Team Stock Market Forecasting Project Document

June 19 - July 11, 2025

Project Overview

This team project aims to analyze and forecast stock market trends using time series analysis techniques. The initial phase focuses on setting up a collaborative environment with GitHub and Jupyter Notebook for the team to explore time series concepts and collect stock market data. 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.

Day-wise Plan

Date	Task	Status
June 19	Setting up GitHub repository, creating team structure, initializing Jupyter Notebook for time series concept notes	In Progress
June 20	Collecting initial stock market data (e.g., from Yahoo Finance), documenting data sources in Jupyter Notebook, team sync-up	Not Started
June 22 - June 28	Data preprocessing and visualization	Not Started
June 29 - July 2	Applying ARIMA, SARIMA, and Prophet models	Not Started
July 3 - July 6	Implementing LSTM model for deep learning-based forecasting	Not Started
July 7 - July 9	Model comparison and tuning	Not Started
July 10 - July 11	Final evaluation, reporting, and optional web deployment	Not Started

How to Proceed

- **June 19 - GitHub Setup:** Create a new GitHub repository (e.g., "StockMarketForecastingTeam"). Invite team members as collaborators. Initialize with a README.md outlining the project goals and team roles.
- **Jupyter Notebook Setup:** Install Jupyter Notebook (via pip or Anaconda). Create a new notebook named "TimeSeriesBasics.ipynb" to document time series concepts (e.g., trends, seasonality, noise).
- **Team Structure:** Assign roles (e.g., data collector, model developer) and set up a communication channel (e.g., Slack or GitHub Issues).
- **June 20 - Data Collection:** Use Python libraries like pandas$_{d}atareaderory finance to fetch initial stock$

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.

Tech Stack & Tools

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

Resources for Setup and Learning

This section provides resources to learn how to set up GitHub, Jupyter Notebook, and where to obtain stock market data.

Topic	Resources
GitHub Setup	GitHub Quickstart Guide - Step-by-step guide to create a repository and collaborate.
	YouTube: GitHub Tutorial for Beginners - Video tutorial on repository setup and team workflows.
Jupyter Notebook Setup	Jupyter Installation Guide - Official guide to install Jupyter via pip or Anaconda.
	Dataquest Jupyter Tutorial - Comprehensive tutorial on using Jupyter for data analysis.
Stock Market Data Sources	Yahoo Finance - Free historical stock data (use $pandas_{d}atareaderoryfinancelibrary$).
	Alpha Vantage - API for real-time and historical stock data (requires API key).
	Kaggle Datasets - Community datasets including stock market data.

How to Use These Resources

- Start with the GitHub Quickstart Guide to set up your team repository today.
- Follow the Jupyter Installation Guide to install and create your first notebook ("TimeSeriesBasics.ipynb").

- Explore Yahoo Finance or Alpha Vantage for initial data collection tomorrow, using Python libraries like pandas$_{d}atareader.Refertovideotutorialsforhands-onpracticeandteamsync-ups$.