Stock Price Prediction

Content :

Project Overview:

This project demonstrates a deep learning-based approach to predict stock prices using historical data and technical indicators. The app provides a user-friendly interface to enter any stock ticker (e.g., `AAPL`, `MSFT`, `IEX`) and visualize stock trends, technical indicators, and future price predictions.

Features:

- Download 10 years of historical stock data using **Yahoo Finance.**
- Visualize 100-day and 200-day **moving averages.**
- See **technical indicators** like RSI, MACD, and EMA.
- Predict **next 30 days** of stock prices using **LSTM (Long Short-Term Memory)** neural network.
- Interactive web application built using **Streamlit**.

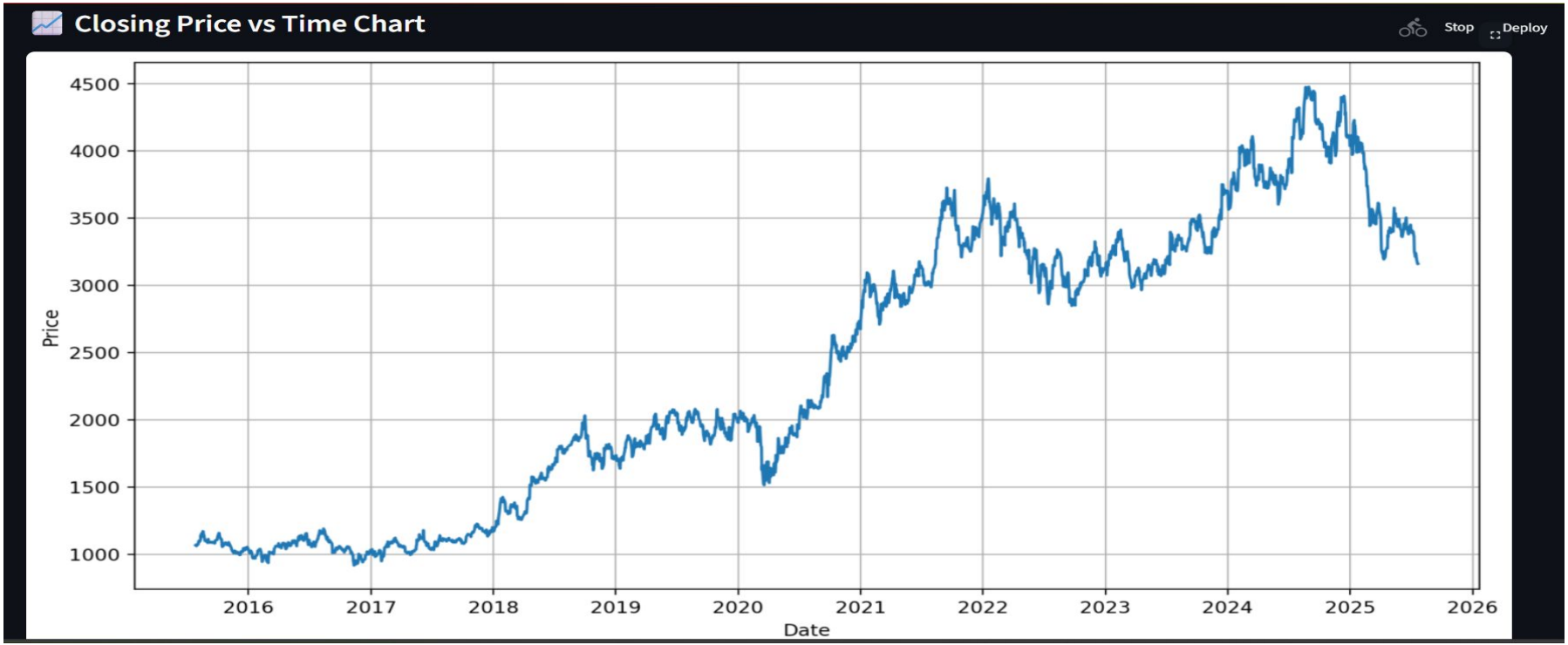
Data Source :

