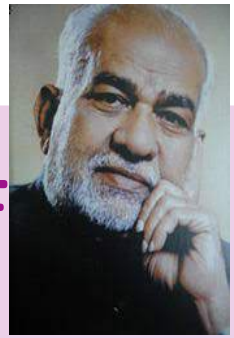

BVRIT HYDERABAD COLLEGE OF ENGINEERING FOR WOMEN

STOCK PRICE PREDICTOR

$\boldsymbol{TeamNo:6}$

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Problem Statement

- The rate of investment and business opportunities in the Stock Prices can increase if an efficient algorithm could be devised to predict the short term price of an individual stock
- predict stock prices using a long-short-term memory (LSTM), Random Forest Algorithm, and Gradient Boosting Regresssion.

Python packages used

- numpy
- pandas
- matplotlib.pyplot
- keras
- tensorflow

Types ofAlgorithms used

- Long Short Term Memory (LSTM)
- Random Forest
- Gradient Boosting Regression

Random Forest

- The random forest regression model is used for prediction. This will predict the low and high values of the next trading days, which includes the future prices for the next five days, one month, and one year of the S&P500.
- The objective of this project is data collection, data processing, and building the trading algorithm for prediction.

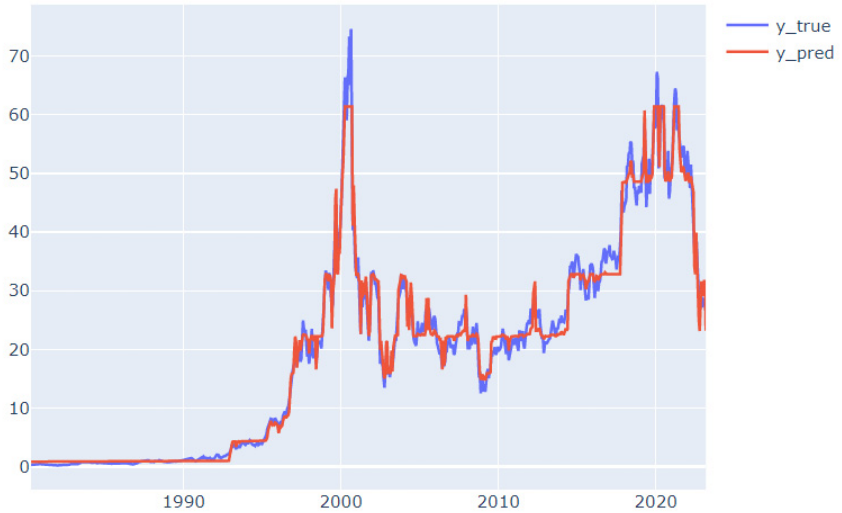
Gradient Boosting Regression

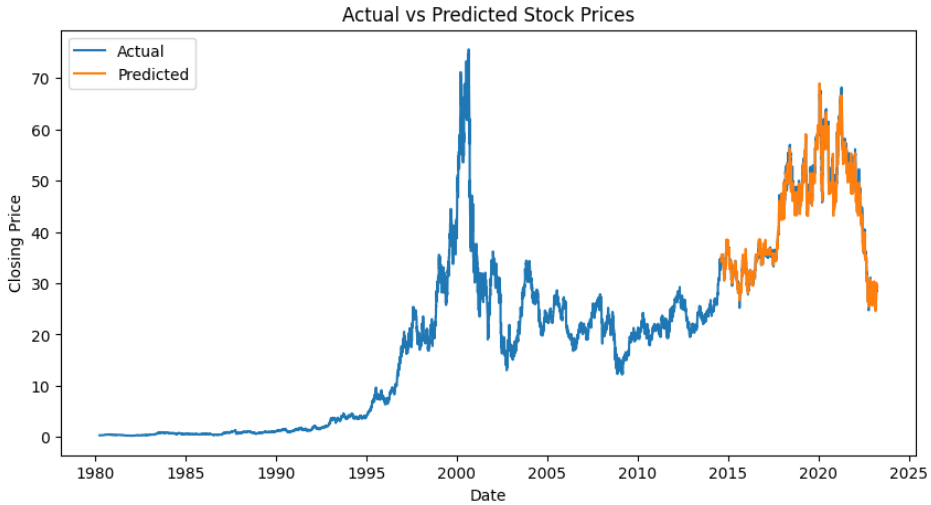
- Gradient boosting is a machine learning technique used in regression and classification tasks
- Gradient boosting is an approach where new models are created that predict the residuals or errors of prior models and then added together to make the final prediction.
- Gradient boosting is known for its prediction speed and accuracy, especially with large and complex data.

