



**CODECELL-CMPN, VESIT**

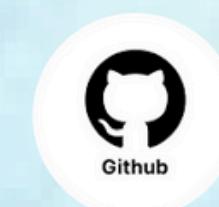
# **SIRIUS HACKATHON 2025**

**Category Code: C5**

**Problem Statement Title: Investment & Stock Market Insights**

**Team Name: Byte\_Me**

**Institute Name: Vivekanand Education Society's Institute of Technology**



# Idea / Approach details (& implemented features)



## Overview:

FinX AI revolutionizes stock market analysis by merging traditional financial metrics with non-traditional signals.



## Key Components:

Integration of structured financial data with unstructured data (social media, news, geopolitical events).

Use of generative AI to synthesize diverse data into actionable, predictive investment insights.

## Goal:

Enable faster, more informed decisions by uncovering hidden market patterns beyond traditional analysis.



# Innovation (Showstopper)



## Portfolio Insights using RAG:

Uses personalized portfolio data and advanced generative AI to create contextualized, real-time investment recommendations that align individual assets with dynamic market intelligence, democratizing institutional-grade investment analysis.

## Cross-Asset Correlation Insights:

Analyzes interdependencies between stocks, commodities, bonds, and cryptocurrencies.

## Multimodal Sentiment Analysis:

Aggregates sentiments from financial news, social media, and expert opinions.

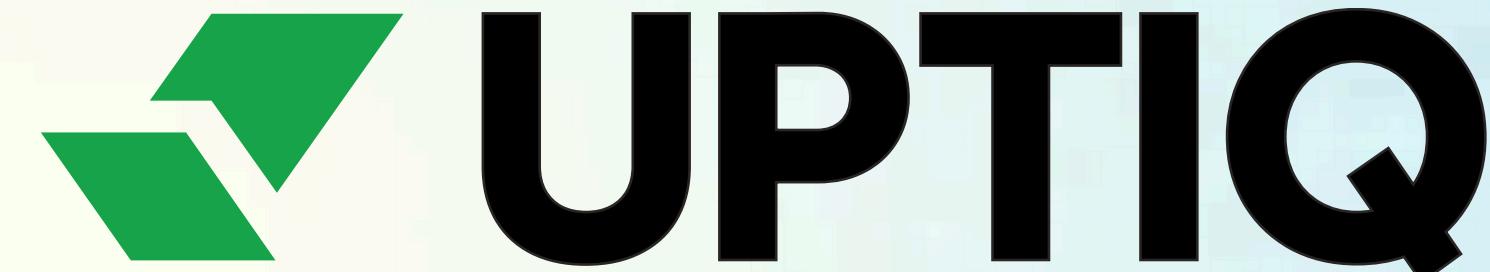
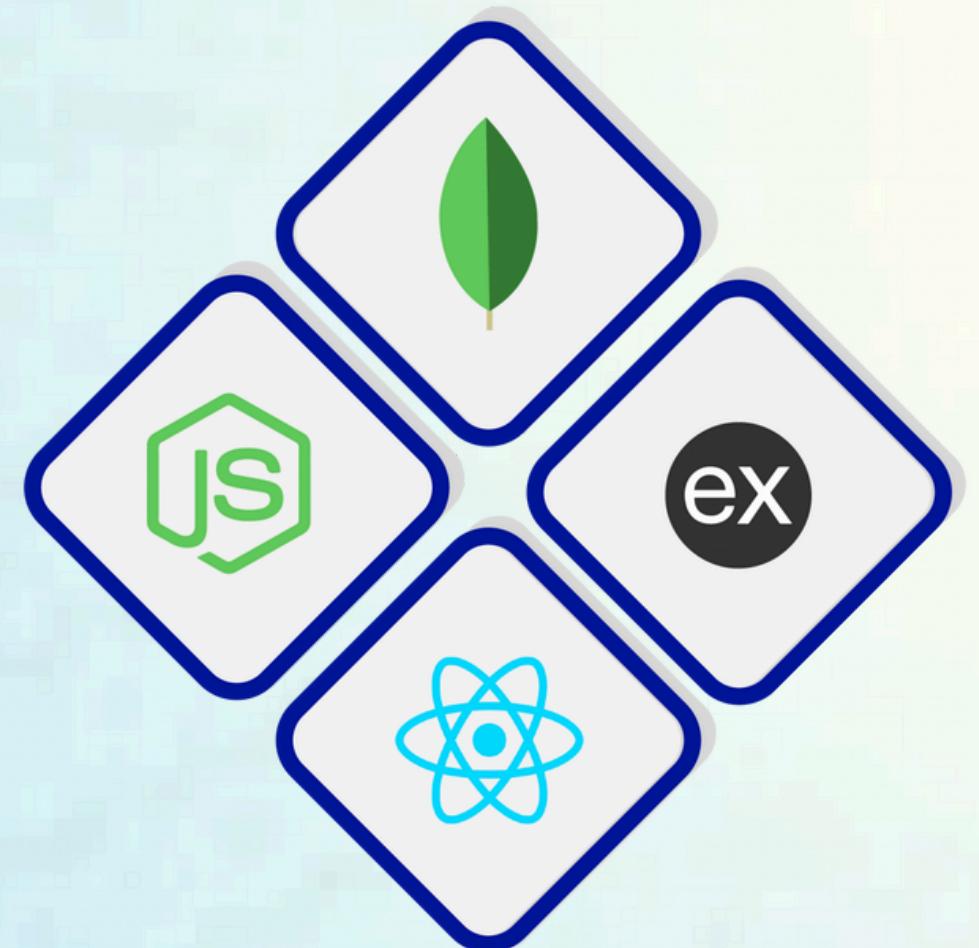
## Real-Time Geopolitical & Economic Risk Assessment:

