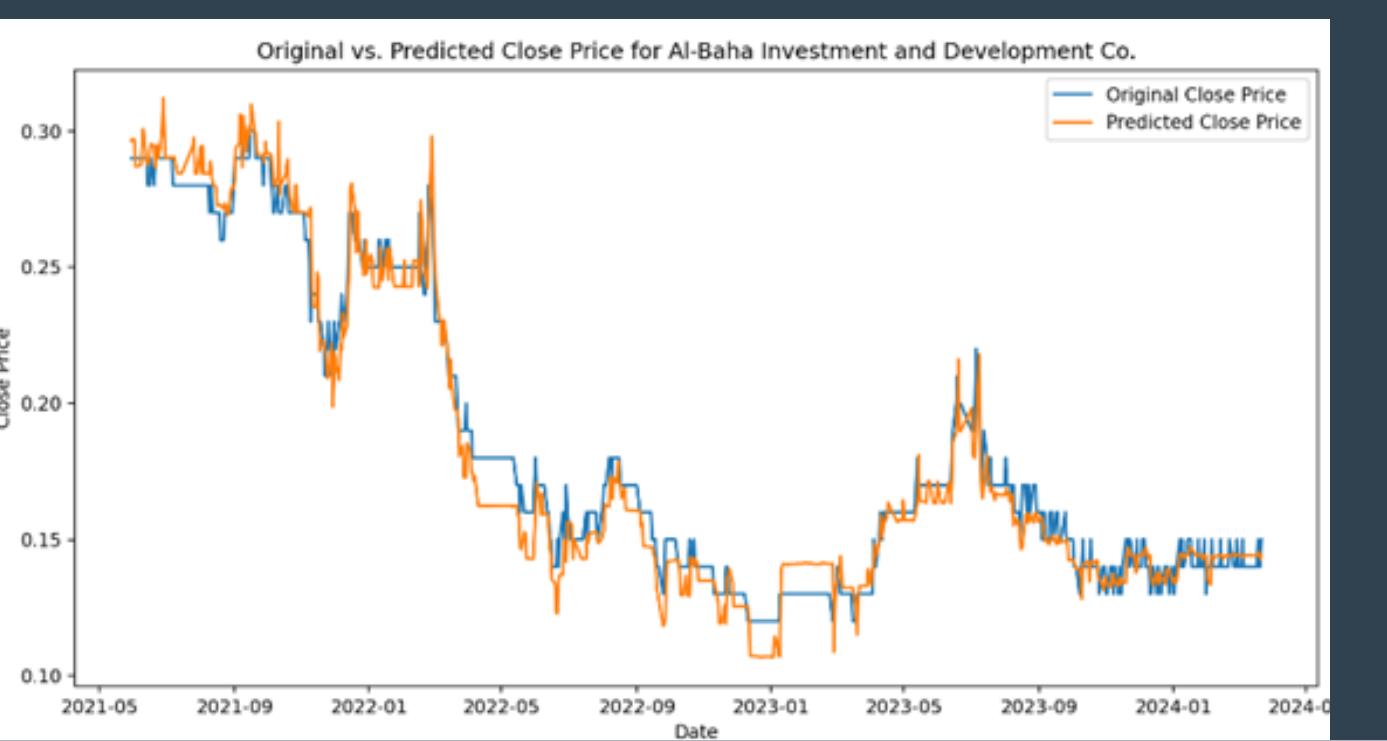
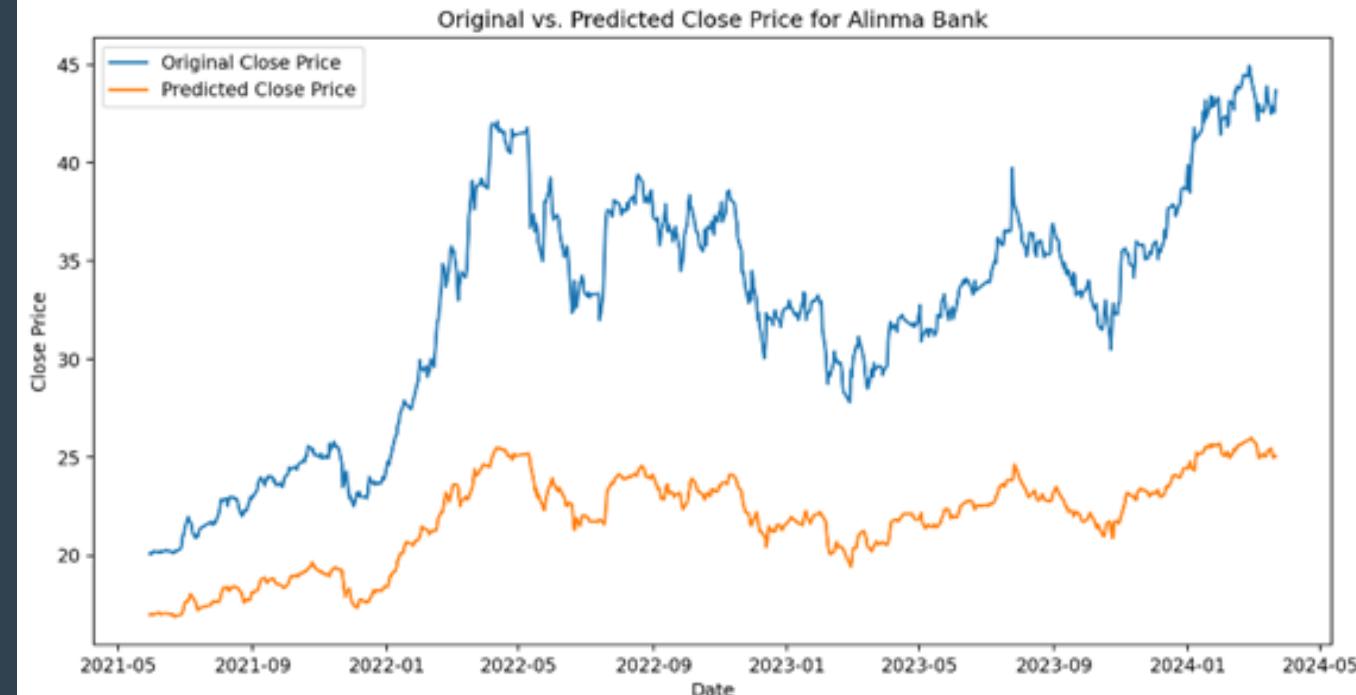
