

# Stock Price Forecasting



**Special Project Seminar**

Prepared by :

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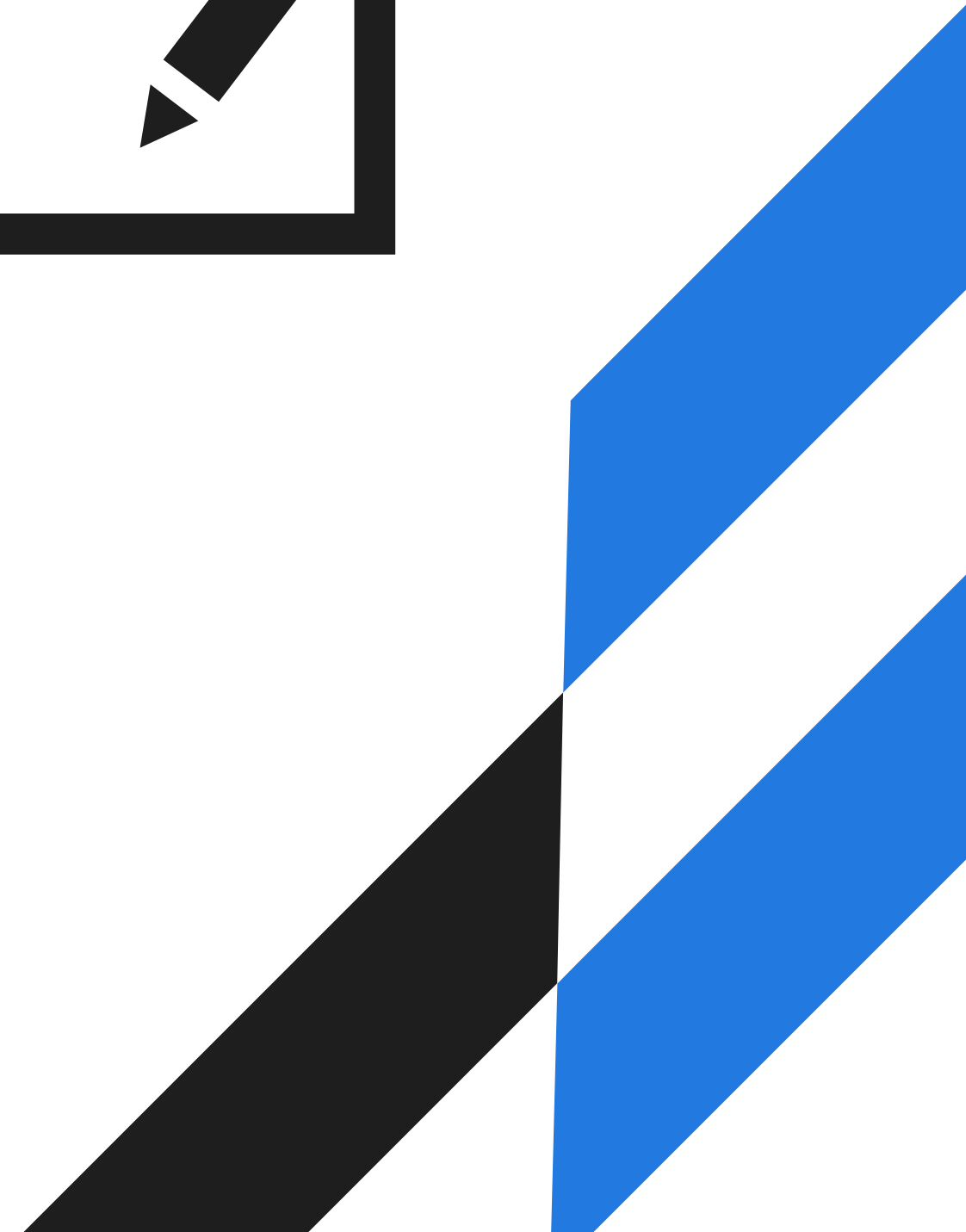
Syed Anas Mohiuddin 19STUCHH100018

# Matters on the Docket

A brief look at what we will discuss in this seminar



- Introduction to Stock Market
- Machine Learning
- Problem Statement
- Building Machine Learning Models
- Model Error Predictions
- Visualization of Models
- Web Application for the Project