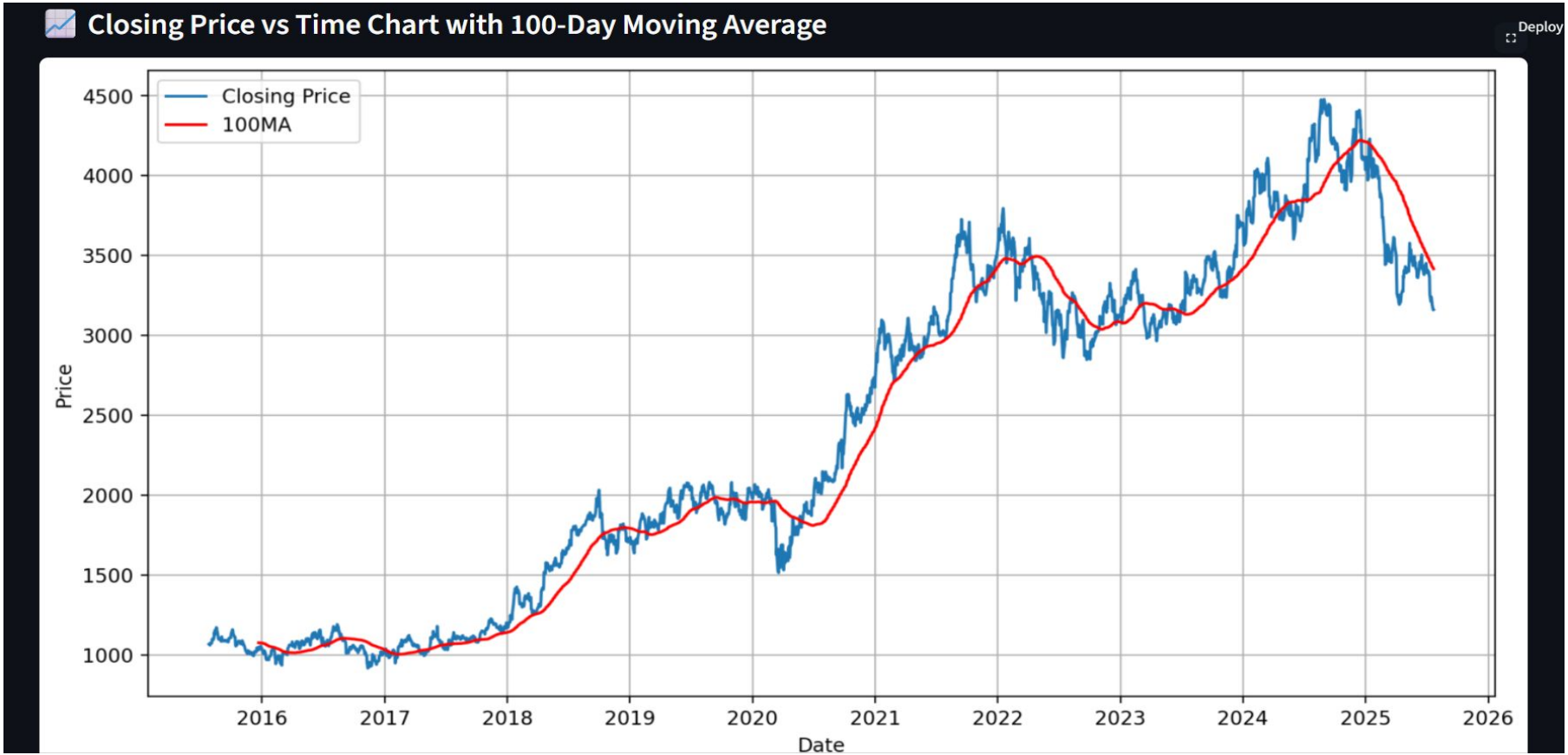
Yahoo Finance API via the `yfinance` Python library.

