AI Trading Platform

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What are we trying to achieve?

Our platform utilizes various advanced predictive ***machine learning models*** *that give* ***recommendations*** *on trades for a variety of* ***stocks****. We aim to simulate a* ***trading environment*** *with our predictions to portray how our models are working any given day. Through this* ***platform****, we hope to help the average investor make more* ***informed decisions****.*

Deliverables

Required

Long Short-Term Memory (LSTM)
XGBoost
Natural Language Processing
Reinforcement Learning (RL)
Convenient User Interface

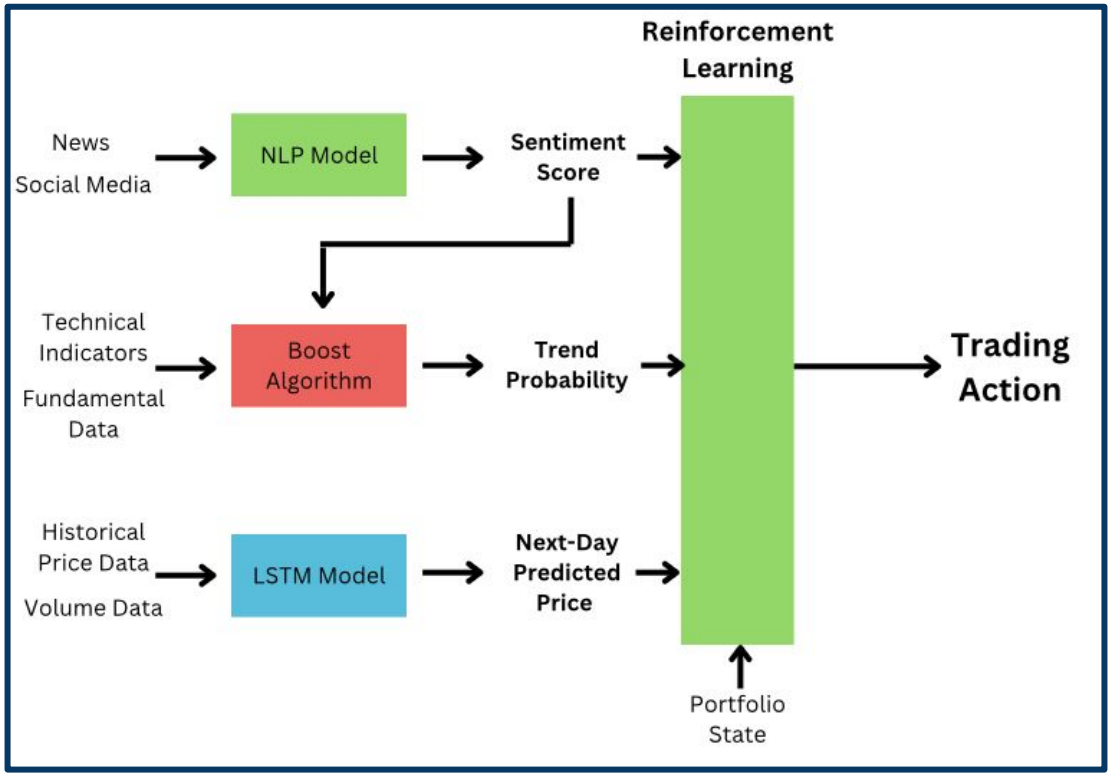
Algorithmic Platform Providing Trading Recommendations