# Introduction to Stock Market

## Stock

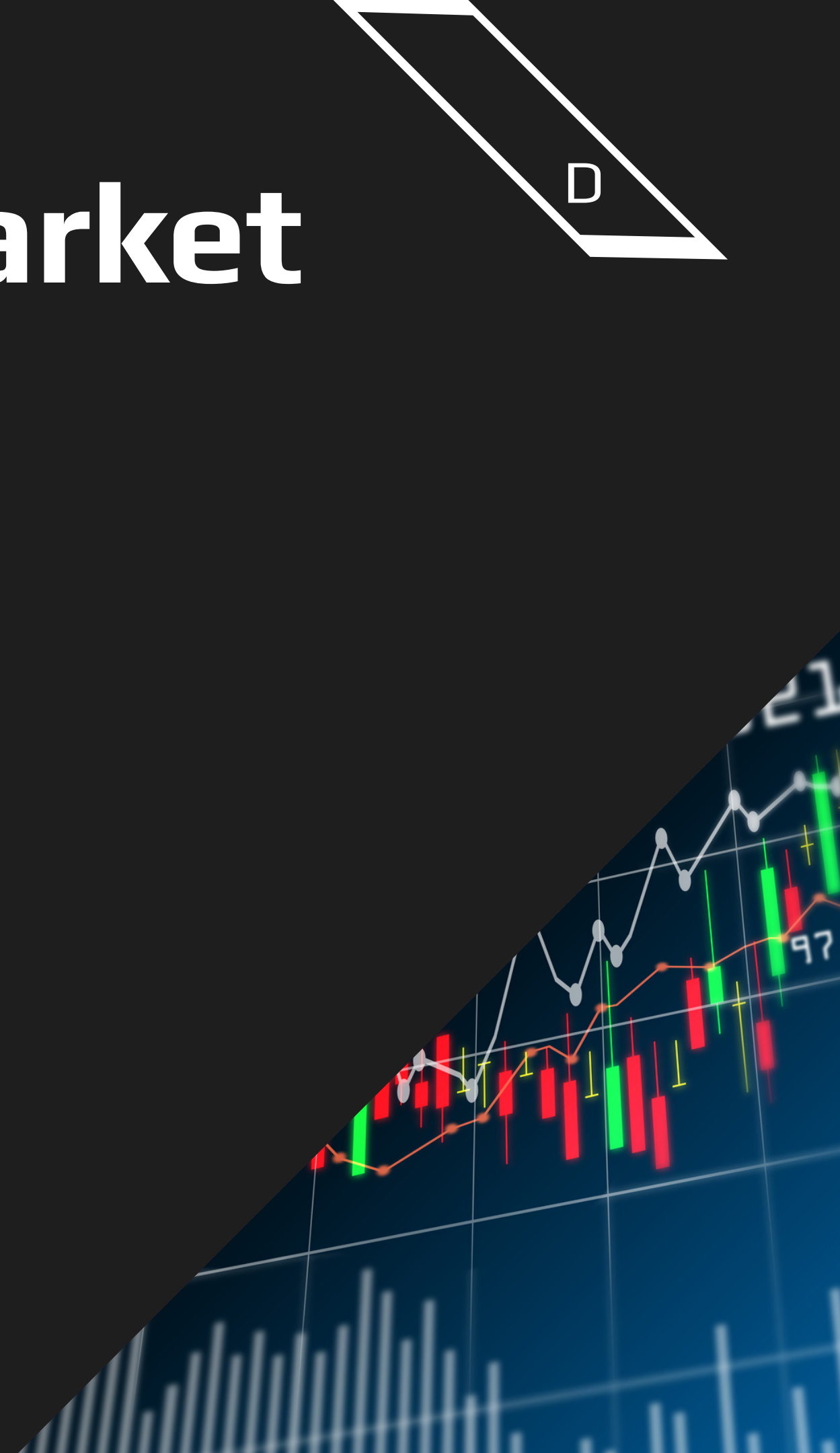
A Stock is a general term used to describe the ownership certificate of any company

## Stock Market

The stock market refers to public markets that exist for issuing, buying, and selling stocks that trade on a stock exchange or over-the-counter.

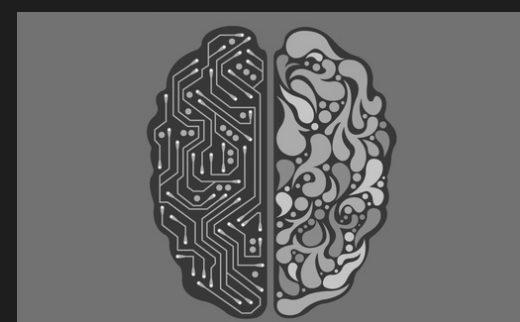
## Importance of Stock Market to the economy

- Source of business capital
- Influences economy
- Promotes investment



# Machine Learning

Machine learning is a subfield of artificial intelligence, which is broadly defined as the capability of a machine to learn and imitate intelligent human behavior.



Subset of AI



Machine Learning



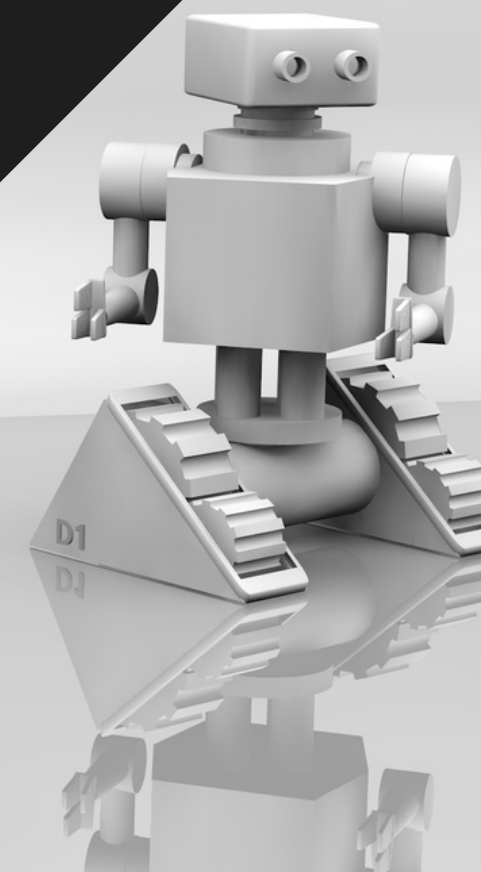
Learn



Imitate

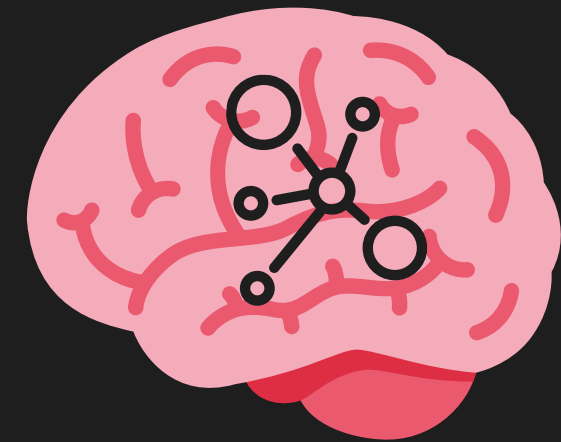


Predict



# Problem Statement

To create and explore the efficacy of a Bayesian LSTM (Long-Short Term Memory) Neural Network model that effectively forecasts next days Stock Price and Direction