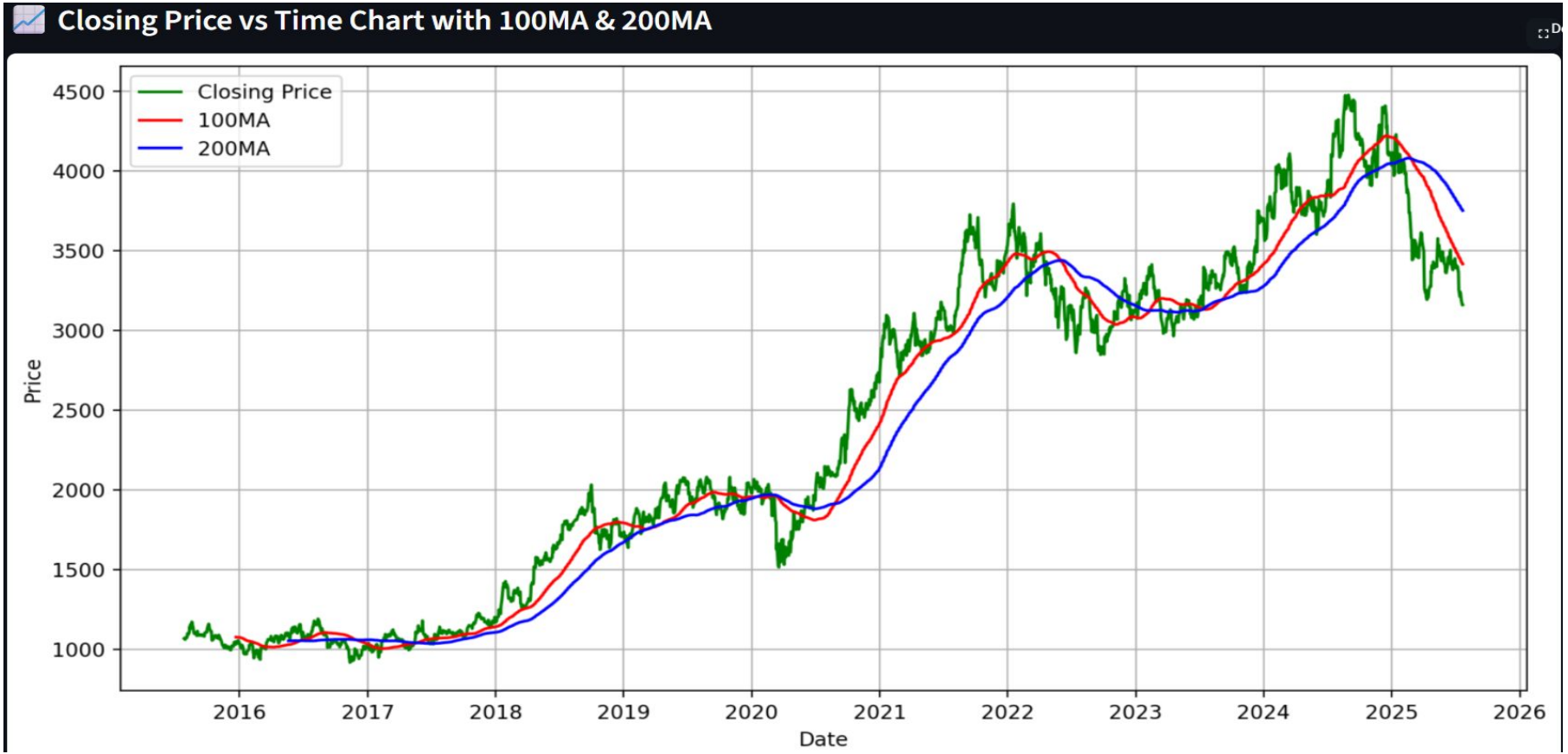
Technologies Used :

- Python
- Pandas
- NumPy
- Matplotlib
- Seaborn
- TensorFlow
- Streamlit
- yfinance

