**Sprint-1**

**Introduction**

In this Sprint, the purpose was to create a minimal viable working product. The following sections contain the User Stories I worked on with a detailed description of the Tasks I worked on.

**User Stories**

I worked on the following User Stories:

[TRIX 1: As a trader, I want to utilize the Trix Indicator integrated with CrewAI agents to identify momentum changes and optimize my trading decisions, so that I can enhance my trading performance and achieve better returns.](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/276)

**Conditions of Satisfiability**

**Data Fetching**  
Condition: The system must reliably retrieve accurate real-time and historical stock data.  
Test: Verify data integrity by comparing fetched data against trusted data sources.  
Satisfaction: Data fetched matches external benchmarks with no significant discrepancies.

**Indicator Calculation**  
Condition: Accurate computation of the Trix Indicator using triple-smoothed EMAs and rate of change.  
Test: Compare calculated Trix Indicator values against benchmark calculations for a selected set of stocks.  
Satisfaction: Calculations closely match benchmarks with minimal variance.

**CrewAI Investment Decisions**  
Condition: CrewAI agents must provide relevant and actionable recommendations based on Trix Indicator analysis.  
Test: Input various Trix Indicator scenarios and verify that CrewAI agents generate appropriate buy, sell, or hold recommendations.  
Satisfaction: Recommendations are consistent with Trix Indicator values and align with historical market momentum trends.

**Customization**  
Condition: Users can modify parameters such as smoothing periods.  
Test: Adjust parameters and ensure Trix Indicator calculations and CrewAI recommendations update accordingly.  
Satisfaction: Changes in parameters accurately reflect in both Trix Indicator outputs and investment recommendations without errors.

**Alerts and Notifications**  
Condition: Users can set and receive alerts based on specific Trix Indicator threshold levels.  
Test: Configure alerts for certain Trix Indicator values and verify timely and accurate notifications.  
Satisfaction: Alerts are triggered correctly and delivered promptly without false positives.

**Historical Analysis**  
Condition: The system must accurately analyze and present historical Trix Indicator data to validate current indicators.  
Test: Apply Trix Indicator to historical data and ensure momentum trends are correctly identified and displayed.  
Satisfaction: Historical momentum trends are accurately represented, aiding in the validation of current Trix Indicator signals.

**User Interface**  
Condition: The interface should be user-friendly and facilitate easy interaction with Trix Indicator and CrewAI recommendations.  
Test: Conduct usability testing with traders to ensure the interface is intuitive and meets their needs.  
Satisfaction: Users can efficiently navigate the interface, apply the Trix Indicator, and interpret CrewAI recommendations without difficulty.

**Integration with Trading Platform**  
Condition: Seamless display of CrewAI investment recommendations within existing trading platforms.  
Test: Verify that recommendations are accurately and clearly presented within the trading platform's interface.  
Satisfaction: Integration is smooth, and recommendations are displayed without technical issues or delays.

**Definition of Done**

**Functional Requirements**

* Data Fetching: Implement reliable mechanisms to fetch real-time and historical stock data.
* Calculation Engine: Accurately calculate Trix Indicator values based on fetched data.
* CrewAI Integration: Integrate CrewAI agents to analyze Trix Indicator values and generate investment recommendations.
* Customization Options: Provide user controls to adjust Trix Indicator parameters.
* Alerts System: Develop a system for setting and receiving alerts based on Trix Indicator thresholds.
* Historical Data Analysis: Enable historical analysis of Trix Indicator to validate current momentum trends.
* User Interface: Develop an intuitive interface for applying Trix Indicator and viewing CrewAI recommendations.
* Platform Integration: Ensure seamless integration with existing trading platforms to display recommendations.

**Non-Functional Requirements**

* Performance: The system must process data and update recommendations in real-time with minimal latency.
* Scalability: Capable of handling multiple users and large datasets simultaneously.
* Security: Ensure all data transmissions are secure and comply with industry standards.
* Reliability: System operates consistently without crashes or significant bugs.
* Usability: Interface is user-friendly, reducing the learning curve for new users.
* Compatibility: Functions correctly across various devices and screen sizes, including desktops, tablets, and smartphones.

**Tasks**

* TRIX.1: Implement Indicator Calculation (20 ph)
* TRIX.2: Develop Customization Features (14 ph)
* TRIX.3: Integrate Real-Time and Historical Data (18 ph)
* TRIX.4: Develop Alerts and Notifications System (12 ph)
* TRIX.5: Implement Historical Analysis Capabilities (14 ph)
* TRIX.6: Design and Develop User Interface (20 ph)
* TRIX.7: Integrate Trix Indicator with Trading Platforms (18 ph)
* TRIX.8: Develop Investment Decision Support with CrewAI (16 ph)
* TRIX.9: Ensure Security and Compliance (12 ph)
* TRIX.10: Ensure Performance and Scalability (10 ph)
* TRIX.11: Implement Backtesting Framework (18 ph)
* TRIX.12: Develop Metrics for Backtesting Evaluation (12 ph)
* TRIX.13: Automate Historical Data Selection for Backtesting (10 ph)
* TRIX.14: Implement Forward Testing Framework (16 ph)
* TRIX.15: Develop Real-Time Performance Monitoring for Forward Testing (12 ph)
* TRIX.16: Evaluate and Optimize TRIX-Based Strategies from Forward Testing (14 ph)

**Tasks I Worked On**

[**TRIX.1: Implement Indicator Calculation (20 ph)**](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/278)

I have implemented the TRIX indicator and the task was estimated at 20 hours but it took me 32 hours.

**Summary Table of Work**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| UserStory GitHub Issue ID | User Story | Story Points | Task GitHub Issue ID | Task | Task Hours | Status | Actual Hours |
| [TRIX](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/276) | As a trader, I want to utilize the Trix Indicator integrated with CrewAI agents to identify momentum changes and optimize my trading decisions, so that I can enhance my trading performance and achieve better returns |  | [TRIX.1](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/278) | Implement Indicator Calculation | 20 | Completed | 32 |

**Summary Table of Commits**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date | Commit Number | Commit Description (exactly as in github) | User Story | Task |
| February 3rd, 2025 | d6d7553d335c3710fc294b45662216065e3a6d72 | [Adding trix main and trix indicator files](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/pull/331/commits/d6d7553d335c3710fc294b45662216065e3a6d72) | [TRIX](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/276) | [TRIX.1](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/278) |
| February 3rd, 2025 | 5fe14e650b37bbc5f61e225eb456d6dad61999eb | [Update import statements](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/pull/331/commits/5fe14e650b37bbc5f61e225eb456d6dad61999eb) | [TRIX](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/276) | [TRIX.1](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/278) |
| February 3rd, 2025 | 306b83f0aaabbd58b67002b46df54e4eced0a1eb | [Update the import path](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/pull/331/commits/306b83f0aaabbd58b67002b46df54e4eced0a1eb) | [TRIX](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/276) | [TRIX.1](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/278) |
| February 3rd, 2025 | f7c852bd23a4c3ac510ce3e6345dfdfaf4445eeb | [Updated and added the files](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/pull/331/commits/f7c852bd23a4c3ac510ce3e6345dfdfaf4445eeb) | [TRIX](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/276) | [TRIX.1](https://github.com/Rivier-Computer-Science/AI-Agent-Stock-Prediction/issues/278) |