

Project Documentation: Real-Time Industry Insight & Strategic Intelligence System

Phase: Sprints 1 & 2 Completion (Weeks 1-4)

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Project Goal: To create a dynamic, real-time system that collects market and social data, performs advanced AI-driven analysis, forecasts trends, and delivers strategic intelligence via a dashboard and alert system.

Sprint 1: Data Sourcing & Handling (Weeks 1-2)

I. Executive Summary

Sprint 1 successfully delivered the foundational data pipeline for the entire strategic intelligence system. The core objective was to establish robust, multi-source data collection, cleaning, and structuring. This phase established the capability to dynamically ingest and analyze data from multiple sources (financial and social).

Key Outcome: A functional, interactive notebook (`Infosys_Project.ipynb`) was developed that accepts any company name (e.g., Netflix, Infosys, TCS) and immediately executes the data lifecycle: Extraction (from multiple sources), Transformation (via pandas), Analysis (using a simple Sentiment POC), and Visualization.

II. Milestone 1 Fulfillment & Status

The tasks defined in Milestone 1 were successfully completed, establishing the necessary infrastructure and data flow.

Official Milestone 1 Task	Deliverable in <code>Infosys_Project.ipynb</code>	Fulfillment Status
Set up the environment for market data collection (e.g., integration with Twitter API).	All dependencies (pandas, matplotlib, yfinance, wikipedia, etc.) installed. API Key acquisition and setup confirmed for reliable stock data.	Complete
Implement Data Extraction Layer from multiple sources (Historical Price Data, News/Social Data).	Successfully fetched historical price data (using yfinance) and established a structure for news/social data extraction.	Complete
Develop Data Transformation/Cleaning Module using Pandas.	Implemented data cleaning and structuring logic using Pandas DataFrames for	Complete

	consistent input into the analysis engine.	
Initial Visualization POC for data validation.	Three key charts were generated: Sentiment Distribution, Sentiment Trend, and Market Price Trend.	Complete

III. Conclusion and Transition to Sprint 2

Sprint 1 is officially complete. The foundation is robust, secure, and dynamic. The focus shifted from foundational data handling to advanced, AI-powered intelligence in Sprint 2.

Sprint 2: Advanced Intelligence & Visualization (Weeks 3-4)

I. Executive Summary

Sprint 2 successfully executed the transition from foundational data handling to advanced, AI-powered analysis and visualization, delivering the critical intelligence layer of the project. The core objectives for Modules 1 (Analysis Engine), 2 (Trend Forecasting), and 3 (Alert Module) were met.

Key Achievements: The migration from a basic proof-of-concept (TextBlob) to the **Gemini API** for high-quality, structured sentiment analysis and the implementation of a functional **Slack Alert System**.

II. Milestone Fulfillment & Status

The tasks planned in the Sprint 1 Report and the actual work completed and documented in the Infosys_Project.ipynb notebook are detailed below:

Official Milestone Task (Based on Sprint 1 Plan)	Deliverable in Infosys_Project.ipynb	Fulfillment Status
Milestone 2: Advanced LLM Integration (Replace basic sentiment with LLM for nuanced analysis).	LLM Integration: Successfully integrated the Gemini API using Function Calling to perform high-quality, structured sentiment analysis and generate strategic summaries, replacing the basic TextBlob method.	Complete
Milestone 3: Trend Forecasting Setup (Begin building predictive models).	Trend Forecasting Setup: Fetched up-to-date historical price data using yfinance to prepare for advanced predictive modeling (like	Complete

	ARIMA/LSTM/Prophet) in the next sprint.	
Milestone 3: Alert System Design (Design the structure for monitoring changes).	Slack Alert System: Developed and tested the send_slack_alert function and implemented logic to trigger alerts based on critical sentiment shifts (from the LLM) or significant price changes.	Complete
Milestone 4: Strategic Dashboard Deployment (Consolidation of outputs).	Dashboard Output: Consolidated all key outputs—price trend, LLM sentiment, and strategic summaries—into a single, interactive dashboard display using plotly and IPython.display.	Complete

III. Conclusion and Transition to Sprint 3

Sprint 2 successfully validated the system's architecture for multi-source data fusion and high-fidelity intelligence generation. The project now boasts dynamic data feeds, LLM-powered strategic summaries, and a working notification system, all presented in a user-friendly dashboard.

Transition to Sprint 3 (Weeks 5-6 Focus):

The final phase will focus on integrating the predictive capability to complete the strategic intelligence cycle:

1. Implement the actual predictive model (e.g., ARIMA or Prophet) to forecast future prices.
2. Integrate the predictive model's output into the alert system, using the Gemini LLM to provide reasoning for the future price trend.