Continuously monitors global events and policy changes, quantifying their potential market impact.



# Tech Stack

**Frontend:**  
Built on the MERN stack for a robust and scalable interface.



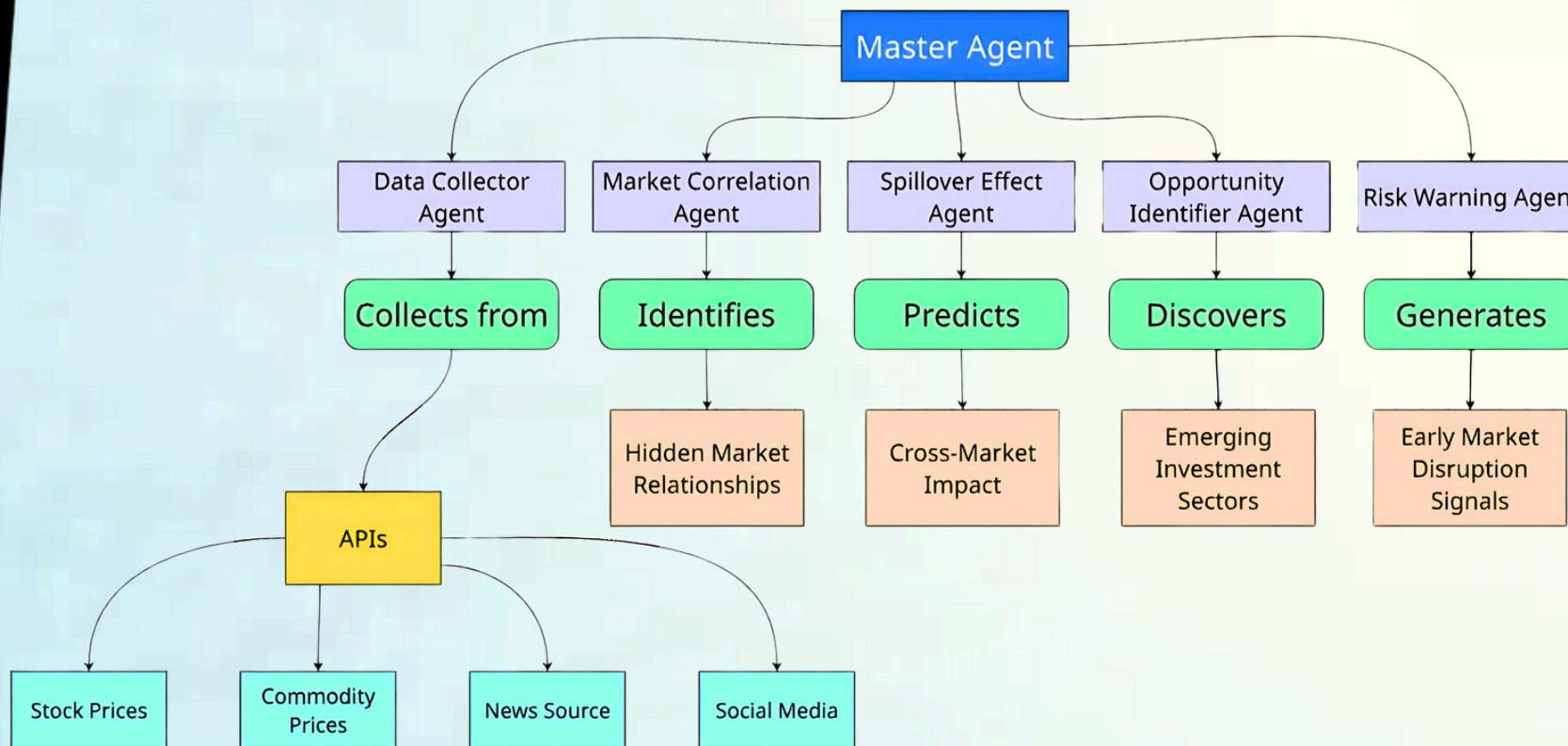
**Powered by UPTIQ Console with components including:**