D

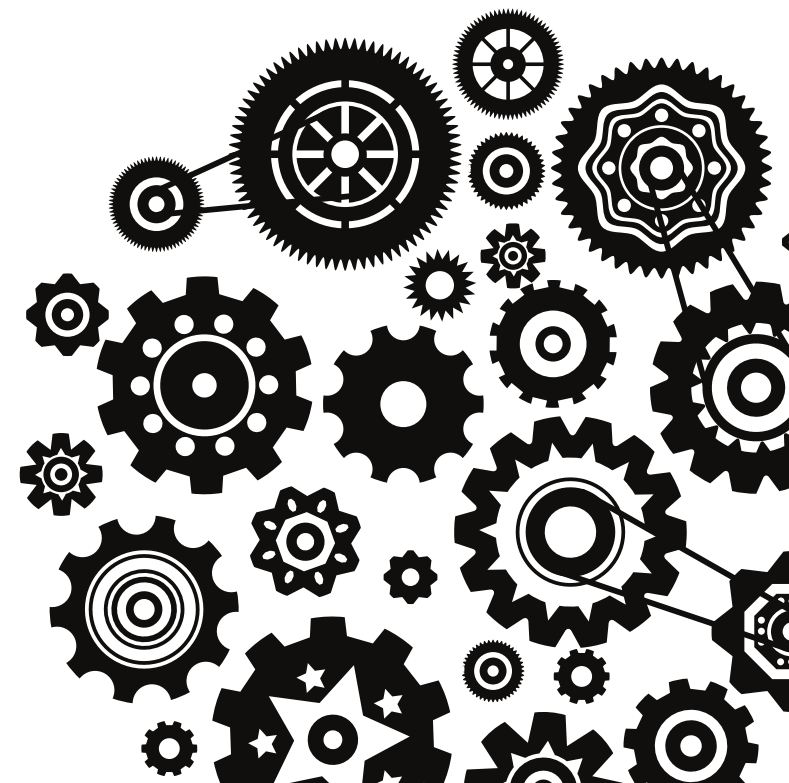


# Building Machine Learning Models

WE HAVE BUILT THREE MORE MODELS ALONG WITH THE PROPOSED BAYESIAN LSTM MODEL IN ORDER TO COMPARE THE PERFORMANCE THE PROPOSED MODEL.

THE MODELS BUILD ARE :

- RANDOM FOREST
- XGBOOST (EXTREME GRADIENT BOOSTING).
- LSTM (LONG SHORT-TERM MEMORY NEURAL NETWORK).
- BAYESIAN LSTM



# Companies Selected



# Model Error Predictions

	Mean Absolute Error	Root Mean Squared Error
RELIANCE	0.032816578	0.043307886
DRREDDY	0.024998892	0.035508692
DMART	0.0345618	0.047063656
TCS	0.014991044	0.02035996
HINDUNILVR	0.021491006	0.028431399

LSTM



# Model Error Predictions

Company Name	Mean Absolute Error	Root-Mean Square Error
RELIANCE	0.578790354	0.772887016
DRREDDY	0.596687908	0.842765383
DMART	0.611012931	0.875152381
TCS	0.588608086	0.805233605
HINDUNILVR	0.63478113	0.865925098