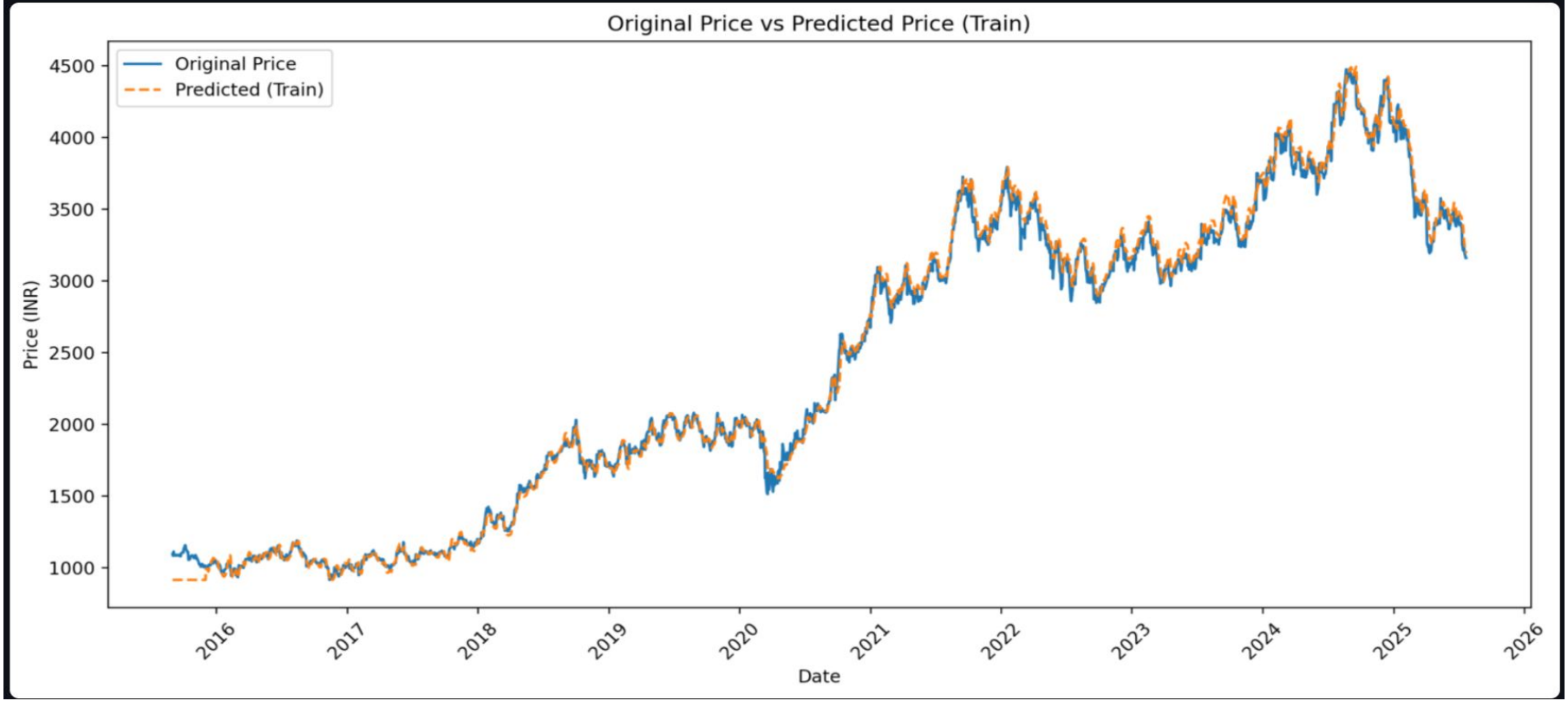
Screenshots :