- **Data Gateway:** Real-time data access
- **Workflow Builder:** Automates analytics
- **Reliable AI:** Trustworthy insights
- **Security & Compliance:** Protects financial data

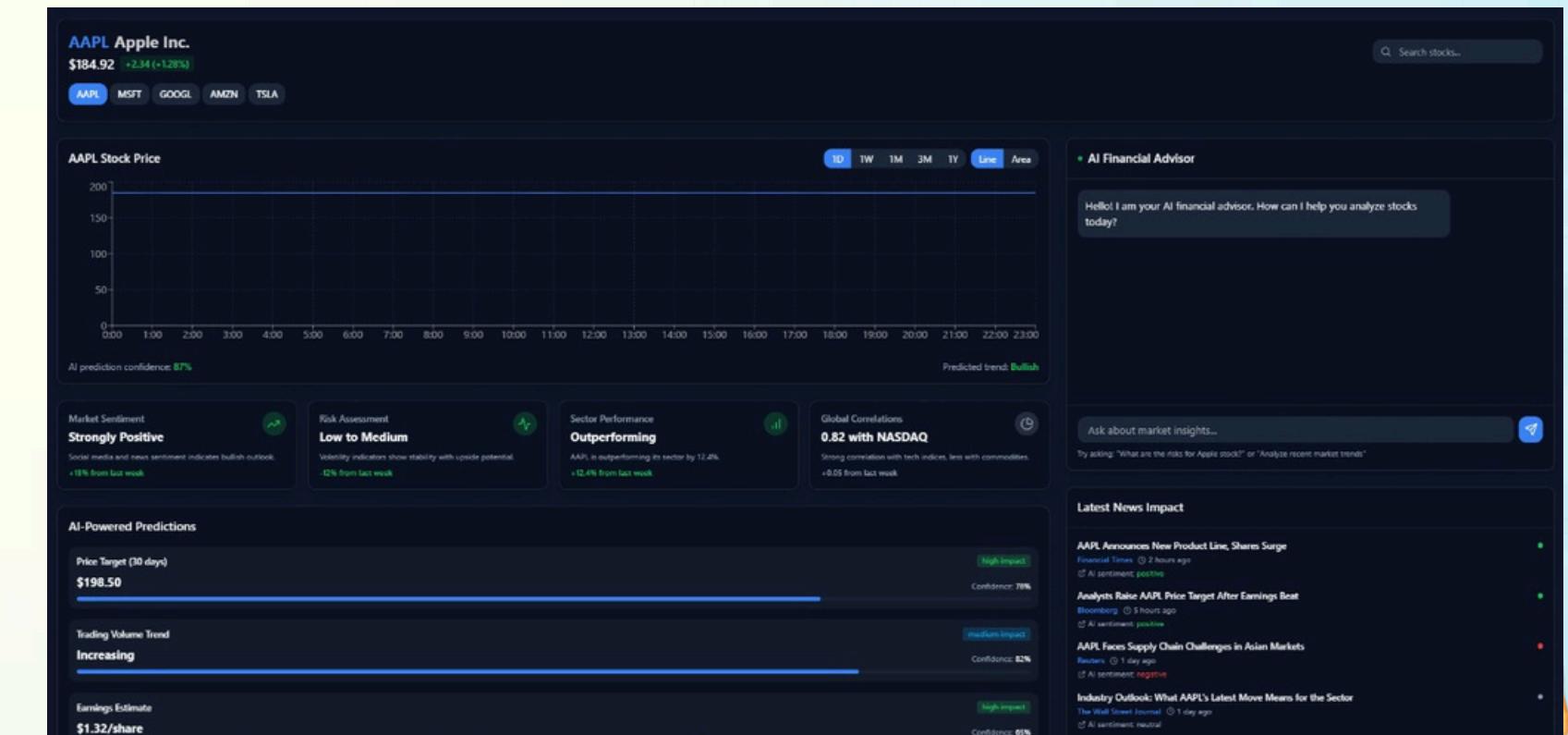


# Use Case Diagram & User Interface (screenshots)

## Use Case Diagram



## User Interface



# In case of Uptiq category - Your Uptiq Agent (explain in detail)

## Operational Workflow

- **Data Acquisition & Preprocessing:** Ingesting economic indicators, social media feeds, market data, and news sources; normalizing & structuring data.
- **AI-Driven Analytics:** Large language models for sentiment analysis, correlation mapping, trend identification, and predictive forecasting
- **Inference & Decision Support:** Generating insights, risk assessments, anomaly detection, and strategic recommendations
- **Automated Execution & Reporting:** Triggering alerts, generating reports, executing predefined strategies, and continuous model refinement

## System Architecture:

- **Sub-Agents:** Modular AI components for domain-specific analysis
- **Intents:** Task-specific cognitive functions executed by sub-agents
- **Workflows:** Automated pipelines for data ingestion, processing, and decision-making



# Future Objectives

## **Data Expansion:**

Incorporate additional alternative data sources to further enhance analysis.

## **Enhanced Predictive Modeling:**

Continuously upgrade generative AI models for improved accuracy and learning.