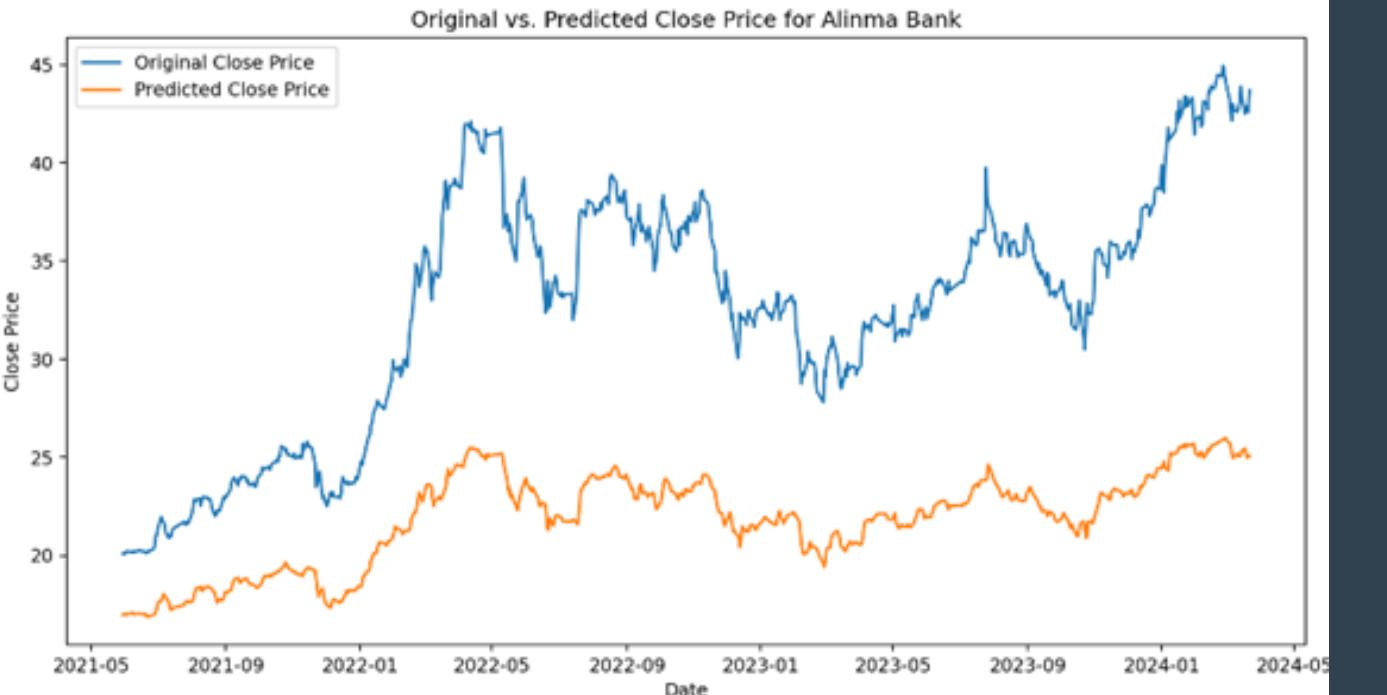
RNN

