Stock Market Prediction Using MATLAB

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Introduction

- Stock market plays a vital role in the economy.
- Prices are volatile and influenced by multiple factors.
- Predicting stock trends helps investors and analysts.

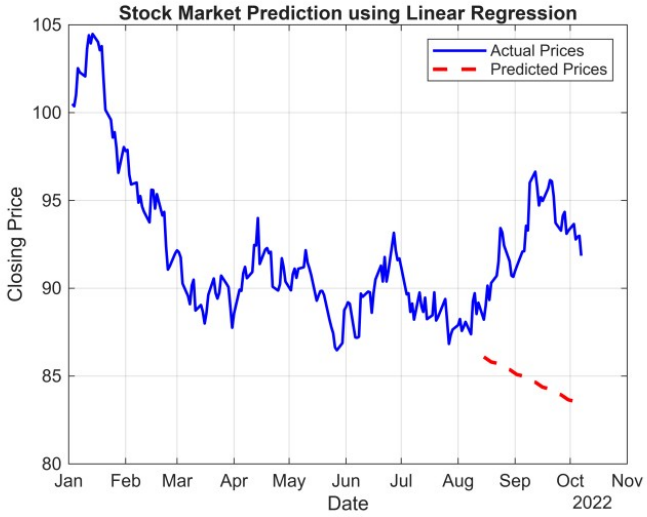
Objectives

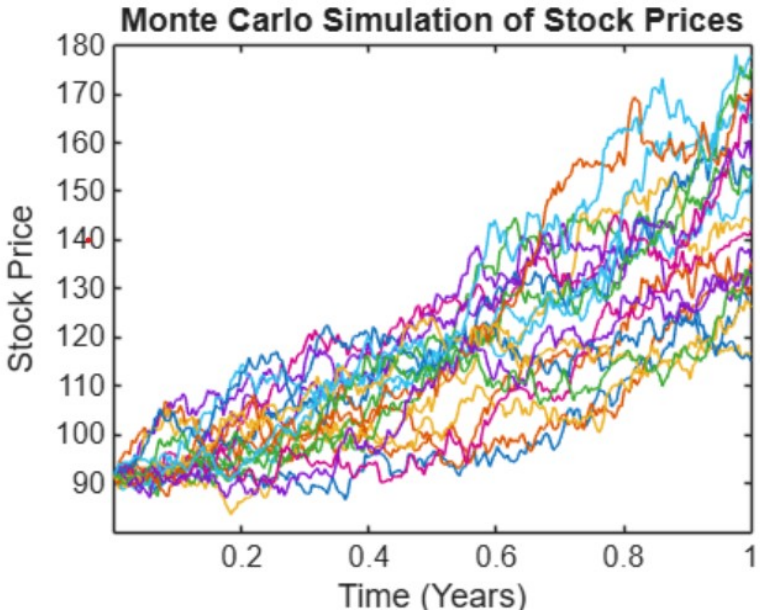
- To analyze historical stock data.
- To design models (ARIMA, LSTM) in MATLAB.
- To forecast future stock prices.
- To evaluate accuracy of prediction models.
- MATLAB provides toolboxes for both econometrics and AI.

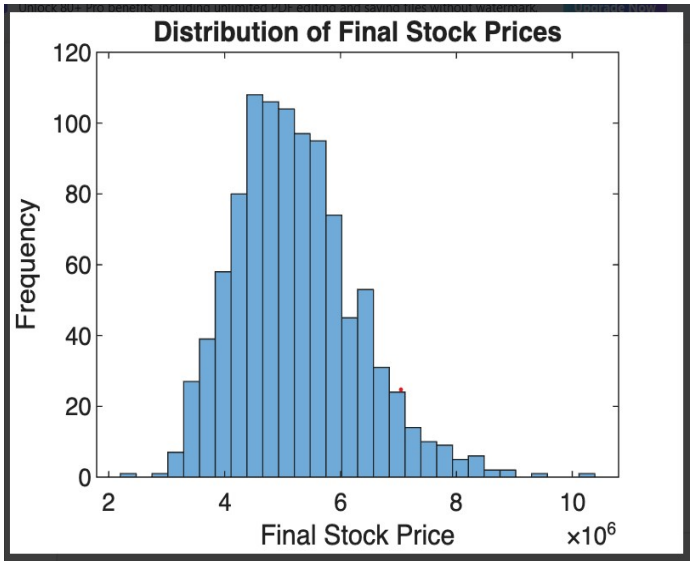
Methodology

- Data Collection – Stock price data (OHLCV).
- Preprocessing – Cleaning missing values, generating features.
- Modeling – ARIMA (time-series) & LSTM (deep learning).
- Validation – Split into training & testing sets.
- Evaluation – Accuracy, RMSE, directional accuracy.

Result







--- Monte Carlo Simulation Results ---

Initial Stock Price: 91.85

Expected Stock Price after 1.0 year: 13342.50

Probability Stock > 110.22: 100.00%

Advantages

- Built-in time series & ML toolboxes.
- Visualization & easy deployment.
- Integration with databases & cloud.

Applications

- Portfolio management.
- Risk analysis.
- Automated trading strategies.

Conclusion

- Stock prediction can be improved using MATLAB models.
- ARIMA works well for short-term; LSTM for complex trends.
- Future scope: Hybrid models, real-time deployment.

THANK YOU