■ Stock Analysis Dashboard - Project Report

1. Introduction

The Stock Analysis Dashboard project was developed to provide investors and analysts with an interactive tool for visualizing, analyzing, and forecasting stock market trends. It helps users make better investment decisions through technical indicators, AI-based predictions, and automated alerts.

2. Abstract

This project integrates financial data with modern visualization and forecasting techniques. It leverages Python libraries and APIs to fetch real-time stock prices, apply technical indicators (SMA, EMA, RSI, Bollinger Bands), and generate AI-based forecasts using Prophet. Additionally, it provides email/SMS alerts based on trading signals, making it a comprehensive decision-support system for traders and investors.

3. Tools Used

- Python 3
- Streamlit for interactive dashboard
- yFinance for stock market data
- Plotly for advanced visualizations
- Prophet for AI forecasting
- Twilio & SMTP for SMS/Email alerts
- Pandas & NumPy for data processing

4. Steps Involved in Building the Project

1. Requirement gathering and project design
2. Fetching real-time stock market data using yFinance
3. Implementing technical indicators (SMA, EMA, RSI, Bollinger Bands)
4. Developing interactive visualizations with Plotly
5. Adding multi-stock correlation analysis
6. Integrating AI-based forecasting with Prophet
7. Implementing automated Buy/Sell/Hold signals
8. Configuring Email and SMS alert system
9. Testing and final deployment with Streamlit

5. How to Run

To run the Stock Analysis Dashboard, open a terminal/command prompt and execute the following command:

```
streamlit run "c:\Users\hp\OneDrive\Desktop\Internship Task\Major Task 2\stock_dashboard.py"
```

6. Conclusion

The Stock Analysis Dashboard successfully combines real-time data, technical analysis, AI forecasting, and alerting mechanisms into a single platform. It simplifies stock market analysis for investors and traders, enhancing decision-making and improving efficiency. The modular design ensures that future enhancements such as adding more indicators or integrating ML models can be easily implemented.