MSE: 3.3439  
R2: 0.8662



# TESTING

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SVM

MSE: 0.3519  
R2: 0.7618

Random Forest

MSE: 4.9750  
R2: 0.3415



TADAWUL TECH TRADER

## MODEL SELECTION & CONCLUSION

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## RISK MANAGEMENT

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- Position Sizing Strategies
- Stop-Loss Strategies
- Portfolio Diversification Techniques
- Backtesting and Simulations



TADAWUL TECH TRADER

# DATA ANALYSIS & DESIGN

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## FUNCTIONALS REQUIREMENTS

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- Predict Price
- BackTesting
- Make Transactions
- Get Suggestions
- Customize Bot
- View Reports



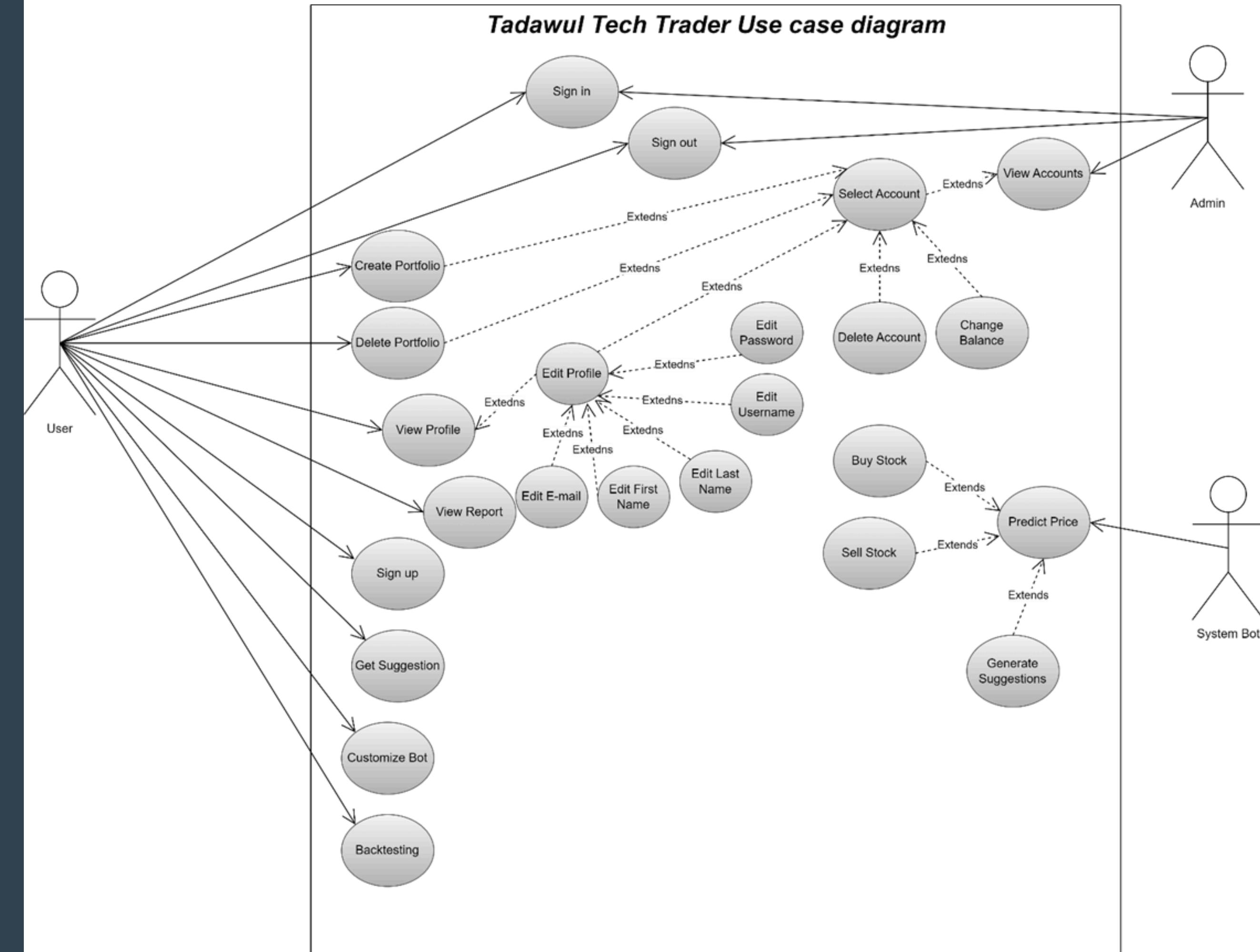
## NON-FUNCTIONALS REQUIREMENTS

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- Usability
- Reliability
- Security
- Responsiveness