## **Broader Market Coverage:**

Extend the tool to include multiple asset classes and international markets

## **User Customization:**

Develop personalized dashboards and alerts tailored to different investor profiles and risk tolerances.

## **Scalability & Compliance:**

Scale cloud-based infrastructure to support real-time processing and ensure ongoing adherence to evolving regulatory standards.



# Features Implemented: How and Why ?



**Financial Fundamental Analysis:** We have developed a structured approach to evaluate financial fundamentals, enabling accurate stock evaluations. This module is integrated within the UPTIQ AI Console to process financial data effectively.

**Market Sentiment & Social Media Analysis:** Utilizing UPTIQ's Data Gateway, we fetch stock-related tweets, extracting text, source, engagement metrics, and sentiment. The Data Gateway's real-time data access and extensive integration support enhance our analysis capabilities.

**Insights from Market Sentiment Analysis:** By analyzing social media discussions, we derive insights into market sentiments, aiding in predictive investment decisions. This process leverages UPTIQ's AI capabilities to process and interpret large volumes of unstructured data.

**Retrieval-Augmented Generation (RAG) for Personalized Insights:** We are implementing RAG to analyze personal and enterprise portfolios, providing tailored investment insights. UPTIQ's AI Workbench facilitates the development of such advanced AI agents with its low-code/no-code workflow builder.



