**Real-Time Market Sentiment Analyzer with LangChain & Langfuse**

This project implements a real-time sentiment analysis pipeline using:

* LangChain (for LLM orchestration)
* Azure OpenAI (GPT model)
* Yahoo Finance (for fetching news)
* Langfuse (for observability and tracing)

**Features**

* Accepts any company name dynamically
* Uses yfinance to resolve stock ticker
* Fetches company news headlines
* Generates a structured sentiment analysis using Azure GPT-4 via LangChain
* Tracks all steps (ticker lookup, news fetch, sentiment analysis) with Langfuse tracing

**1. Install Dependencies**

pip install langchain langfuse openai yfinance

**2. Configure Environment Variables**

Set the following environment variables:

export LANGFUSE\_PUBLIC\_KEY="<your\_langfuse\_public\_key>"

export LANGFUSE\_SECRET\_KEY="<your\_langfuse\_secret\_key>"

**How to Run**

python sentiment\_analyzer.py

Then enter a company name when prompted:

Enter a company name (e.g., Apple Inc): Microsoft

**Sample Output (JSON)**

{'company\_name': 'Nvidia', 'stock\_code': 'NVDA', 'newsdesc': "Nvidia and Samsung are investing a combined $35 million into Skild AI, a general-purpose robotics intelligence startup that's rapidly gaining investor confidence. The Series B funding round, which values Skild AI at approximately $4.5 billion, is led by a $100 million investment from Japan's SoftBank Group.", 'sentiment': 'Positive', 'people\_names': '', 'places\_names': ['Japan'], 'other\_companies\_referred': ['Samsung', 'SoftBank'], 'related\_industries': ['Robotics', 'Technology', 'Investment'], 'market\_implications': "The investment indicates strong confidence in the robotics sector and may positively influence Nvidia's stock performance due to its association with emerging technologies.", 'confidence\_score': '0.85'}

**Observability with Langfuse**

Langfuse automatically logs all:

* Ticker resolution steps
* News fetching
* LLM calls and responses