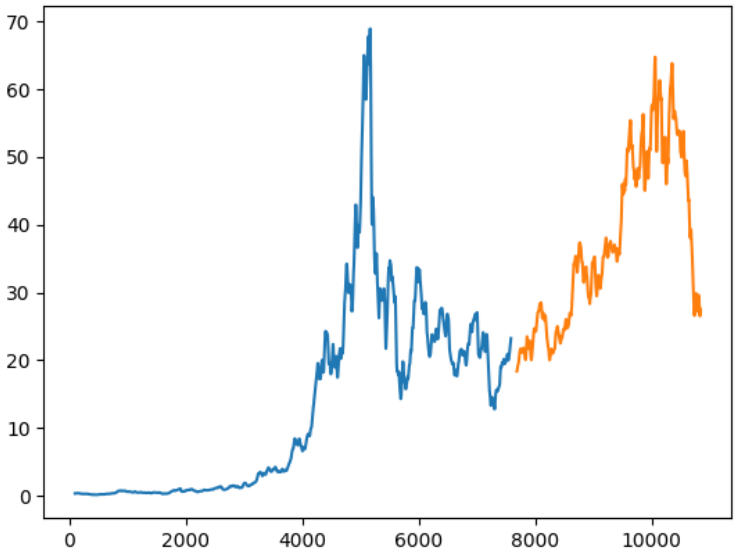
Long Short Term Memory

- LSTM (Long Short-Term Memory) is a type of neural network that is used for time series prediction, including stock price prediction.
- LSTM models are known for their ability to model time series data and identify patterns in the data that can be exploited for prediction.
- Steps to be followed in LSTM Model
  1. Collect and preprocessing the Data
  2. Creating stack LSTM Model
  3. Predict the Test Data
  4. Predict the Future N days and Plot the Output