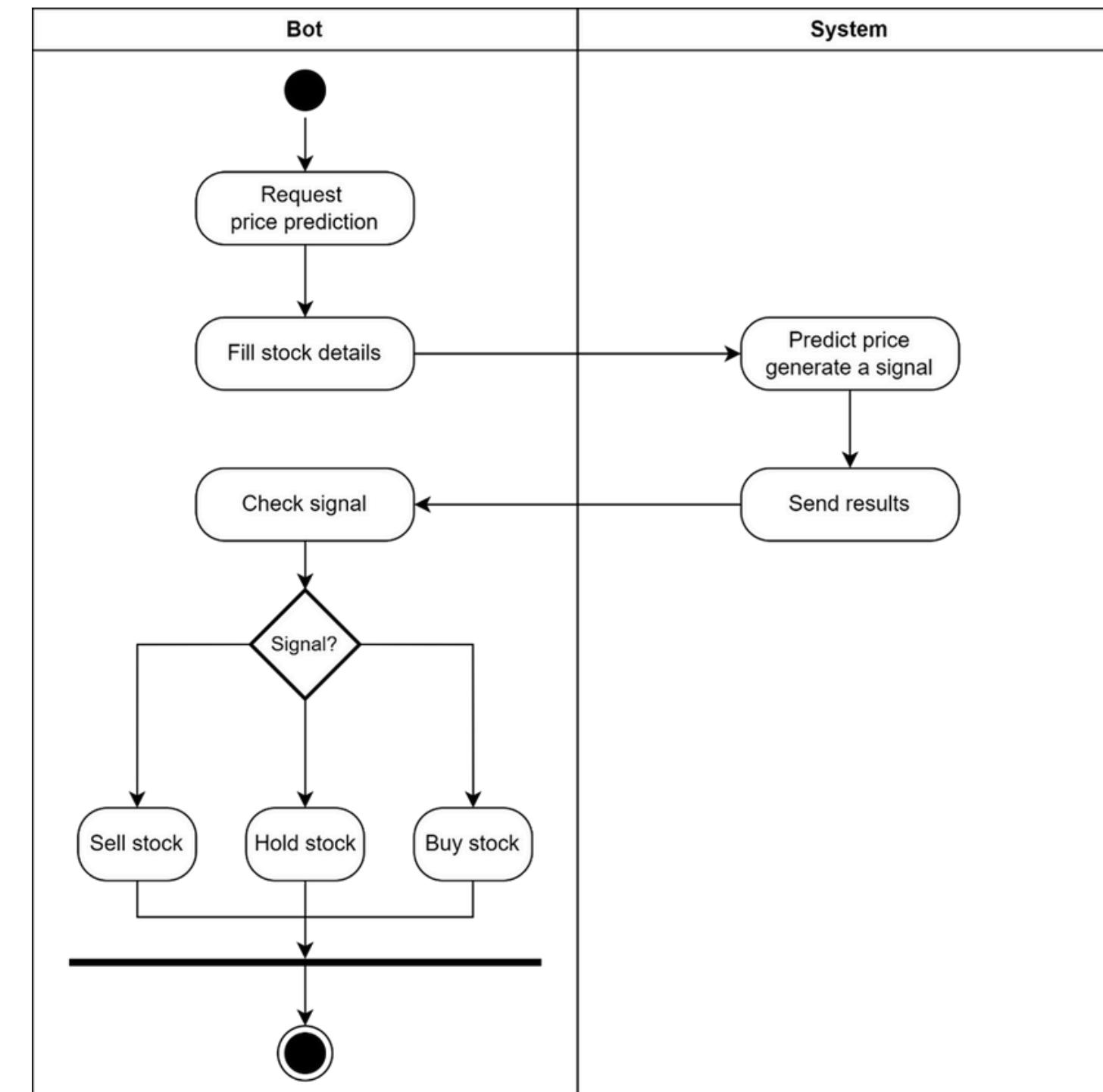
# USE CASE DIAGRAM

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