# Current progress with implemented Features and relevant screenshots

## What Our AI Agent Does

- Company Insights:** Evaluates financial health and market position.
- Key Metrics:** Assesses P/E ratio, profit margin, and debt-to-equity ratio.
- Data Visualization:** Displays revenue, net income, and trends with charts.
- Balance Sheet Analysis:** Highlights assets, liabilities, and equity.
- Investment Insights:** Identifies risks, growth potential, and market trends.

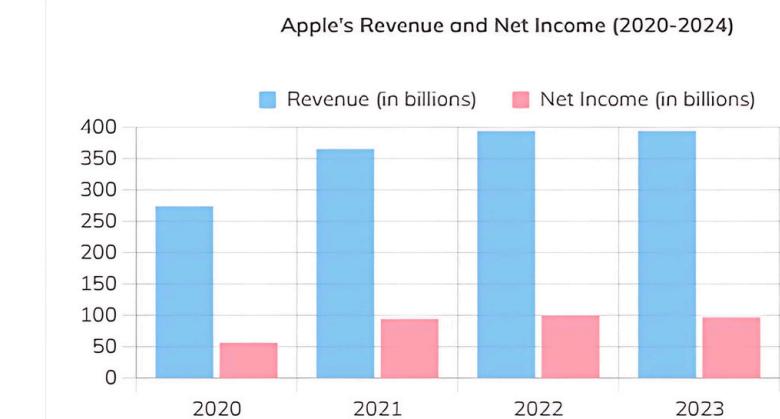
Output:

### Apple Inc. Financial Analysis

#### Company Overview

Apple Inc. (NASDAQ: AAPL) is a leading technology company known for its innovative consumer electronics, software, and services. As of the latest data, Apple holds a market capitalization of approximately \$3.36 trillion, making it the most valuable company globally. The company has a P/E ratio of 35.22, indicating a high valuation compared to the industry average, reflecting investor confidence in its growth prospects. Apple offers a modest dividend yield of 0.45%, with a dividend per share of \$0.99. The company's profit margin stands at 24.3%, showcasing its strong profitability. However, the debt-to-equity ratio is relatively high, indicating significant leverage.

#### Apple's Revenue and Net Income (2020-2024)



#### Balance Sheet Highlights

Apple's total assets have grown consistently, reaching \$364.98 billion by the end of 2024. The company maintains a strong cash position with cash and short-term investments totaling \$65.17 billion. However, total liabilities have also increased to \$308.03 billion, with long-term debt at \$96.7 billion. The shareholder equity stands at \$56.95 billion, reflecting a solid financial foundation despite the high leverage.

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# Current progress with implemented Features and relevant screenshots

## News-Based Stock Insights

- **News Analysis:** Extracts key financial insights from news.
- **LLM Processing:** Summarizes and interprets stock-related news.
- **API Integration:** Fetches real-time updates.
- **Current Status:** Framework in place, refining accuracy.

Work flow:

