Problem Solution

Model Architecture

- Layer 1: LSTM layer with 50 units, return sequences enabled for stacking.
- Layer 2: Another LSTM layer with 50 units.
- Layer 3: Dense layer with 25 units.
- Output Layer: Dense layer with 1 unit to predict the closing price.

Data Preparation for Time-Series Prediction

- Split the dataset into sequences of 60 days for the input and the following day's closing price as the output.
- Example:
  - Input: Closing prices from day 1 to day 60
  - Output: Closing price on day 61

[21]

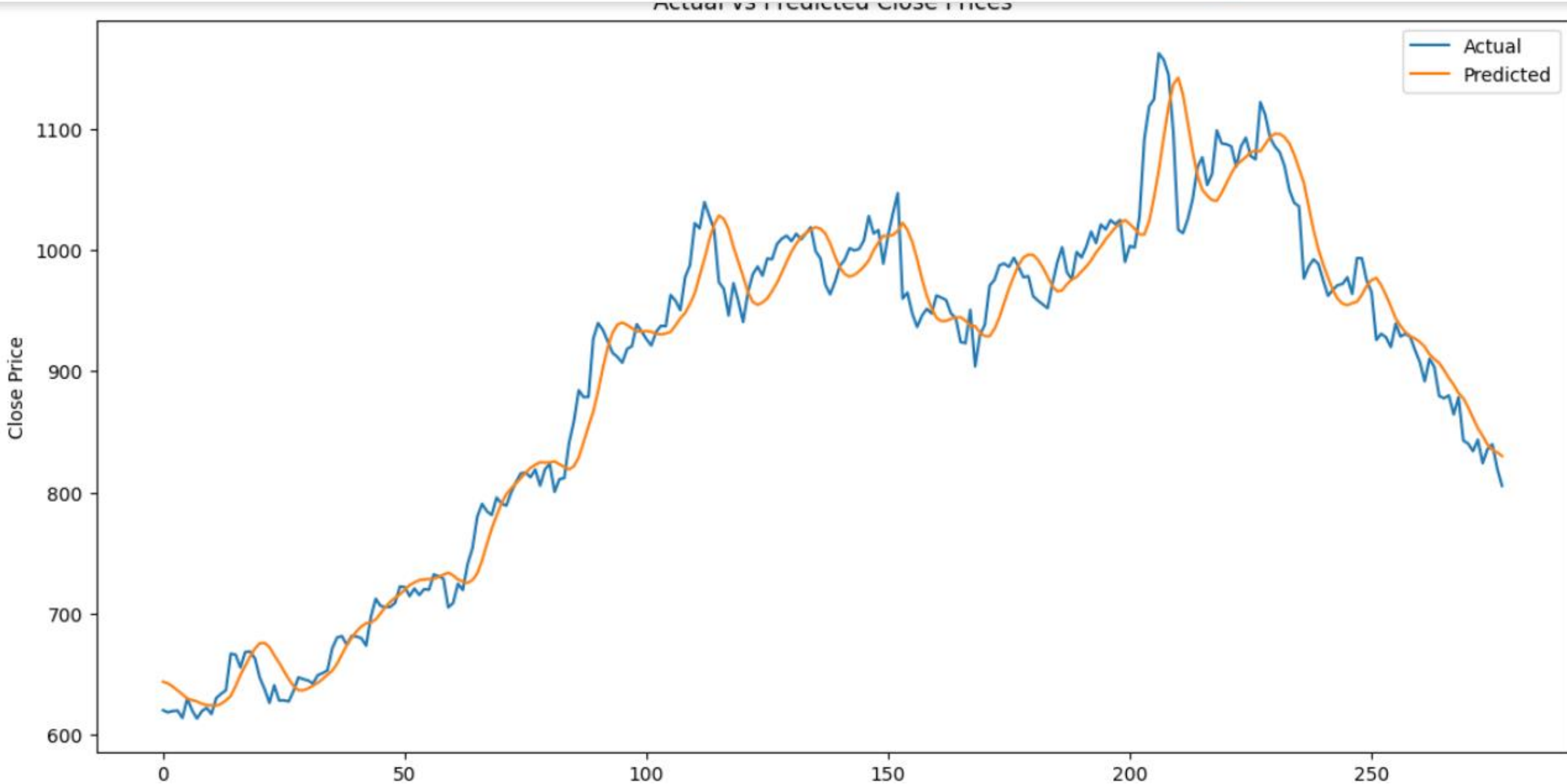

Close Price Over Time
Close Price
Close Price
1200
1000
800
600
400
200

Bi Directional LSTM

Model Layers:

- **Layer 1**: A Bidirectional LSTM with 50 units and return_sequences=True to allow stacking another LSTM.
- **Layer 2**: A second Bidirectional LSTM layer with 50 units to further capture sequential dependencies.
- **Dense Layer**: Fully connected with 25 units to add additional learning capacity.
- **Output Layer**: A Dense layer with 1 unit to output the predicted closing price.

[42]


Actual vs Predicted Close Prices
Actual
Predicted
Close Price
1100
1000
900
800
700
600
0
50
100
150
200
250

Download Dataset

```
[7]  import yfinance as yf

     # Fetch data for a specific stock
     ticker = 'TATAMOTORS.NS'
     data = yf.download(ticker, start="2019-01-01", end="2024-11-11")
     print(data.head())
```

EDA

```
[12] data.isnull().sum()
```