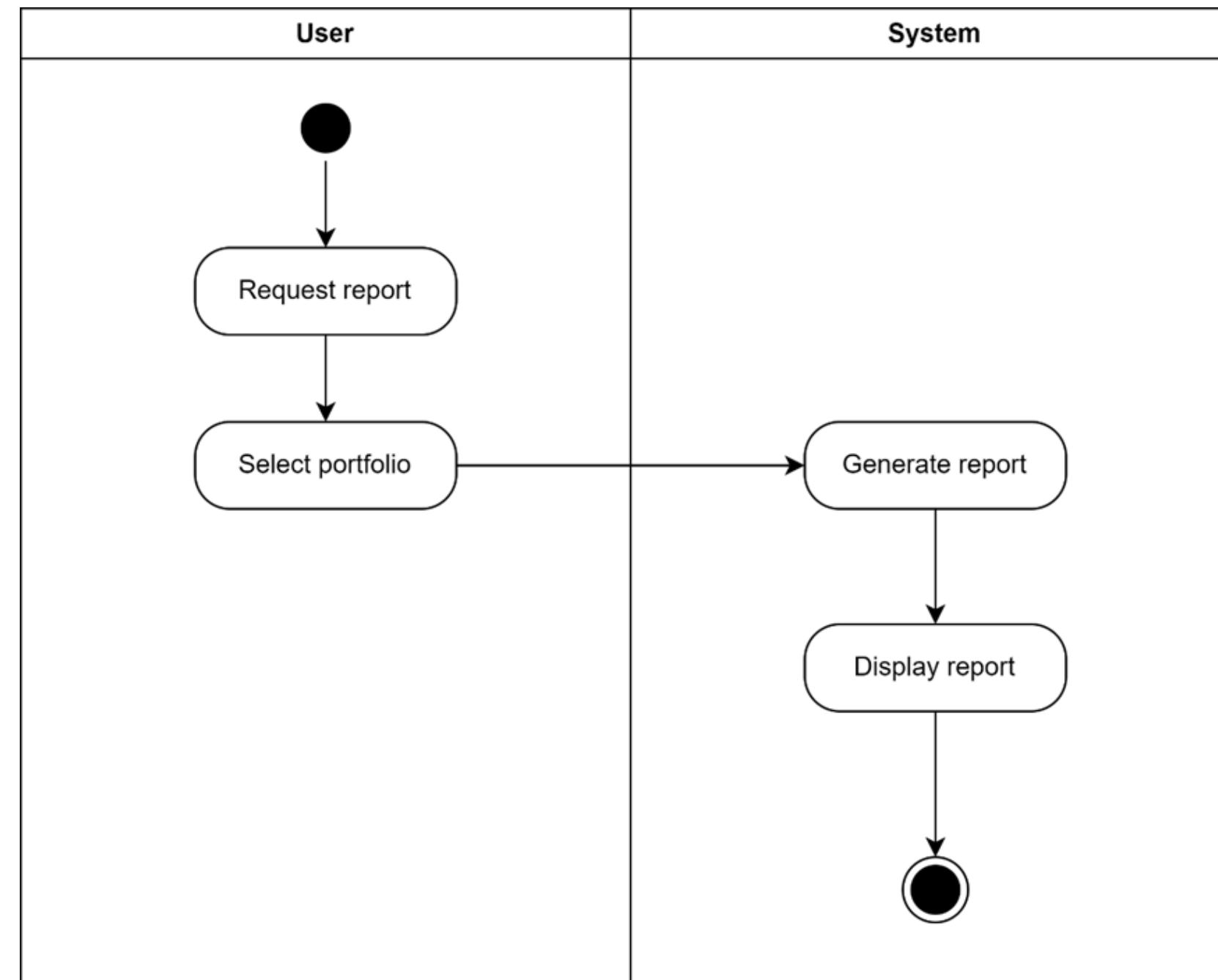
# ACTIVITY DIAGRAM

