



DATA ANALYTICS PROJECT

TIME SERIES ANALYSIS
AND FORECASTING FOR
STOCK MARKET



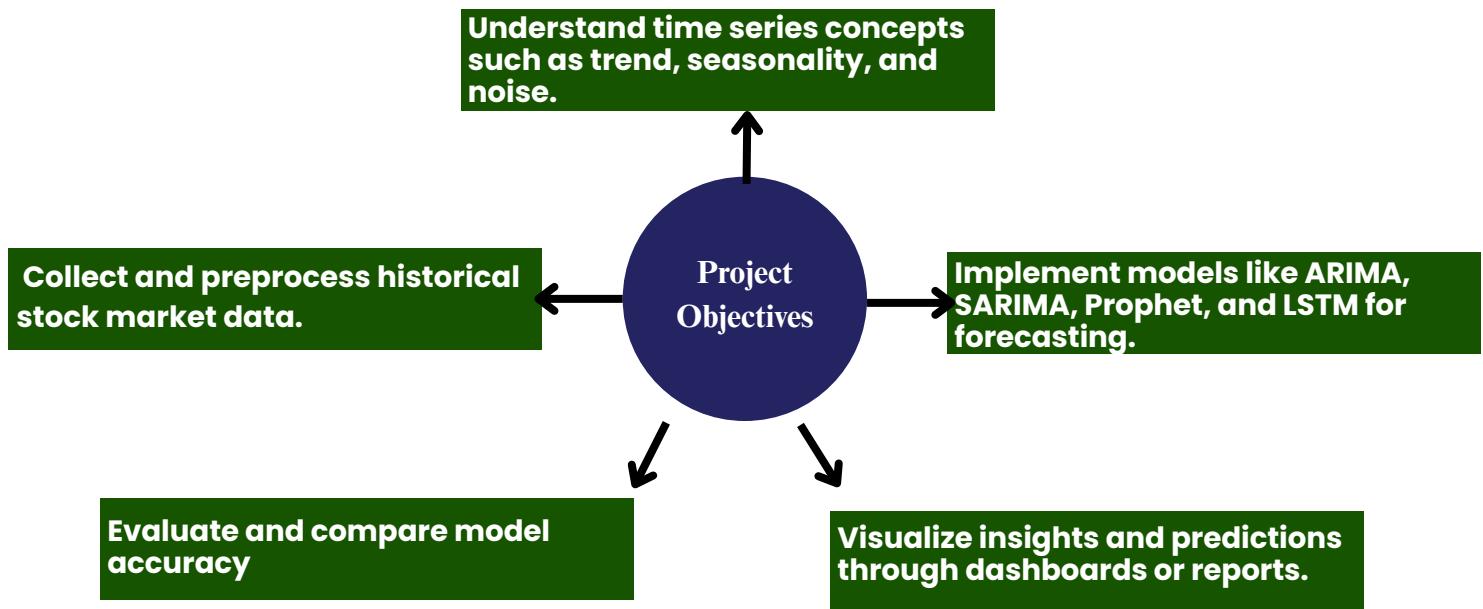
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Project Overview:

This project aims to analyze and forecast stock market trends using time series analysis techniques. Interns will explore various time series models to understand historical patterns, identify trends and seasonality, and make short-term or long-term predictions. This project offers real-world experience in financial data analytics, model development, and result interpretation.



Tech Stack & Tools

- Python
- Pandas, NumPy
- Matplotlib, Seaborn, Plotly
- Scikit-learn, Statsmodels
- Facebook Prophet, TensorFlow/Keras (for LSTM)
- Streamlit/Flask for deployment (optional)

Dataset

You may use datasets from Yahoo Finance, Alpha Vantage, or Kaggle containing historical stock data. The dataset typically includes Open, Close, High, Low, and Volume values for specific time intervals.

Tasks and Timeline

- **Week 1-2:** Study time series concepts, collect stock market data.
- **Week 3-4:** Data preprocessing and visualization.
- **Week 5-6:** Apply ARIMA, SARIMA, and Prophet models.
- **Week 7-8:** Implement LSTM model for deep learning-based forecasting.
- **Week 9:** Model comparison and tuning.
- **Week 10-12:** Final evaluation, reporting, and optional web deployment.

Expected Deliverables

- Cleaned dataset and preprocessing code.
- Model code with evaluations and results.
- Visualization dashboards or reports.
- GitHub repository with documentation.
- Presentation or video demonstration.

Learning Outcomes

- Strong understanding of time series forecasting techniques.
- Hands-on experience with real stock market data.
- Proficiency in implementing statistical and deep learning models.
- Skill in visualizing trends and generating insights.