Graph


y_true
y_pred
70
60
50
40
30
20
10
0
1990
2000
2010
2020

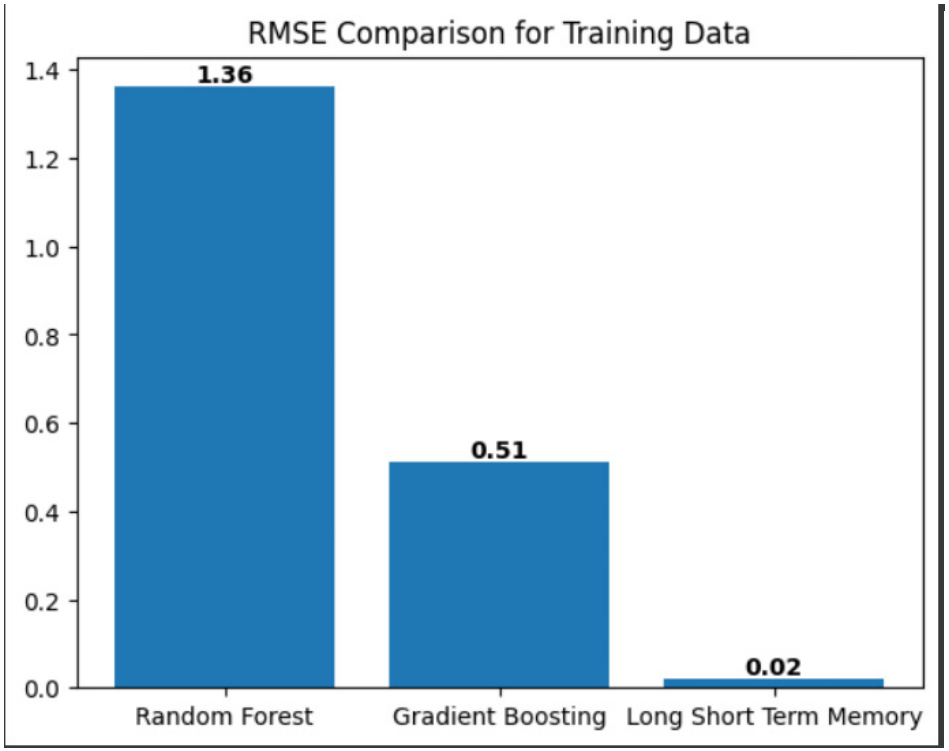

Actual vs Predicted Stock Prices
Actual
Predicted
Closing Price
Date
70
60
50
40
30
20
10
0
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025