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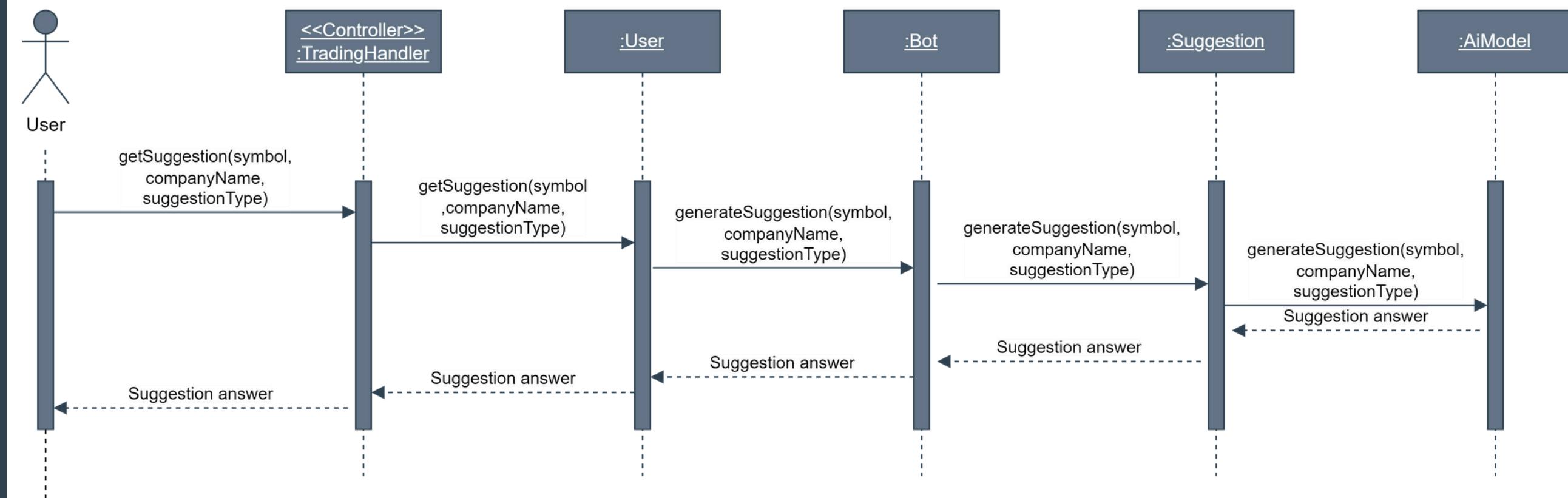
# ACTIVITY DIAGRAM

