**Sprint-1: Multi-Source Sentiment-Driven Stock Prediction and Trading Strategy**

**Introduction**

In this sprint, the goal was to integrate sentiment analysis from multiple sources, including financial news, social media, and financial reports, into a stock market prediction model. The objective was to enhance trading decisions and improve investment returns by leveraging sentiment-driven insights. The system was designed to preprocess and analyze sentiment data, integrate it into predictive models, and validate trading strategies through backtesting and forward testing.

[US291: As a trader, I want to integrate sentiment analysis from diverse sources, including financial news, social media, and financial reports, into my stock market prediction model so that I can enhance my investment returns, make better-informed trading](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/291)

**Conditions of Satisfaction**

**Data Coverage & Quality:** Data pipelines must collect timely, relevant, and clean data from multiple sources.

**Sentiment Analysis Efficacy:** Models should accurately capture sentiment signals, including sarcasm and irony.

**Predictive Model Integration**: Sentiment features must show measurable improvements in stock predictions.

**Trading Strategy & Validation:** Sentiment-driven trading signals should be backtested and forward-tested.

**Performance Metrics:** Achieve target risk-adjusted returns and maintain controlled drawdowns.

**Documentation & Explainability:** Clear documentation of the entire process and model decisions.

**Definition of Done**

1. Data pipelines successfully collect, clean, and store sentiment data from multiple sources.

2. Sentiment analysis models achieve predefined accuracy benchmarks.

3. Predictive models incorporating sentiment data outperform baseline models.

4. Trading strategies demonstrate positive returns in backtesting, out-of-sample testing, and forward testing.

5. Risk management metrics confirm stable performance.

6. Complete documentation of models, trading strategies, and evaluation methods.

**Tasks**

[MSS 1.1: Data Collection and Processing (20 ph)](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/292)

Subtask 1: Develop pipelines for news articles (4 ph)

Subtask 2: Collect social media data (4 ph)

Subtask 3: Gather financial reports (4 ph)

Subtask 4: Clean and preprocess data (4 ph)

Subtask 5: Conduct exploratory data analysis (4 ph)

**Tasks I Worked On**

Data Collection Agent Implementation

MSS 1.1: Data Collection and Processing (20 ph) 292

Developed automated pipelines to collect and preprocess sentiment data from news, social media, and financial reports.

Implemented preprocessing steps to handle missing data, noise, and multilingual content.

Conducted exploratory data analysis to ensure data quality and relevance.

**Summary Table of Work**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **User Story ID** | **User Story** | **Story Points** | **Task ID** | **Task** | **Task Hours** | **Status** | **Actual Hours** |
| [291](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/291) | As a trader, I want to integrate sentiment analysis from diverse sources into my stock market prediction model. | 3 | [292](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/292) | MSS 1.1: Data Collection and Processing | 20 | In Progress | 20 |

## **Summary Table of Commits**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date | Commit Number | Commit Description (exactly as in github) | User Story | Task |
| 2/6/2025 | [d098a8b9fd840470223bf270e685c212543e9e48](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/pull/462/commits/d098a8b9fd840470223bf270e685c212543e9e48) | Update app.py | [291](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/291) | [292](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/292) |