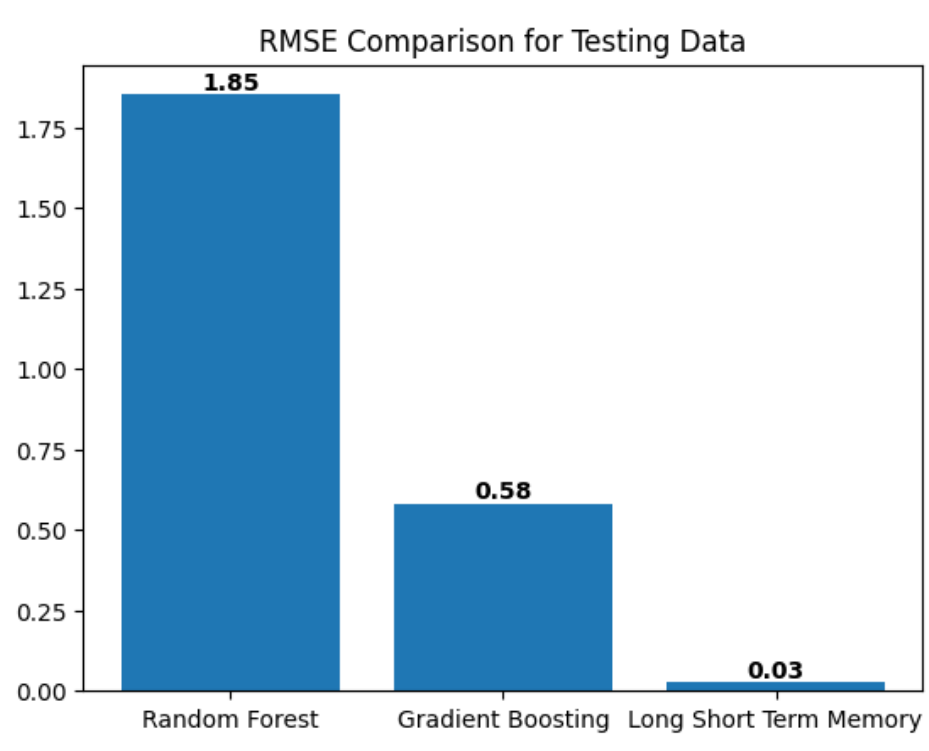

70
60
50
40
30
20
10
0
0
2000
4000
6000
8000
10000

Comparison Table

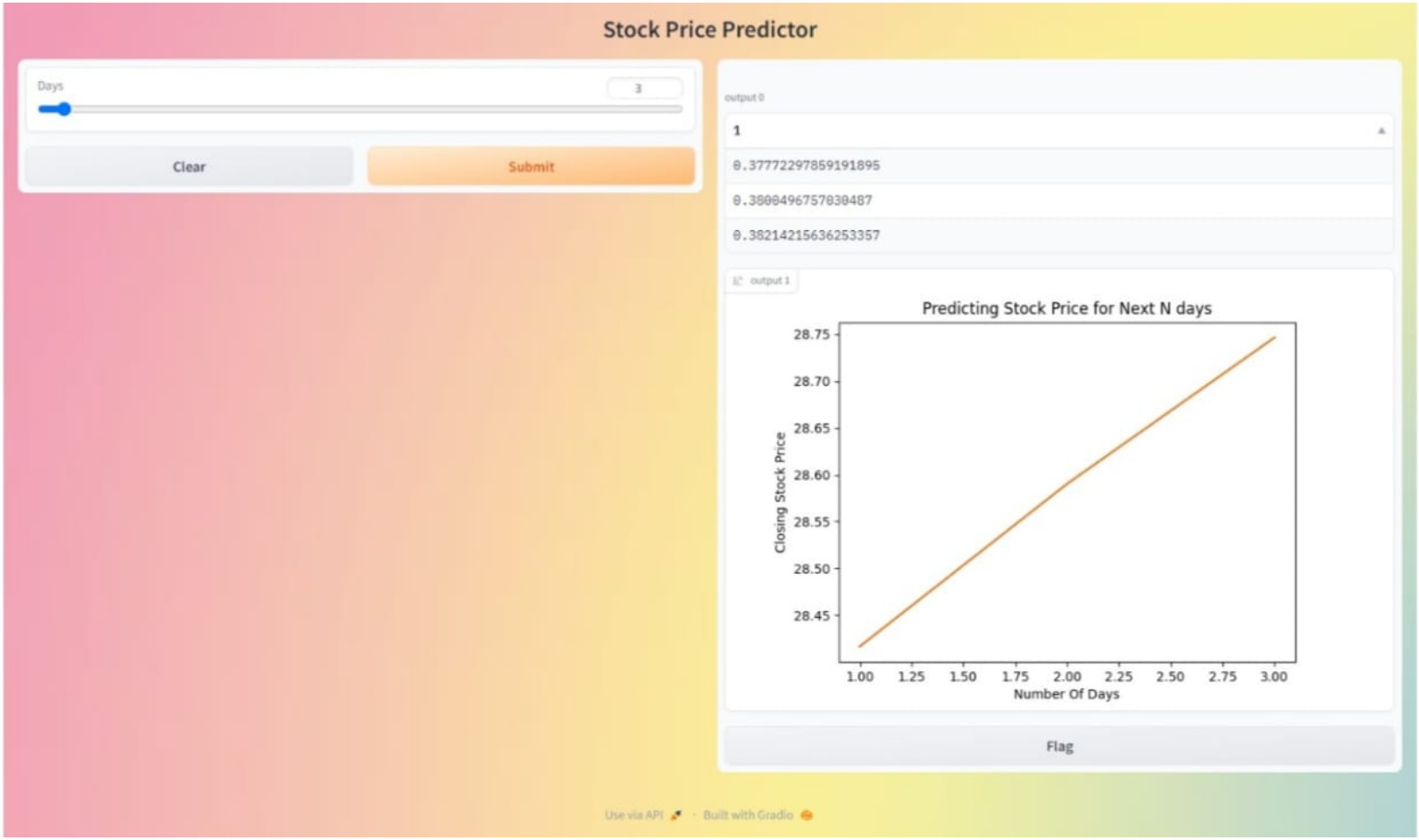
Metric: RMSE		
Algorithms	Training data	Testing data
LSTM	0.02	0.03
Random Forest	1.36	1.85
Gradient Boosting regression	0.50	0.58

Comparision Table





Output


Stock Price Predictor
Days
3
Clear
Submit
output 0
1
0.37772297859191895
0.3800496757030487
0.38214215636253357
output 1
Predicting Stock Price for Next N days
Closing Stock Price
28.75
28.70
28.65
28.60
28.55
28.50
28.45
1.00
1.25
1.50
1.75
2.00
2.25
2.50
2.75
3.00
Number Of Days
Flag
Use via API
Built with Gradio

EXECUTE THE CODE

- COLAB LINK FOR THE CODE

THANK YOU