Here’s a **User Manual** for your **Stock Price Predictor** project. It will guide users on how to interact with the web app, understand its features, and use it for stock analysis and future price predictions.

**Stock Price Predictor - User Manual**

**Overview**

The **Stock Price Predictor** web app allows users to analyze historical stock prices and predict future stock prices using machine learning models. It fetches stock data from Yahoo Finance, visualizes the stock's performance over time, and provides future price predictions based on historical trends using a **Long Short-Term Memory (LSTM)** model.

**Features**

1. **Stock Analysis**:
   * View historical stock data (e.g., for Google, Tesla, Apple).
   * Display stock performance along with **Moving Averages** (100-day and 250-day).
   * View the stock’s daily closing price and price trends.
2. **Future Stock Price Prediction**:
   * Predict future stock prices based on past trends for a user-defined number of days.
   * Use **LSTM** models to predict the closing price for the selected number of days ahead.

**System Requirements**

* **Browser**: Any modern browser (Chrome, Firefox, Safari).
* **Internet**: An active internet connection is required to fetch stock data from Yahoo Finance.
* **Dependencies**: The app requires **Streamlit** for the UI, **yfinance** for fetching stock data, and **Plotly** for visualizations.

**Installation Guide**

**Step 1: Install Dependencies**

To run this app locally, make sure you have **Python** installed (preferably Python 3.7+). Then, you need to install the required dependencies. You can install them via pip:

*pip install streamlit yfinance plotly keras numpy pandas scikit-learn*

**Step 2: Launch the App**

After installing the dependencies, you can run the app by opening your terminal and executing:

*streamlit run stock\_price\_predictor.py*

This will start the app and open it in your default browser.

**How to Use the App**

**1. Stock Analysis Tab**

* **Stock Symbol**: On the left sidebar, you’ll see a text input field labeled "Enter Stock Symbol." Enter the symbol of the stock you want to analyze, such as AAPL (Apple), TSLA (Tesla), or GOOG (Google).
* **Date Range**: Select the start and end dates for the stock data analysis. The app will fetch historical data for the selected period (up to the last 10 years).
* **Stock Data Table**: Below the input fields, you’ll see a table displaying the last 10 rows of the stock data, including the closing price and volume.
* **Stock Price with Moving Averages**: The app will display a chart showing the stock's **closing price** and its **100-day** and **250-day** **moving averages**.
  + The **100-day MA** is represented in **green**.
  + The **250-day MA** is represented in **orange**.
* **Moving Average Explanation**: Moving averages help identify the stock's long-term trends. A shorter moving average (100-day) reacts to price changes quicker, while a longer one (250-day) smoothens out fluctuations over a longer period.

**2. Future Prediction Tab**

* **Stock Symbol**: The app will automatically load the stock symbol from the Stock Analysis tab.
* **Number of Days to Predict**: In the text input field, enter the number of days you want to predict future stock prices. For example, entering "10" will predict the stock's price for the next 10 days.
* **Future Price Prediction**: After entering the number of days, the app will display a table showing the predicted **closing prices** for each of the next days.
* **Future Price Chart**: Below the prediction table, you’ll see a chart showing the predicted stock prices for the next days.

**Example Usage**

1. **Stock Analysis**:
   * Enter AAPL in the **Stock Symbol** field.
   * Set the start date as 2010-01-01 and the end date as today's date.
   * The app will fetch the data and show the table and chart for the stock's closing price along with its moving averages.
2. **Future Prediction**:
   * In the **Future Prediction** tab, enter 10 for the number of days.
   * The app will predict the future stock prices for the next 10 days and display them in a table and chart format.

**Interpreting the Results**

1. **Stock Data Table**: Displays the latest stock data for the selected period, showing the stock's **closing price**, **high**, **low**, **open**, and **volume**.
2. **Moving Averages**:
   * The **100-day moving average** is a shorter-term trend indicator.
   * The **250-day moving average** represents a longer-term trend.
   * If the stock price is above these moving averages, it may indicate an uptrend, and if it’s below, it may indicate a downtrend.
3. **Predicted Prices**:
   * The predicted future prices are based on the **LSTM model** trained on past stock prices.
   * Keep in mind that stock prices are influenced by numerous factors, and these predictions should be used cautiously for investment decisions.

**Troubleshooting**

1. **No Data Found**: If you get an error like "No data found! Try another ticker," check the stock symbol and ensure it is correct.
2. **No Predictions**: If predictions are not showing up, ensure that you have entered a valid stock symbol and number of days for prediction. The model might need more data to generate predictions.
3. **App Crashes or Freezes**: This could happen if the dataset is too large. Try narrowing the date range for better performance.

**FAQs**

**Q1: What kind of stocks can I analyze?**

* You can analyze any publicly traded stock by entering its **ticker symbol** (e.g., AAPL for Apple, TSLA for Tesla). The app uses Yahoo Finance to fetch the stock data.

**Q2: How accurate are the predictions?**

* The predictions are based on historical trends using an LSTM neural network. While LSTMs are good at capturing temporal patterns, stock prices are influenced by many external factors, so predictions may not always be accurate.

**Q3: Can I predict the prices for any number of days?**

* Yes, you can predict prices for any number of days by entering the desired number in the **Future Price Prediction** tab.

**Q4: Why is my app slow?**

* The performance may slow down if you are using a very large date range or have a slow internet connection. Try selecting a smaller date range.

**Conclusion**

The **Stock Price Predictor** web app leverages machine learning to predict future stock prices, helping users analyze trends and make informed decisions. While the predictions are based on historical data and trends, remember that stock markets are highly volatile, and predictions should be used cautiously.

This user manual should help anyone using the app understand how to navigate and utilize its features effectively. Let me know if you'd like to add more details or features!