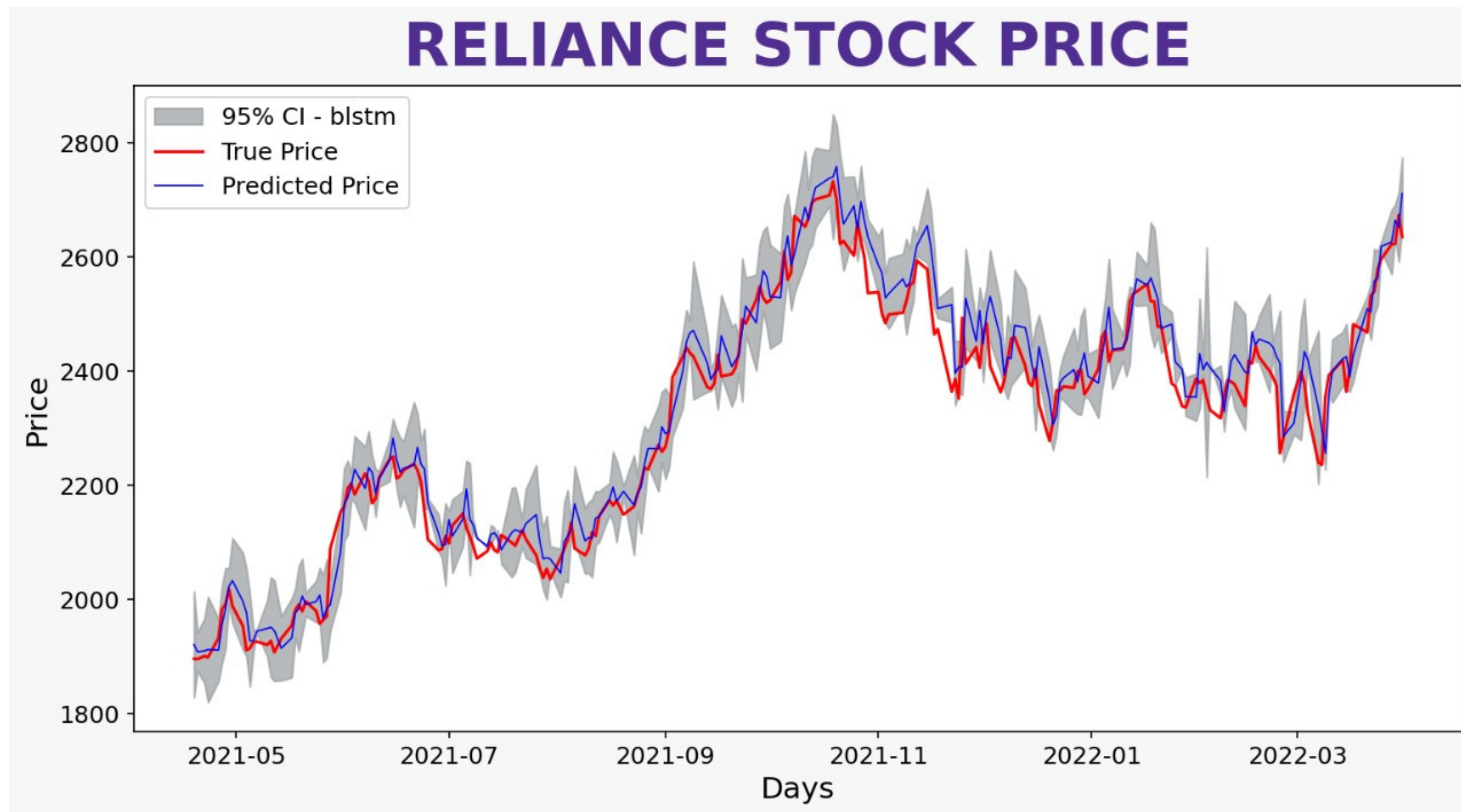
**XGBOOST**

# Model Error Predictions

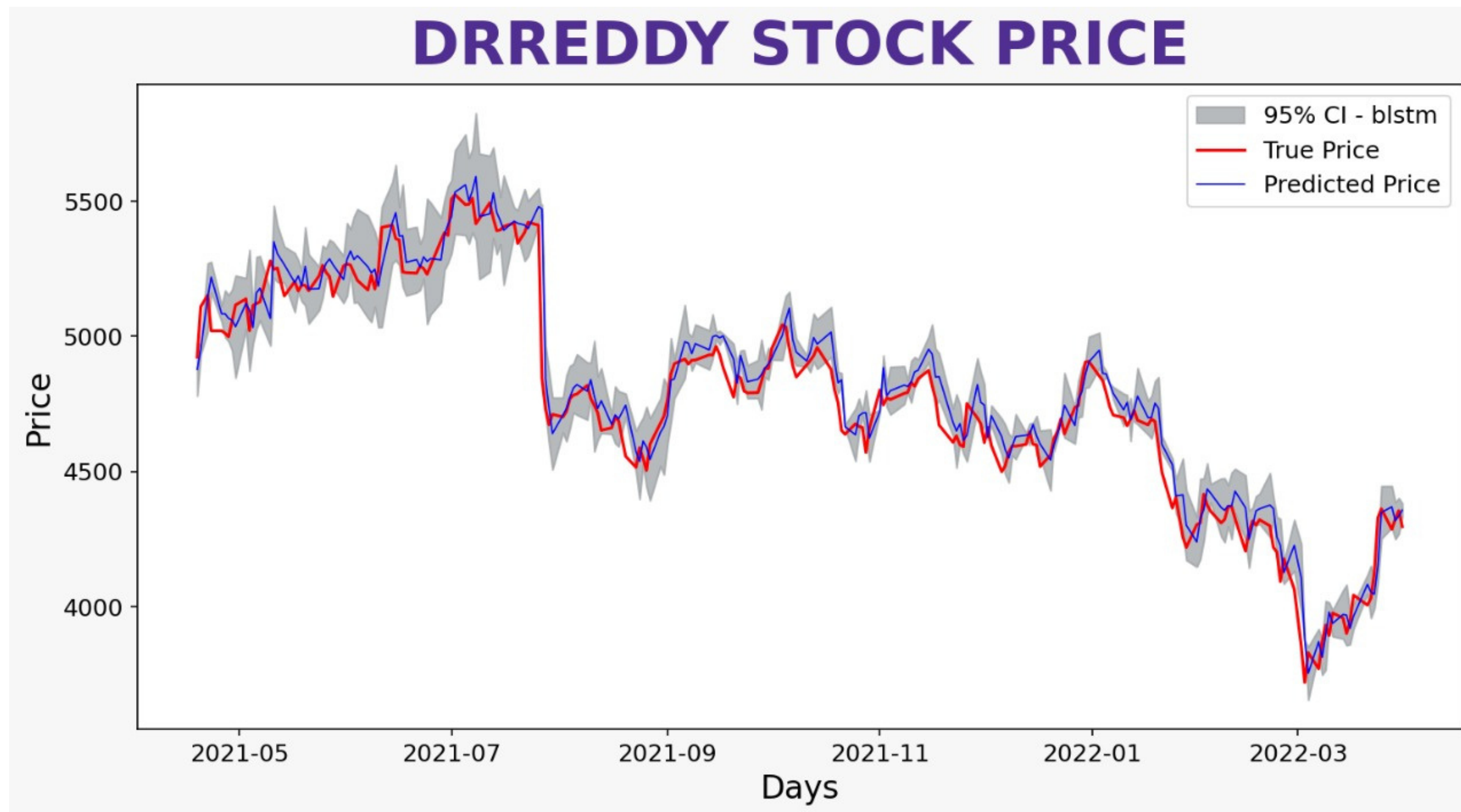
Company Name	Mean Absolute Error	Root-Mean Square Error
RELIANCE	0.015351936	0.019722749
DRREDDY	0.014902782	0.019386198
DMART	0.020524899	0.025631355
TCS	0.012512391	0.016087439
HINDUNILVR	0.013078887	0.016761115