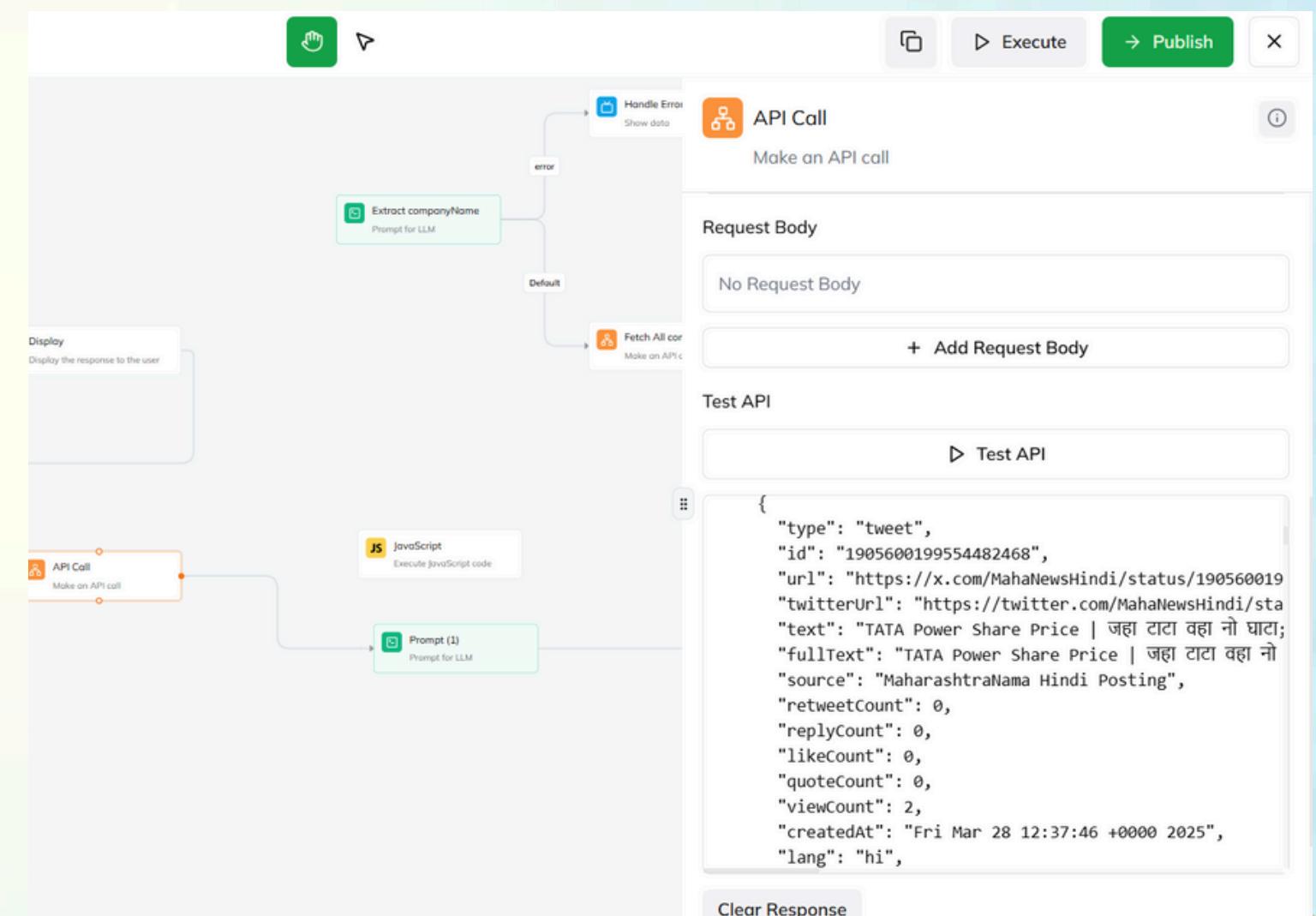


# Current progress with implemented Features and relevant screenshots

## Real-Time Stock Insights via Twitter

- **Keyword Tracking:** Fetches recent stock-related tweets.
- **Data Extraction:** Retrieves structured tweet data.
- **JSON Output:** Organizes market discussions.
- **Current Status:** Successfully fetching tweets; refining stability.

Work flow & Output on Console:



# Incorporating Mentor Feedback: Real-Time Stock Insights via Twitter

## 1. Implemented Basic AI-Agent Flow

Designed and executed the core workflow of the AI agent as per mentor's direction. Ensured seamless integration of different analytical modules.

## 2. Enhanced Financial Fundamental Analysis

Developed a structured approach for evaluating financial fundamentals.

Successfully integrated this module for accurate stock evaluation.

## 3. Market Sentiment & Social Media Analysis (Near Completion)

Real-Time Stock Insights via Twitter

Keyword-Based Tracking: Fetches stock-related tweets.

Data Extraction: Retrieves tweet text, source, engagement, and sentiment.

JSON Output: Processes market discussions for analysis.

Integration Challenges: Addressed API stability issues in UPTIQ console.

Near Implementation: Successfully obtaining tweets, optimizing performance.