Optional

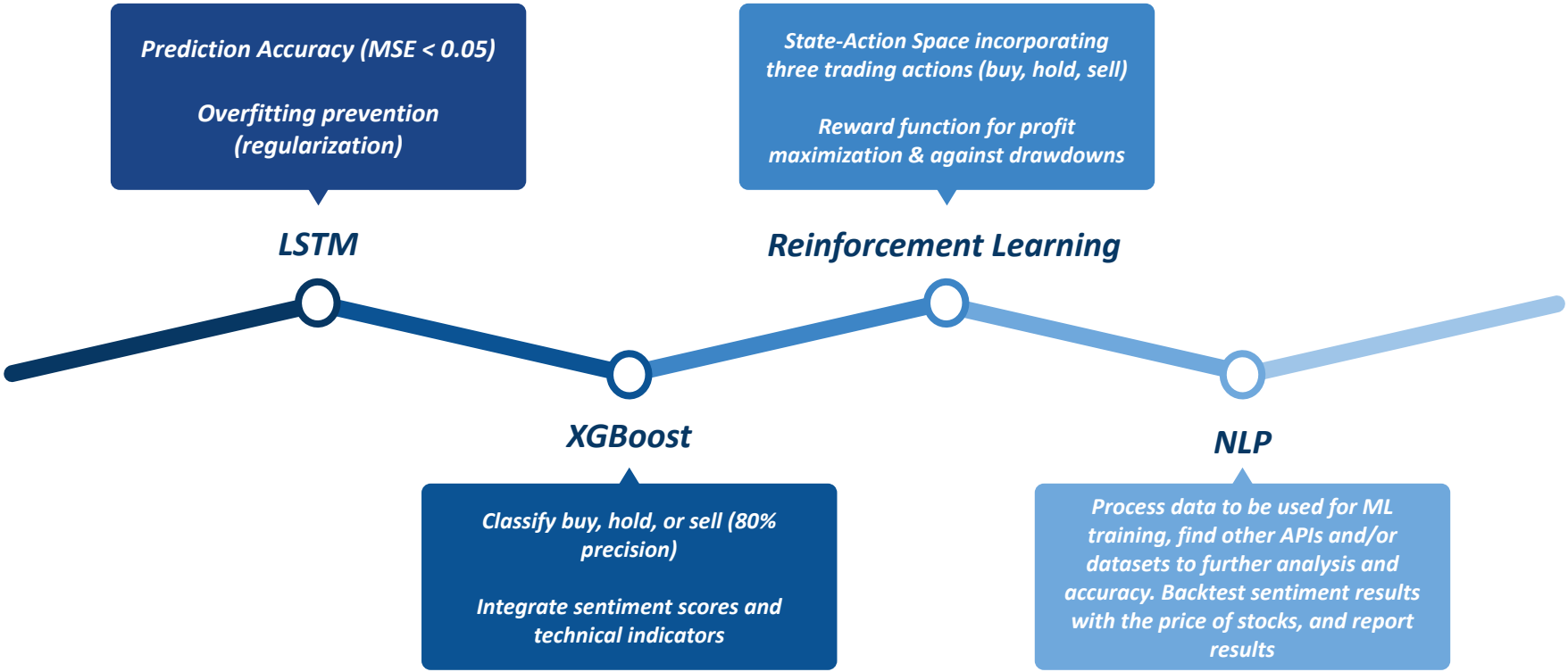
Trading Strategy Options

Market & Economic Updates

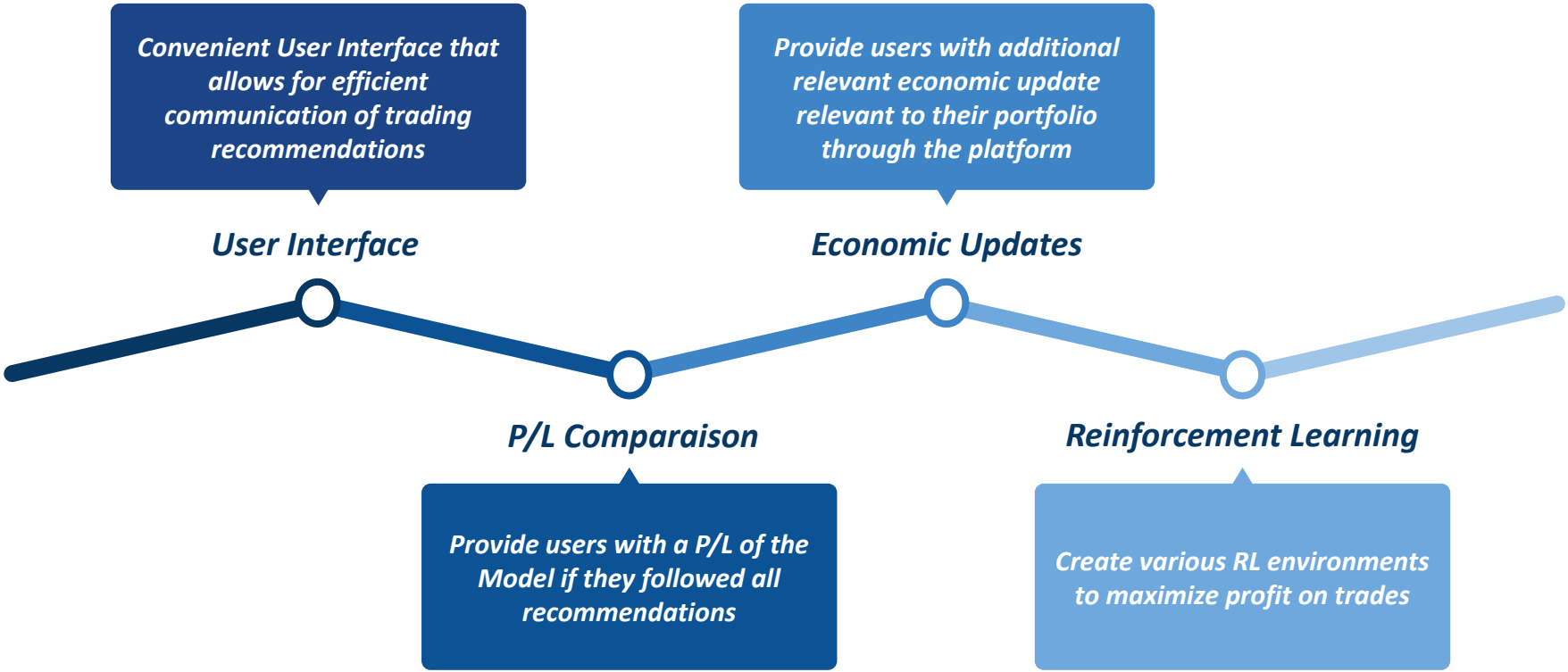
Model Architecture



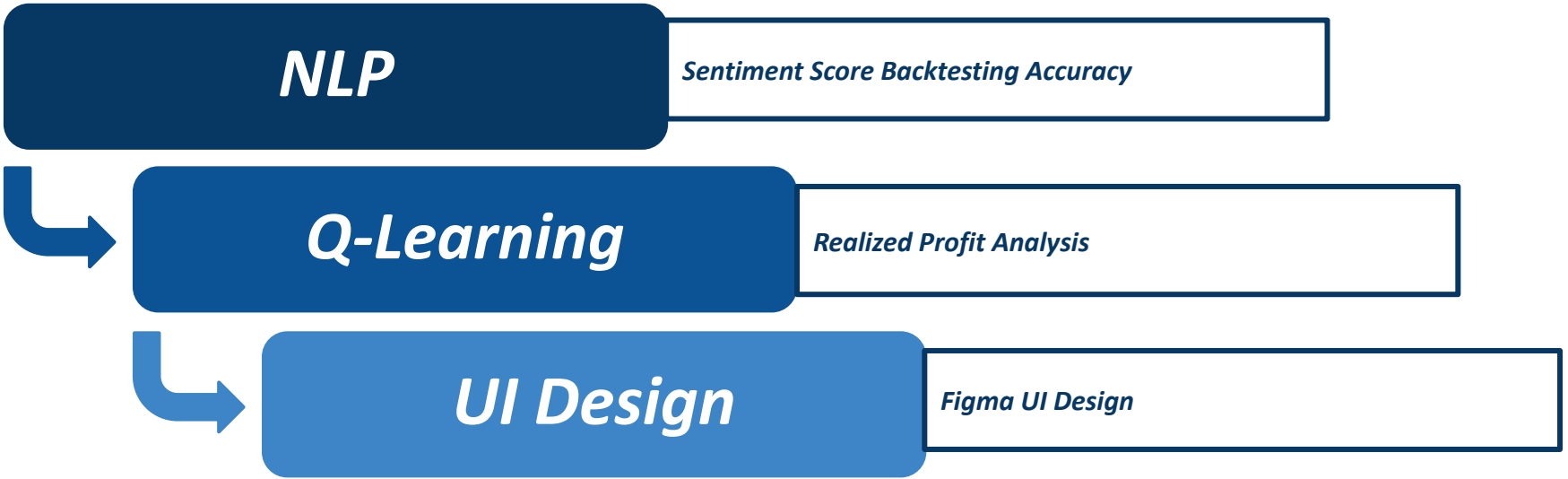
Requirements Fulfilled



Deliverables Left

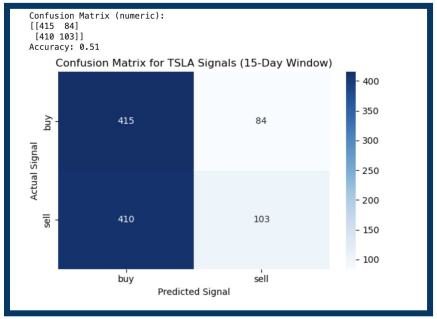


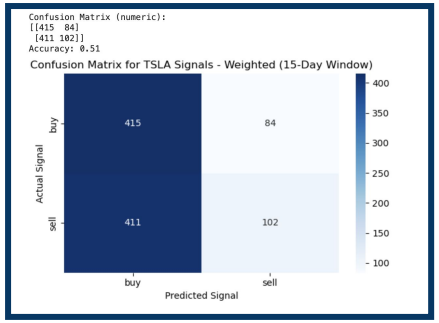
Prototype


NLP
Sentiment Score Backtesting Accuracy
Q-Learning
Realized Profit Analysis
UI Design
Figma UI Design