**B-LSTM**

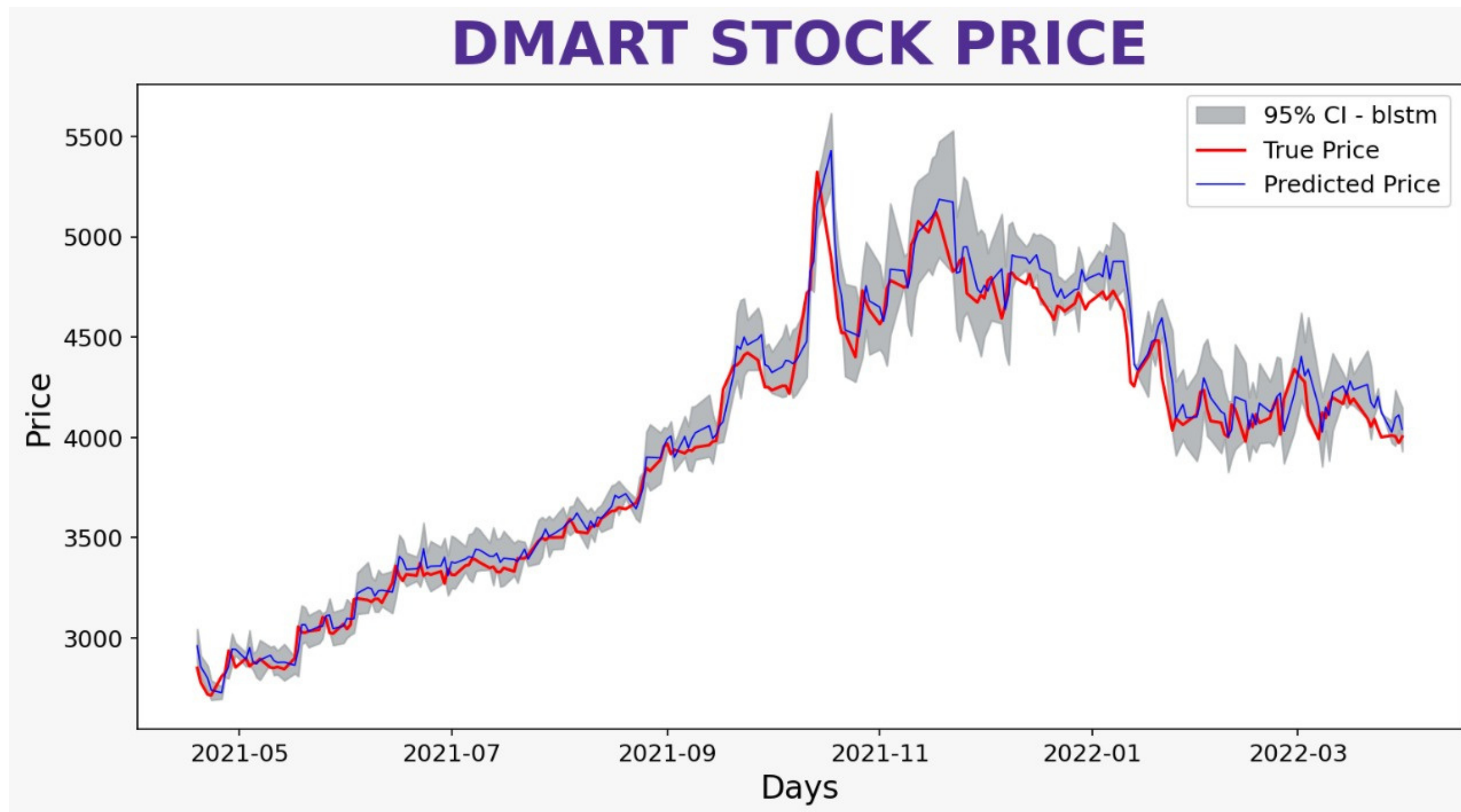
# Visualisation of Models Prediction



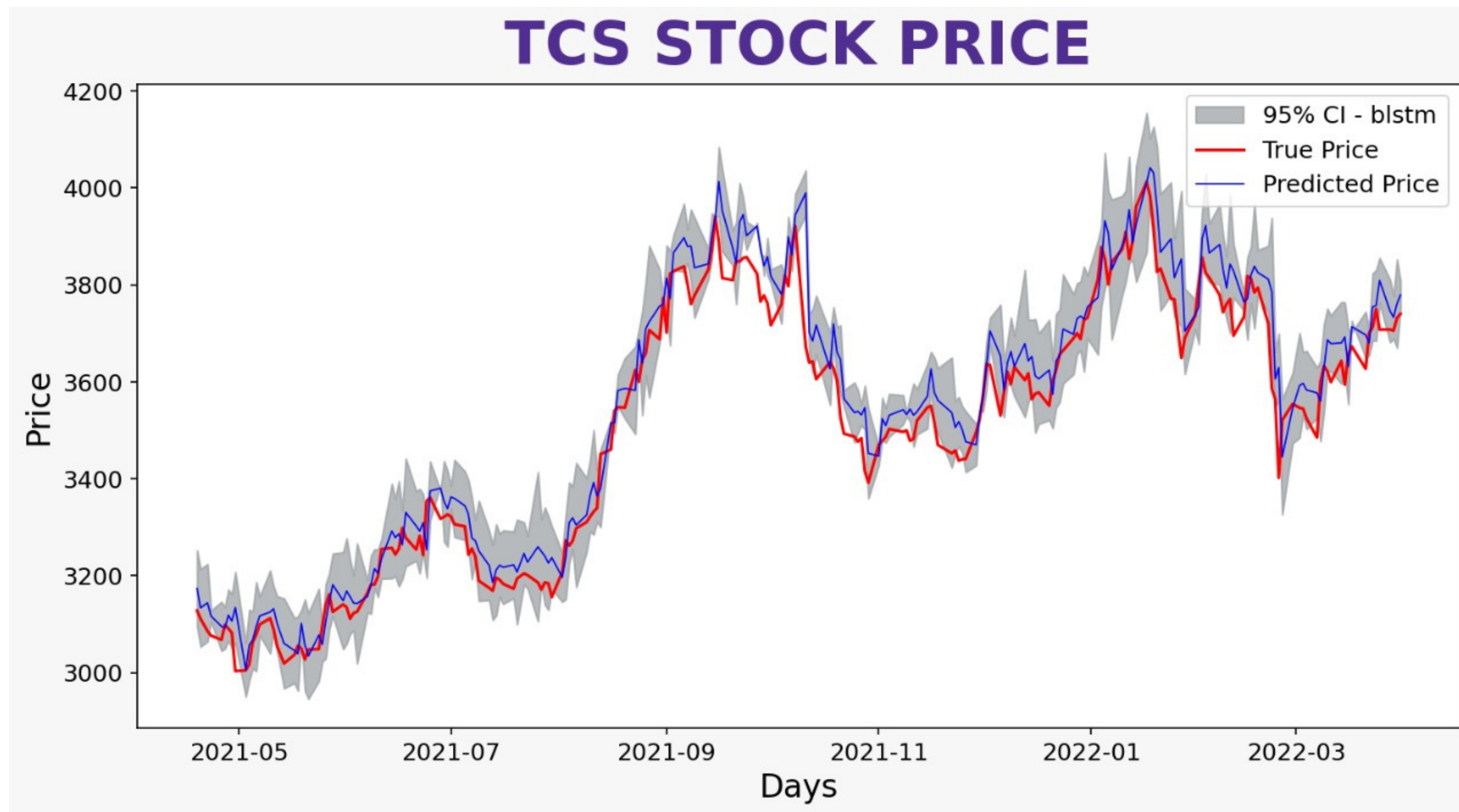
