

User Guide for Stock Price Prediction App

Overview

The Stock Price Prediction App provides users with the ability to select a stock ticker, view historical data with technical indicators, and predict future stock prices using advanced machine learning models. This guide will walk you through the steps to use the app effectively.

Getting Started

1.Open the App:

- Launch the app by navigating to the provided URL.
URL: `http://localhost:8502/`

2.Select a Stock Ticker:

- From the dropdown menu on the main page, select the ticker symbol of the stock you want to predict or type the stock name manually.

Stock Price Prediction App

Enter a ticker symbol:

Or select from common tickers:

AMZN

AAPL

GOOGL

PFE

TSLA

Viewing Historical Data and Technical Indicators

1. View Selected Data:

- After selecting a ticker, the app will automatically fetch the historical data for that stock.
- If the selected ticker has valid data, it will be displayed in a table format.
- The app displays the first few rows of the selected data, including columns like Close price, Volume, and various technical indicators.

Or select from common tickers:

Data Found!

Selected Data

Date	Close	Volume	trend_ema_fast	trend_ema_slow	trend_macd	trend_macd
2019-05-31 00:00:00-04:00	88.7535	92,376,000	91.7133	92.5263	-0.8131	
2019-06-03 00:00:00-04:00	84.6345	181,974,000	90.6242	91.9418	-1.3175	
2019-06-04 00:00:00-04:00	86.478	113,582,000	89.9864	91.537	-1.5507	
2019-06-05 00:00:00-04:00	86.925	84,796,000	89.5154	91.1954	-1.68	
2019-06-06 00:00:00-04:00	87.718	73,786,000	89.2389	90.9378	-1.699	

2. Visualize Data:

- The app provides various charts to visualize the stock's historical performance and technical indicators:

Close Price and Indicators: A line chart of the stock's closing prices over time.

EMA (Exponential Moving Average): Plots of EMA Fast and EMA Slow to identify trends.

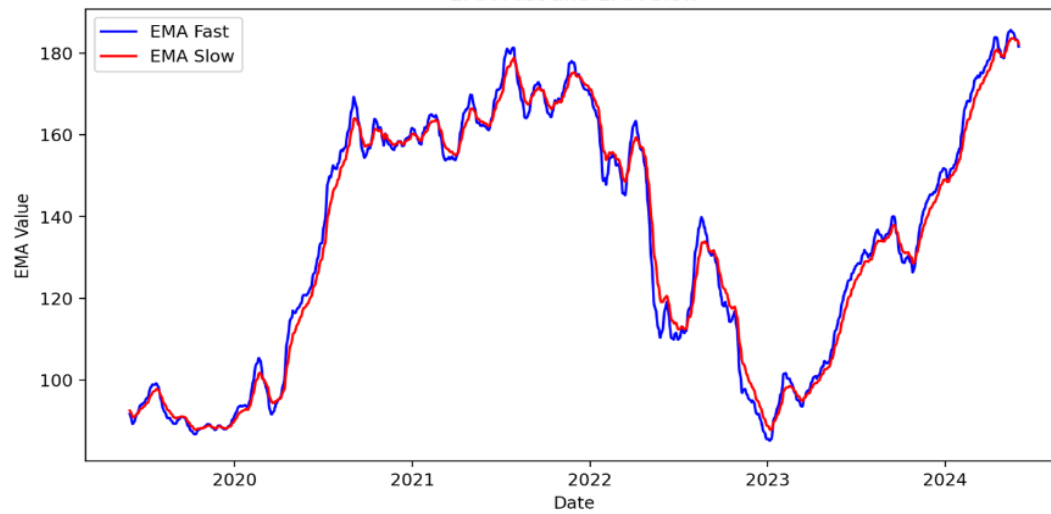
MACD (Moving Average Convergence Divergence): Plots of MACD and MACD Signal to identify momentum.

RSI (Relative Strength Index): A line chart to indicate overbought or oversold conditions.

