Stock Market Forecasting using ARIMA, SARIMA, and SARIMAX

📌 Objective

To predict future stock prices using time series forecasting techniques like ARIMA, SARIMA, and SARIMAX.

🧠 Methodology

1. Data Preprocessing and Cleaning
2. Stationarity Testing (ADF Test)
3. Auto-Correlation & Partial Auto-Correlation (ACF & PACF)
4. Model Building: ARIMA, SARIMA, SARIMAX
5. Model Evaluation using RMSE and visual analysis

📊 Visualizations

The notebook contains plots showing:

- Stock trends over time
- ACF and PACF plots
- Forecasted vs Actual stock prices

📁 Files

- `stock-market-forecasting-arima-sarima-sarimax.ipynb` : Main notebook
- `stock-market-forecasting-arima-sarima-sarimax.py` : Exported Python script
- `visualizations/` : Folder for trend and prediction plots
- `report.pdf` : Project summary
- `requirements.txt` : Python dependencies

📂 Dataset

Use a historical stock dataset (e.g., from Yahoo Finance). Add the CSV file or provide the link in the notebook.

🚀 How to Run

```
pip install -r requirements.txt
jupyter notebook stock-market-forecasting-arima-sarima-sarimax.ipynb
```