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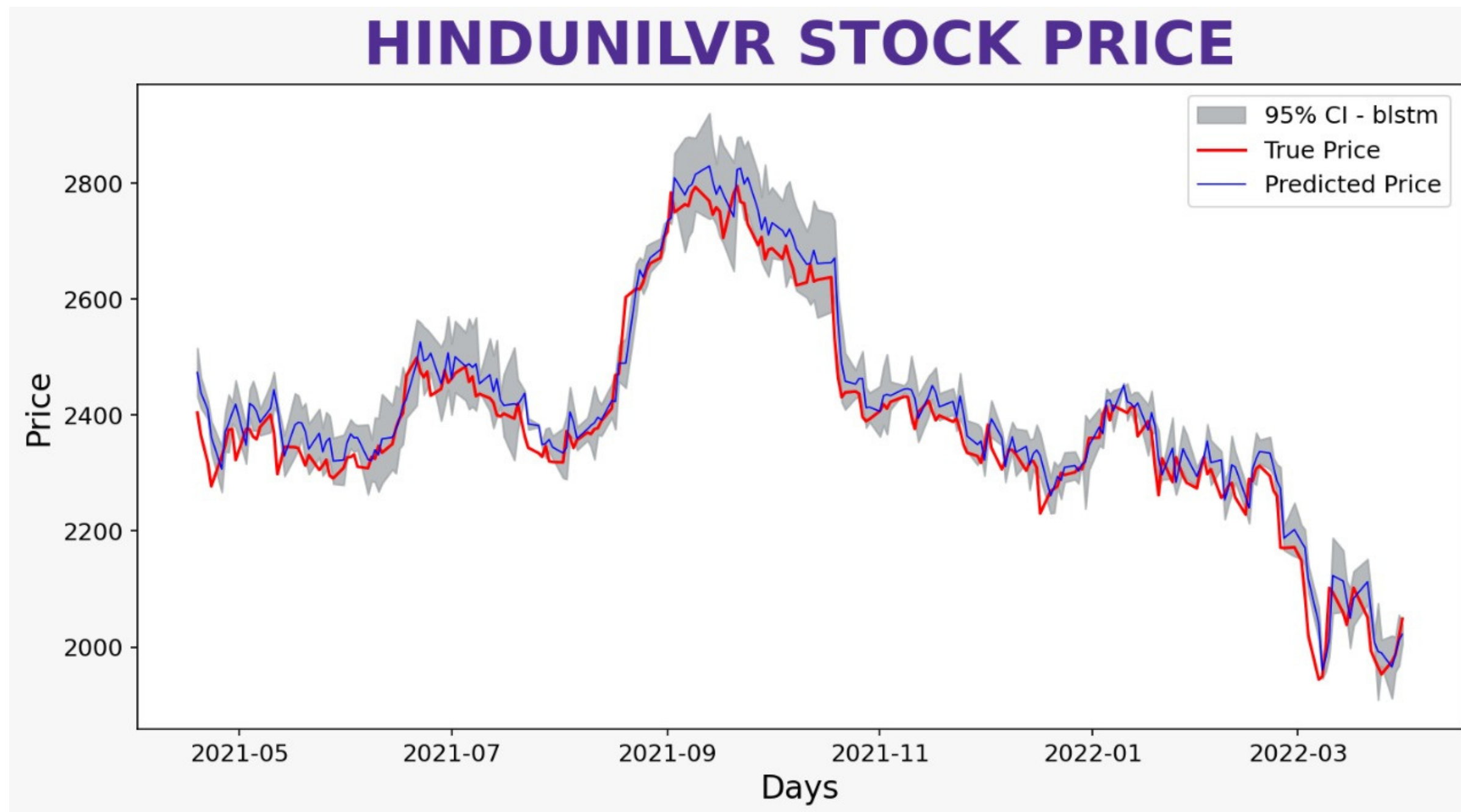