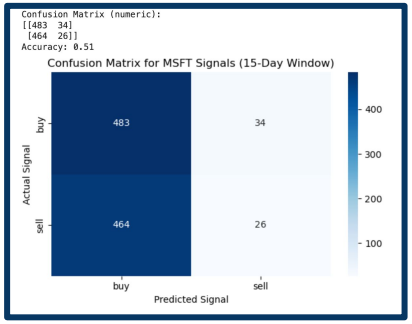
NLP Results: 50% Accuracy

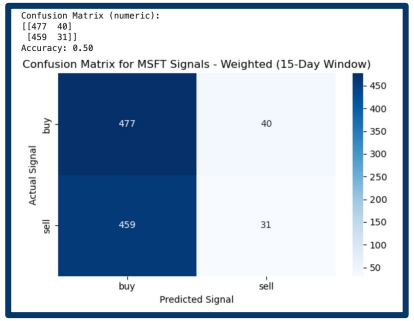
Tesla



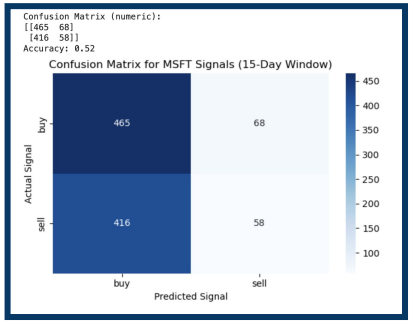


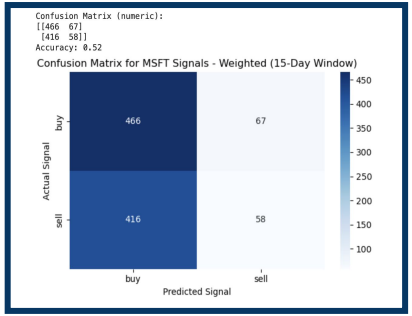
Coca Cola





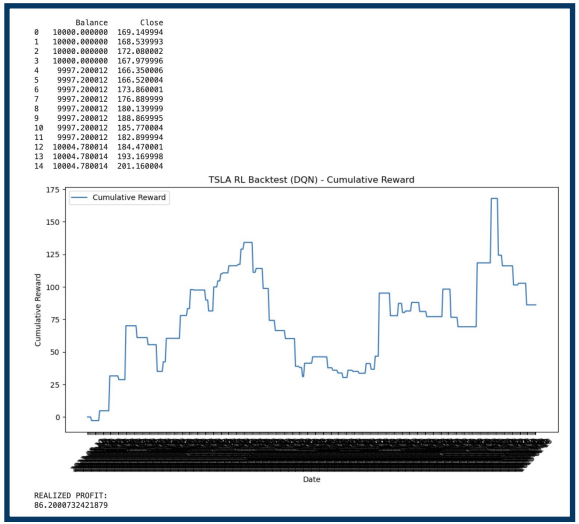
Microsoft



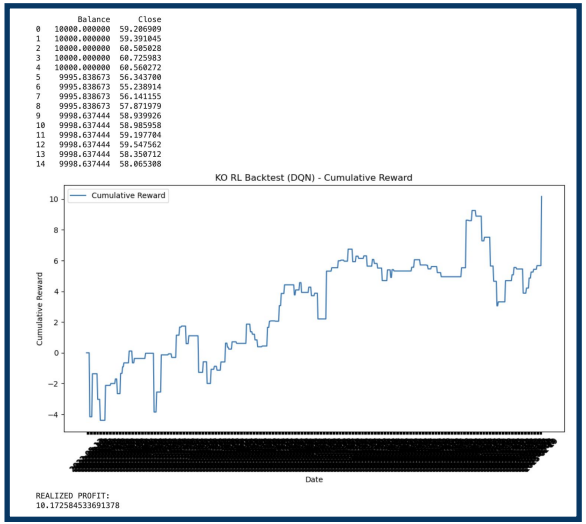


Reinforcement Learning Realized Profit

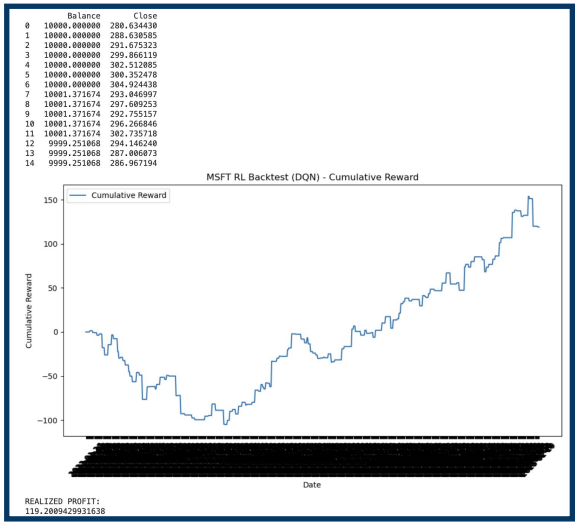
Tesla



Coca Cola



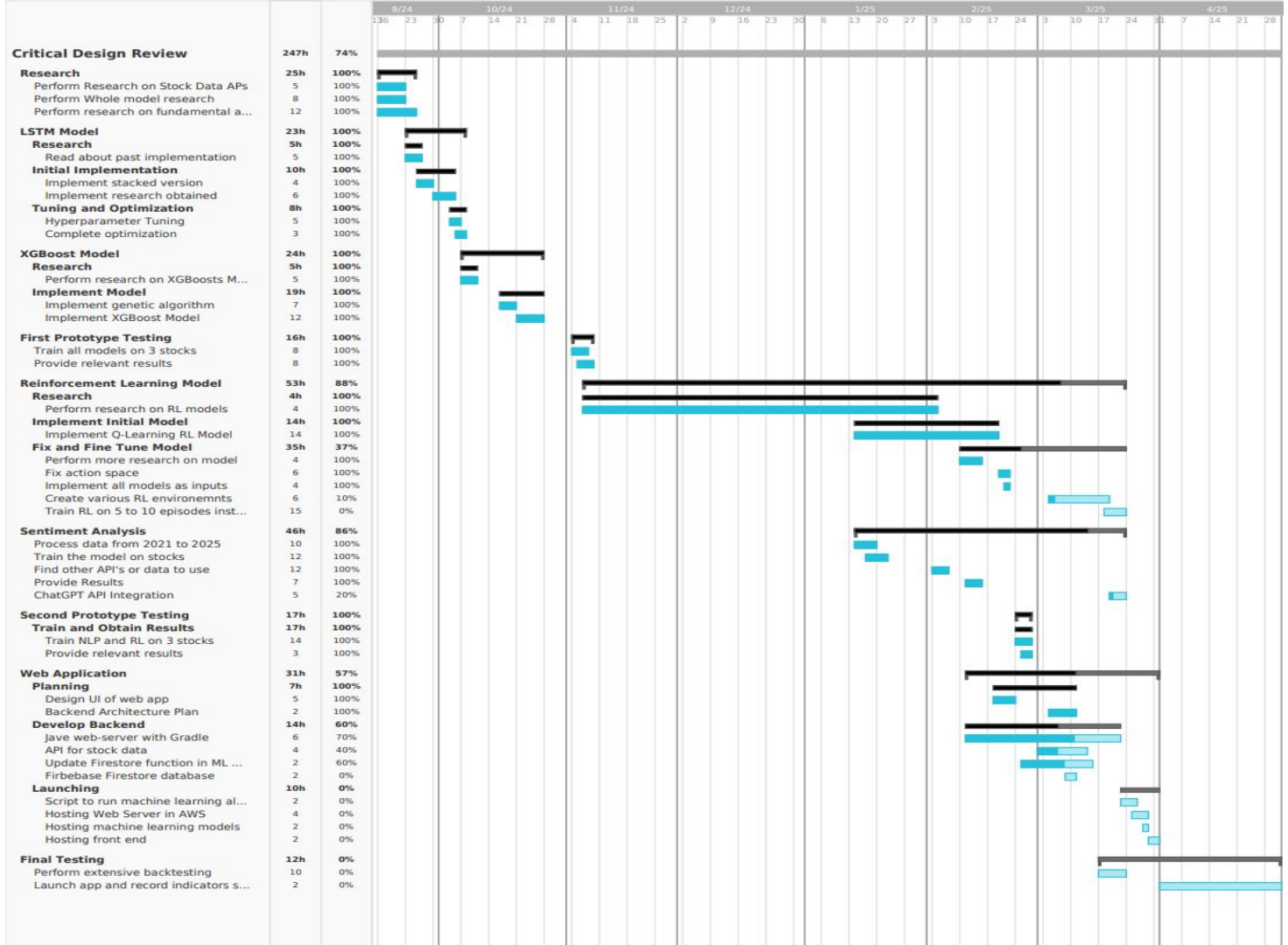
Microsoft



$86 (+21%)

$10 (+16%)

$119 (+35%)


9/24
10/24
11/24
12/24
1/25
2/25
3/25
4/25
Critical Design Review 247h 74%
Research 25h 100%
Perform Research on Stock Data APs 5 100%
Perform Whole model research 8 100%
Perform research on fundamental a... 12 100%
LSTM Model 23h 100%
Research 5h 100%
Read about past implementation 5 100%
Initial Implementation 10h 100%
Implement stacked version 4 100%
Implement research obtained 6 100%
Tuning and Optimization 8h 100%
Hyperparameter Tuning 5 100%
