

Financial News Impact Analyzer

Overview:

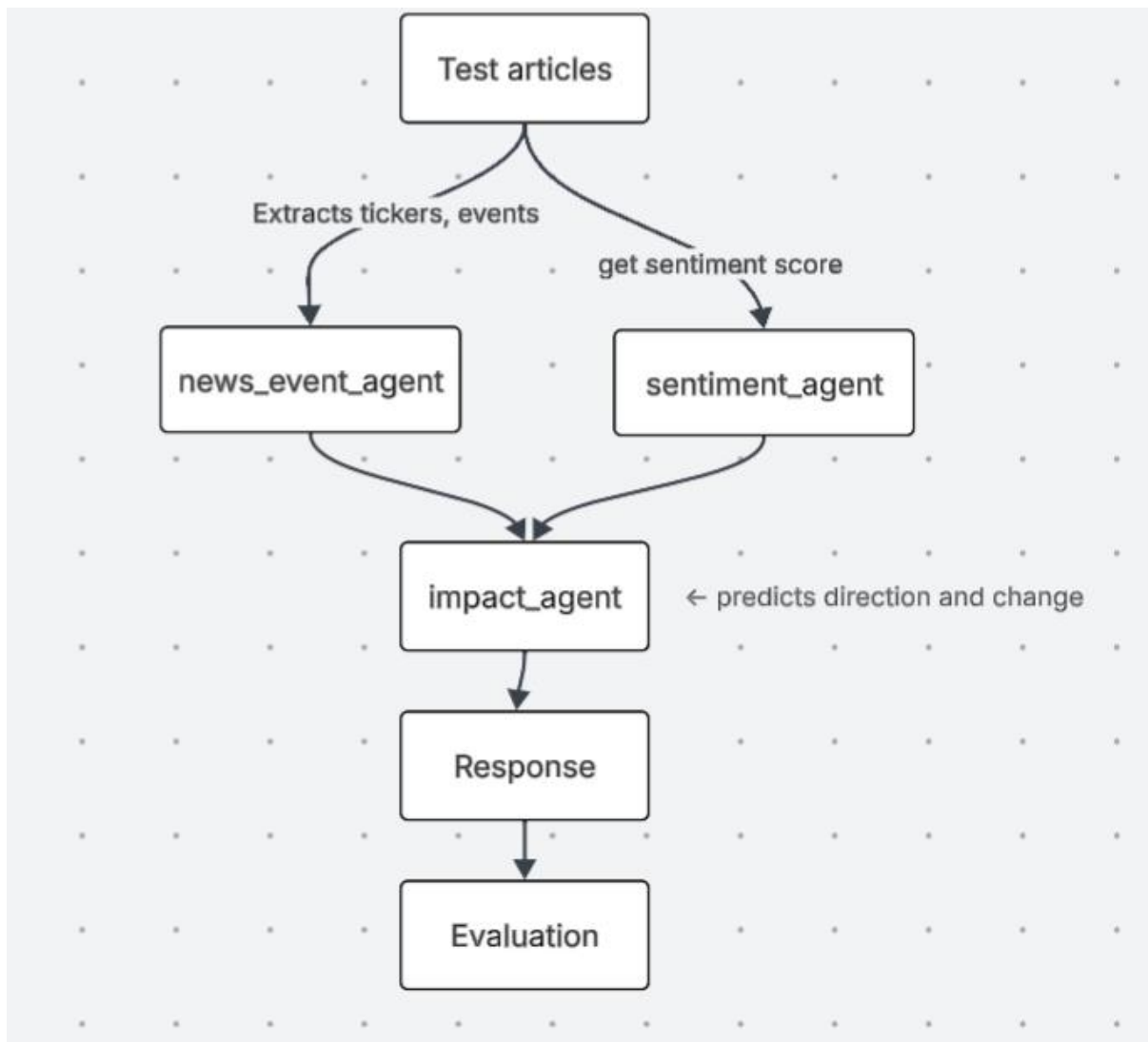
This project implements a multi-agent system to assess the market impact of financial news articles using LLMs via DeepSeek (OpenAI-compatible). It was developed as part of the AI Engineer Case Study – Option B.

Goal:

Build a multi-agent pipeline using Pydantic AI where each agent specializes in a task:

- Extracting tickers and financial events
- Performing sentiment analysis
- Estimating market movement (direction and percent change)
- Evaluating outputs using an LLM-based evaluation agent

Workflow:



Agents:

1. NewsEventAgent

- Extracts ticker symbols and financial events from the news.
- Input: headline, content
- Output: tickers, events

2. SentimentAgent

- Performs financial sentiment analysis.
- Uses: structured prompt with markdown JSON block to ensure parsability.
- Output: sentiment, confidence score (0–1)

3. ImpactPredictionAgent

- Uses ticker + sentiment + event info to predict direction and % price change.
- Output: { ticker: { direction: ..., change_pct: ... }, confidence }

4. EvaluationAgent (LLM-based scoring)

- Rates predictions and provides rationale using the article + prediction JSON.
- Score: 0–100

Evaluation:

Metrics Implemented:

- **Accuracy:** How many predicted directions matched expectations
- **Avg Confidence:** Mean of LLM model's reported confidence
- **LLM Eval Score:** Human-like quality score (0–100) by LLM evaluator

Technologies Used:

- Python, Pydantic AI, DeepSeek API (OpenAI-compatible), JSON, Regex