# Visualisation of Models Prediction





# Visualisation of Models Prediction



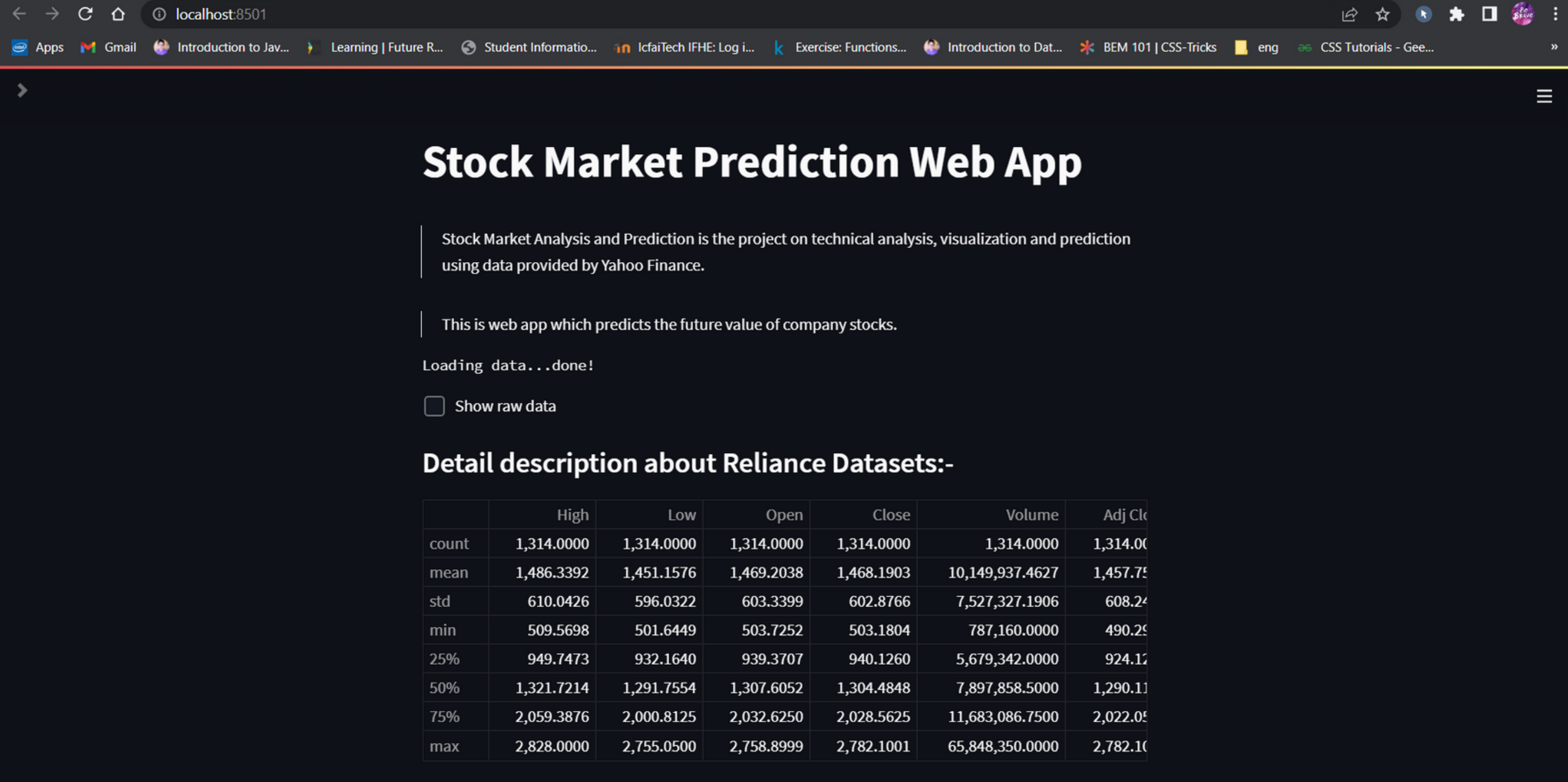
# Web Application for the Project

We have used Streamlit web app framework to build a website which displays the prediction of the trained models.