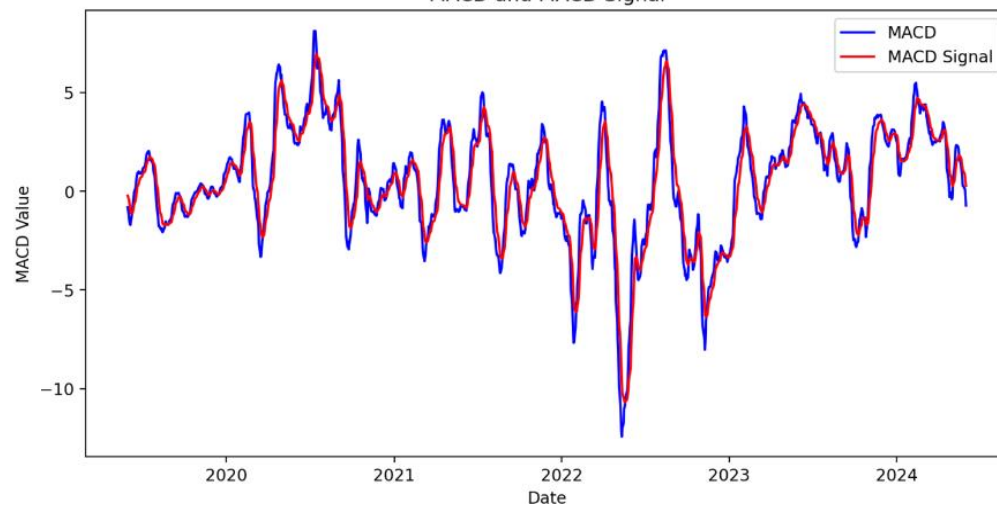
Close Price and Indicators



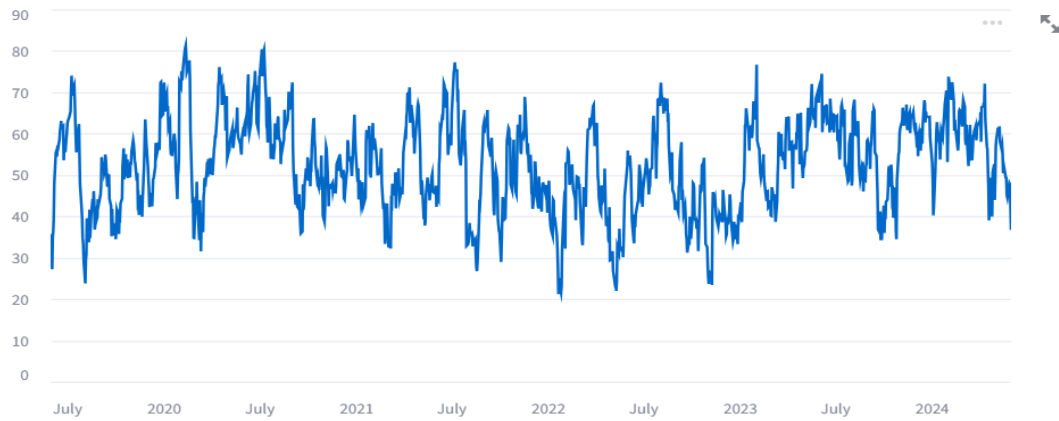
EMA Fast and EMA Slow



MACD and MACD Signal



RSI



Overbought: $RSI > 70$

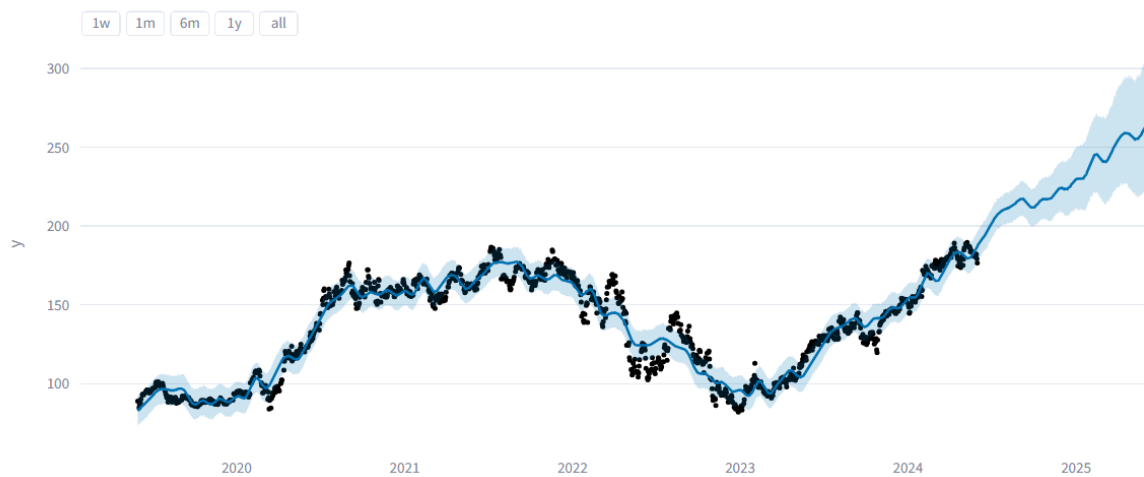
Oversold: $RSI < 30$

Predicting Future Stock Prices

1. Prophet Model Forecast:

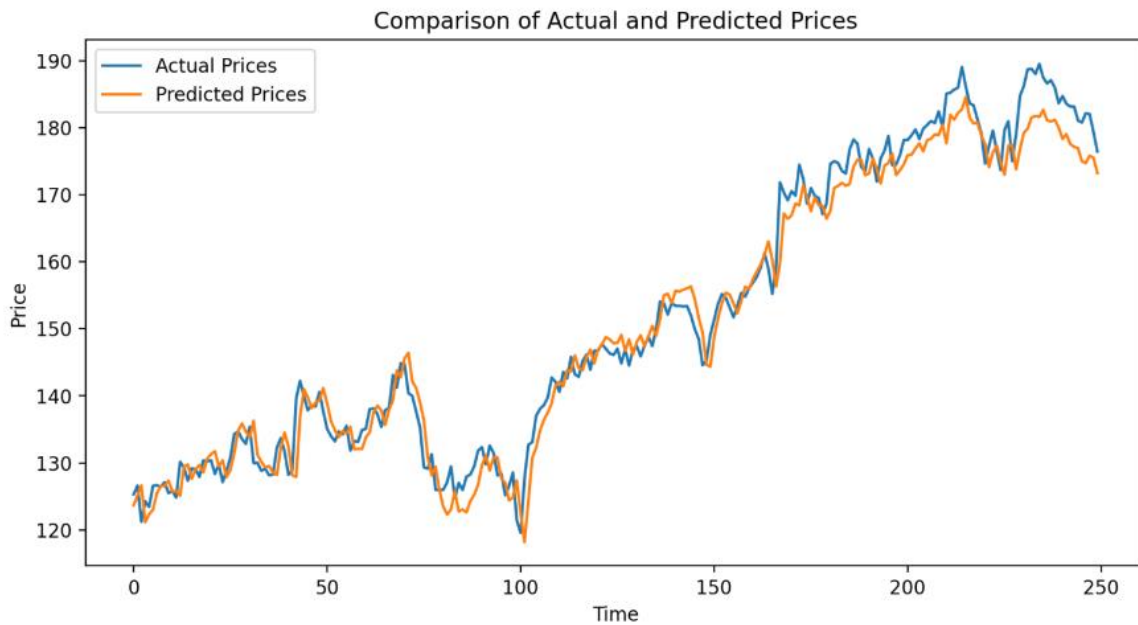
- The app uses the Prophet model to predict the stock's price for the next year.
- The forecast results are displayed in an interactive Plotly chart.

Prophet Forecast for 1 Year



2.LSTM Model for Sequential Prediction:

- The app also employs an LSTM (Long Short-Term Memory) neural network for time series prediction.
- After training the model on historical data, it predicts future stock prices and displays a comparison chart between actual and predicted prices.



Detailed Steps and Actions

1.Launch the App:

- Go to the provided URL to open the app.

2.Select a Ticker:

- Choose a stock ticker from the dropdown menu.

3.View Historical Data:

- Once a ticker is selected, wait for the data to load and display.
- Check the “Selected Stock Data” section to view the historical data table.

4. Visualize Technical Indicators:

- Examine the line charts for Close Price, EMA, MACD, and RSI under the respective subheaders.
- Use these charts to understand the stock's past performance and market trends.

5. Prophet Forecast:

- View the Prophet model forecast for the next year under the Prophet Forecast for 1 Year section.
- The interactive chart allows you to explore the predicted trends.

6. LSTM Model Prediction:

- The app normalizes the data, trains the LSTM model, and makes predictions.
- The results are displayed in a comparison chart showing actual versus predicted prices.

Notes

- Ensure you have a stable internet connection to load data and charts efficiently.
- Predictions are based on historical data and machine learning models; they should be used as part of a broader investment strategy.
- Technical indicators and model outputs can help in analyzing trends but do not guarantee future performance.

Troubleshooting

- No Data Found: If the app displays "No data found for the selected ticker," ensure the ticker symbol is correct and try again.
- Slow Loading: If data or charts take time to load, please be patient as the app fetches and processes the historical data.
- Errors: In case of any errors, try refreshing the page or reselecting the ticker.

By following this user guide, you should be able to effectively navigate and utilize the Stock Price Prediction App to make informed decisions based on historical data and predictive modeling.