Complete optimization 3 100%
XGBoost Model 24h 100%
Research 5h 100%
Perform research on XGBoosts M... 5 100%
Implement Model 19h 100%
Implement genetic algorithm 7 100%
Implement XGBoost Model 12 100%
First Prototype Testing 16h 100%
Train all models on 3 stocks 8 100%
Provide relevant results 8 100%
Reinforcement Learning Model 53h 88%
Research 4h 100%
Perform research on RL models 4 100%
Implement Initial Model 14h 100%
Implement Q-Learning RL Model 14 100%
Fix and Fine Tune Model 35h 37%
Perform more research on model 4 100%
Fix action space 6 100%
Implement all models as inputs 4 100%
Create various RL environemnts 6 10%
Train RL on 5 to 10 episodes inst... 15 0%
Sentiment Analysis 46h 86%
Process data from 2021 to 2025 10 100%
Train the model on stocks 12 100%
Find other API's or data to use 12 100%
Provide Results 7 100%
ChatGPT API Integration 5 20%
Second Prototype Testing 17h 100%
Train and Obtain Results 17h 100%
Train NLP and RL on 3 stocks 14 100%
Provide relevant results 3 100%
Web Application 31h 57%
Planning 7h 100%
Design UI of web app 5 100%
Backend Architecture Plan 2 100%
Develop Backend 14h 60%
Jave web-server with Gradle 6 70%
API for stock data 4 40%
Update Firestore function in ML ... 2 60%
Firbebase Firestore database 2 0%
Launching 10h 0%
Script to run machine learning al... 2 0%
Hosting Web Server in AWS 4 0%
Hosting machine learning models 2 0%
Hosting front end 2 0%
Final Testing 12h 0%
Perform extensive backtesting 10 0%
Launch app and record indicators s... 2 0%

Conclusion

- ★ *Developed and fully tested ML models (including LSTM, NLP, XGBoost, and Reinforcement Learning)*
  - *Sufficient results*
- ★ *Strong foundation for our User Interface*
  - *Finish development hosted in the cloud*
  - *Fully test web application while developing*
- ★ *Compare full trading results against firms and see how to improve returns*