# Demo Web Application



localhost:8501

Apps Gmail Introduction to Jav... Learning | Future R... Student Informatio... IcfaiTech IFHE: Log i... Exercise: Functions... Introduction to Dat... BEM 101 | CSS-Tricks eng CSS Tutorials - Gee...

## Stock Market Prediction Web App

Stock Market Analysis and Prediction is the project on technical analysis, visualization and prediction using data provided by Yahoo Finance.

This is web app which predicts the future value of company stocks.

Loading data...done!

☐ Show raw data

### Detail description about Reliance Datasets:-

	High	Low	Open	Close	Volume	Adj Cl
count	1,314.0000	1,314.0000	1,314.0000	1,314.0000	1,314.0000	1,314.00
mean	1,486.3392	1,451.1576	1,469.2038	1,468.1903	10,149,937.4627	1,457.75
std	610.0426	596.0322	603.3399	602.8766	7,527,327.1906	608.24
min	509.5698	501.6449	503.7252	503.1804	787,160.0000	490.25
25%	949.7473	932.1640	939.3707	940.1260	5,679,342.0000	924.12
50%	1,321.7214	1,291.7554	1,307.6052	1,304.4848	7,897,858.5000	1,290.11
75%	2,059.3876	2,000.8125	2,032.6250	2,028.5625	11,683,086.7500	2,022.05
max	2,828.0000	2,755.0500	2,758.8999	2,782.1001	65,848,350.0000	2,782.10

# Demo Web Application

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PROJECT DONE BY THE STUDENTS ICAI  
FOUNDATION OF HIGHER EDUCATION

MENTOR

DR. P ROHINI

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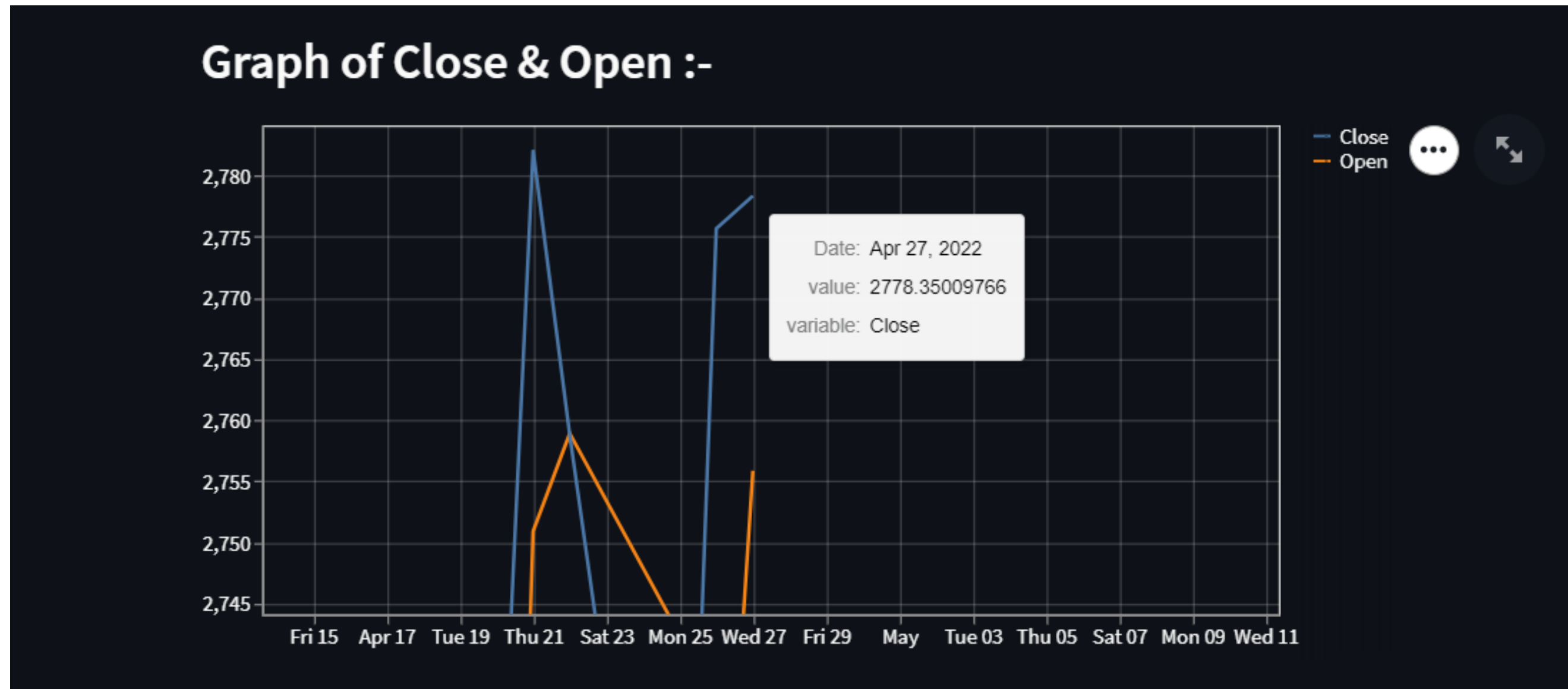
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# Demo Web Application



# Demo Web Application



# Demo Web Application



# Demo Web Application