27



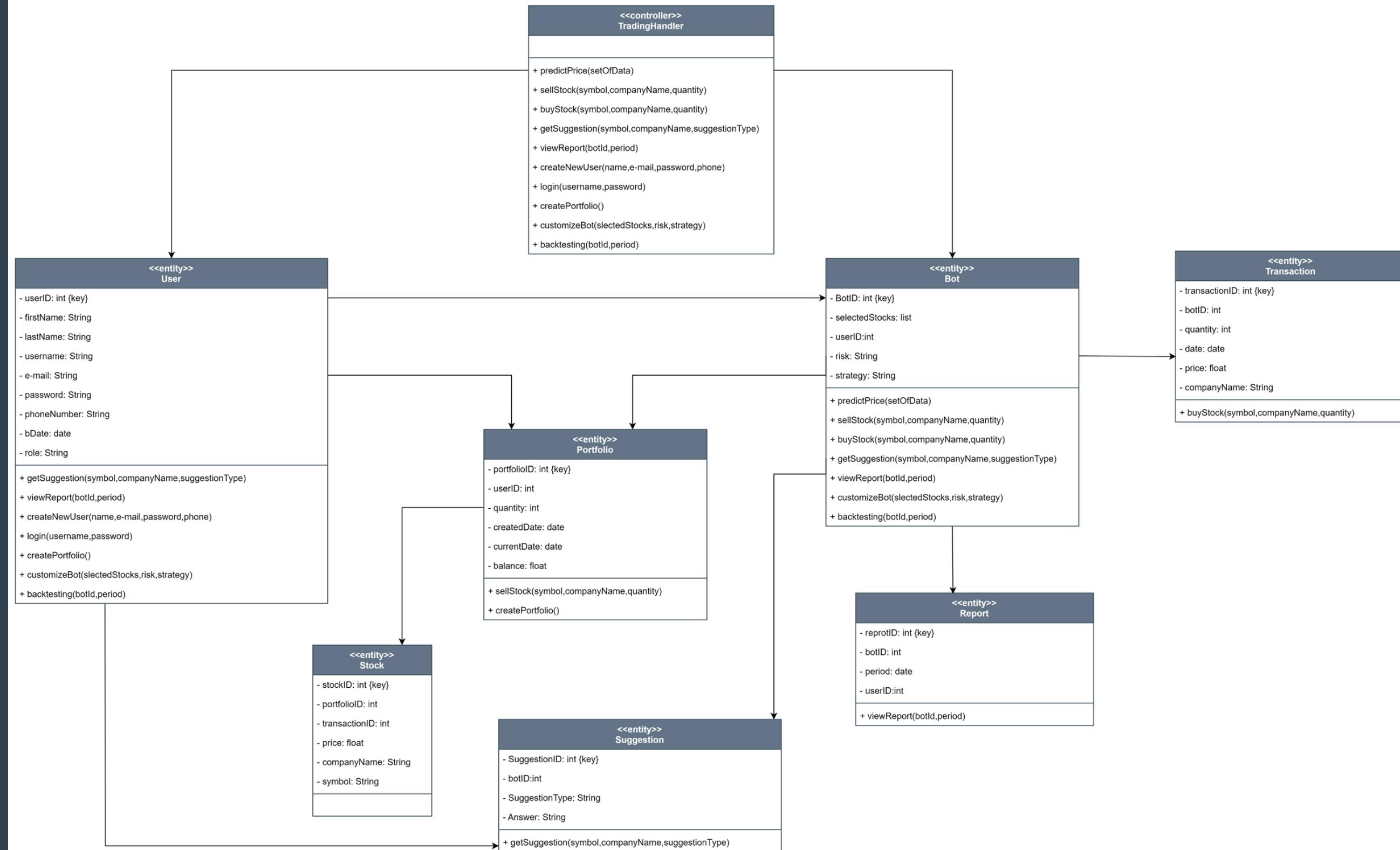
# SEQUENCE DIAGRAM

# 28



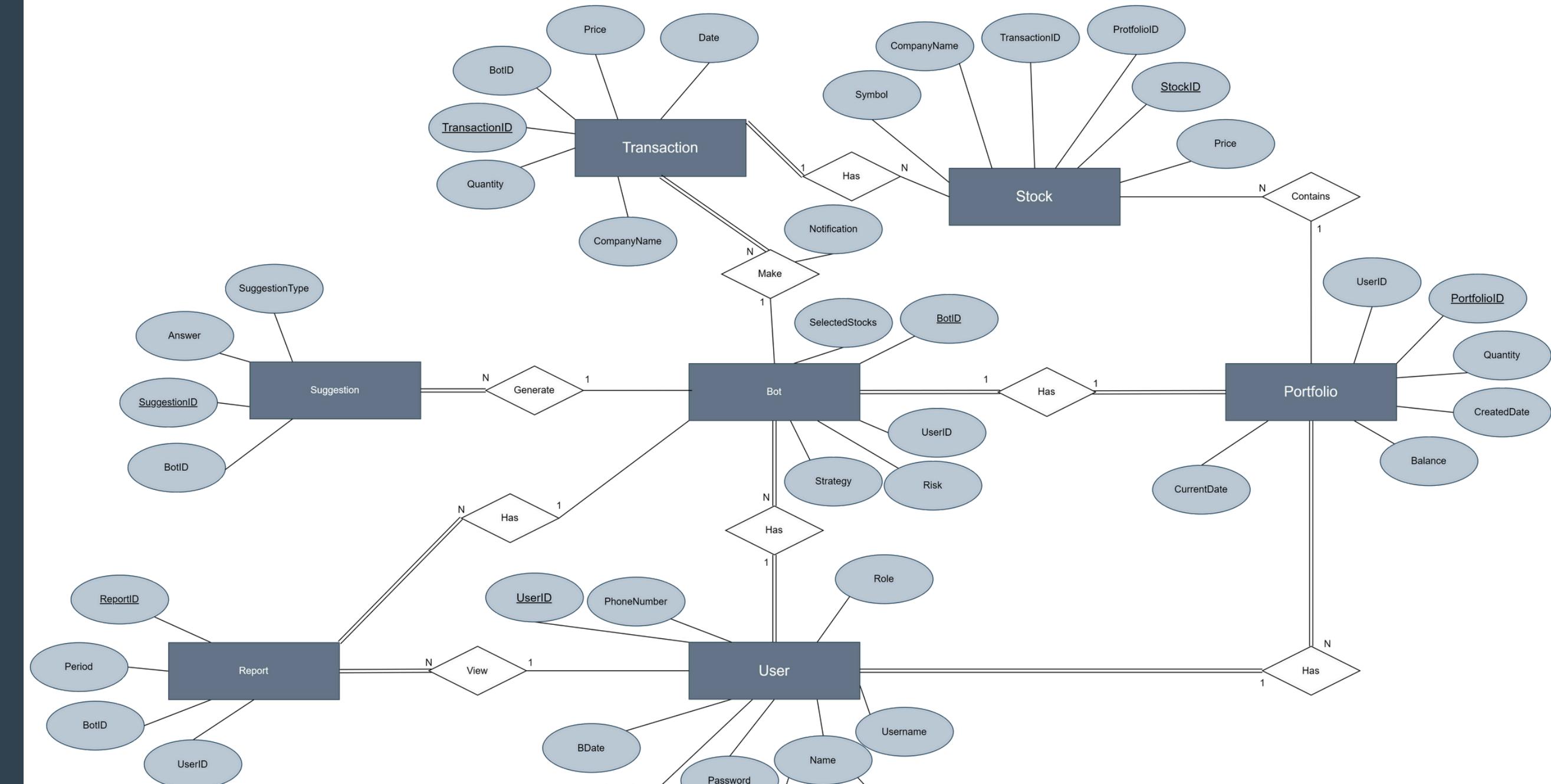
# CLASS DIAGRAM

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# 30

# ER DIAGRAM





## LESSON LEARNED

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- Improving problem-solving skills.
- Be open and ready to change.
- Learn how to deal with time constraints and pressures.
- Improving teamwork and communication skills.



## DIFFICULTIES

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- Data gathering
- Ensuring consistency and quality
- Model performance



## SOLUTIONS

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- Collect historical data from Tadawul eReference
- Received feedback from advisor
- Various algorithms testing



# CONCLUSION

Finally, we hope that our system will get implemented, so the people can benefit from it, we presented this report as a key deliverable for the work entitled “Tadawul Tech Trader”.



TADAWUL TECH TRADER

**THANK YOU**  
FOR YOUR ATTENTION

TADAWUL TECH TRADER