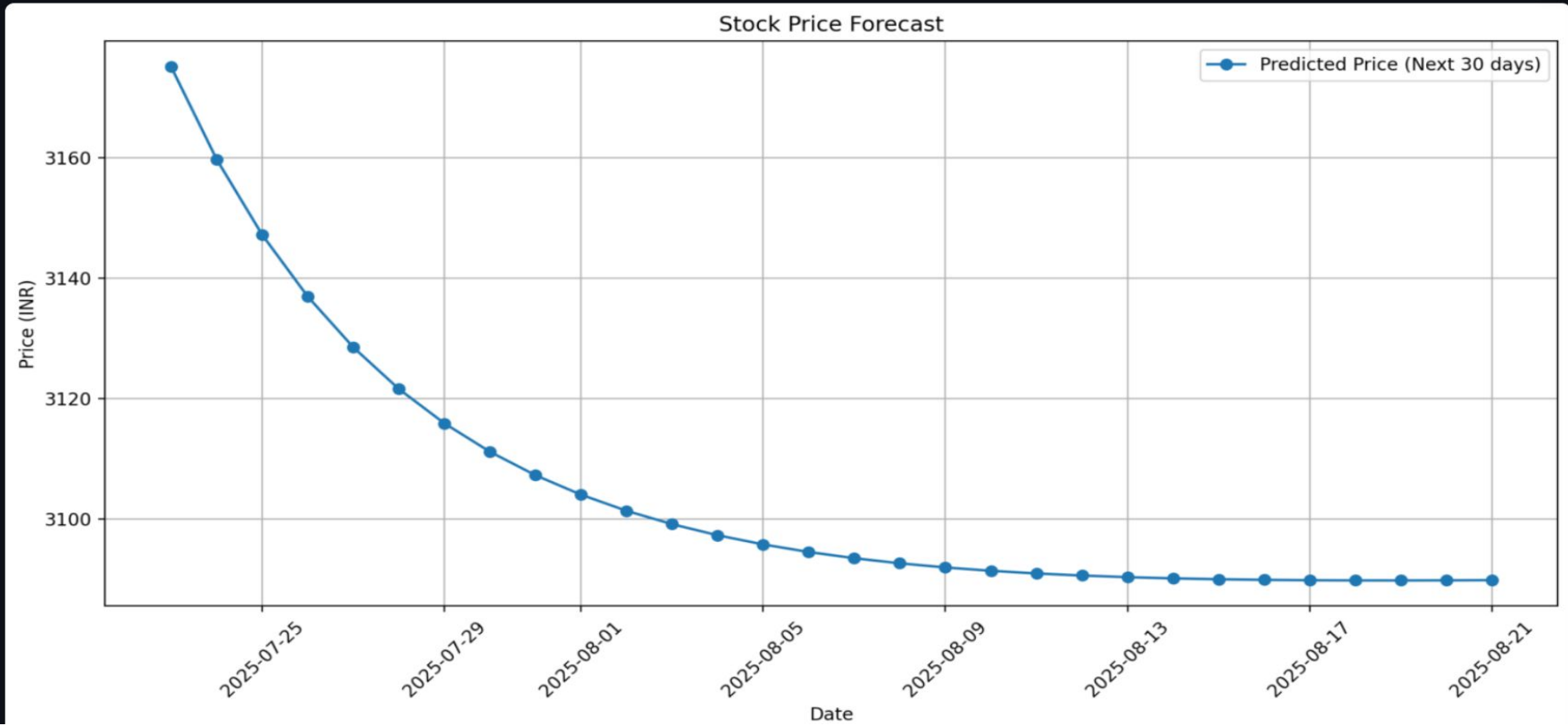

Closing Price vs Time Chart with 100-Day Moving Average
Deploy
Closing Price
100MA
4500
4000
3500
3000
2500
2000
1500
1000
Price
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
Date


Closing Price vs Time Chart with 100MA & 200MA
Closing Price
100MA
200MA
Price
Date
4500
4000
3500
3000
2500
2000
1500
1000
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026

Model Fit (Original vs Predicted on Training Data)



Stock Price Forecast (Next 30 Days)



Forecasted Prices

Date	Predicted Close Price
2025-07-23 00:00:00	3175.04
2025-07-24 00:00:00	3159.68
2025-07-25 00:00:00	3147.15
2025-07-26 00:00:00	3136.89
2025-07-27 00:00:00	3128.47
2025-07-28 00:00:00	3121.55
2025-07-29 00:00:00	3115.84
2025-07-30 00:00:00	3111.12
2025-07-31 00:00:00	3107.22
2025-08-01 00:00:00	3103.99

Project Insights :

- Built a stock price prediction web app using **LSTM (Deep Learning)**.
- Automatically fetches 10 years of historical data for any stock ticker.
- Predicts and displays the next 30 days of stock prices.
- Shows 100-day & 200-day moving averages, MACD, RSI, and actual vs predicted price plots.
- Developed with Streamlit for the frontend, yfinance for data, and Keras/TensorFlow for the model.
- Easy to use for both technical and non-technical users to explore stock trends and future forecasts.