



CODECELL-CMPN,VESIT

SYRUS HACKATHON 2025

Category Code: C5

Problem Statement Title: InvestWise AI: Intelligent Wealth Creation Platform (Investment & Stock Market Insights)

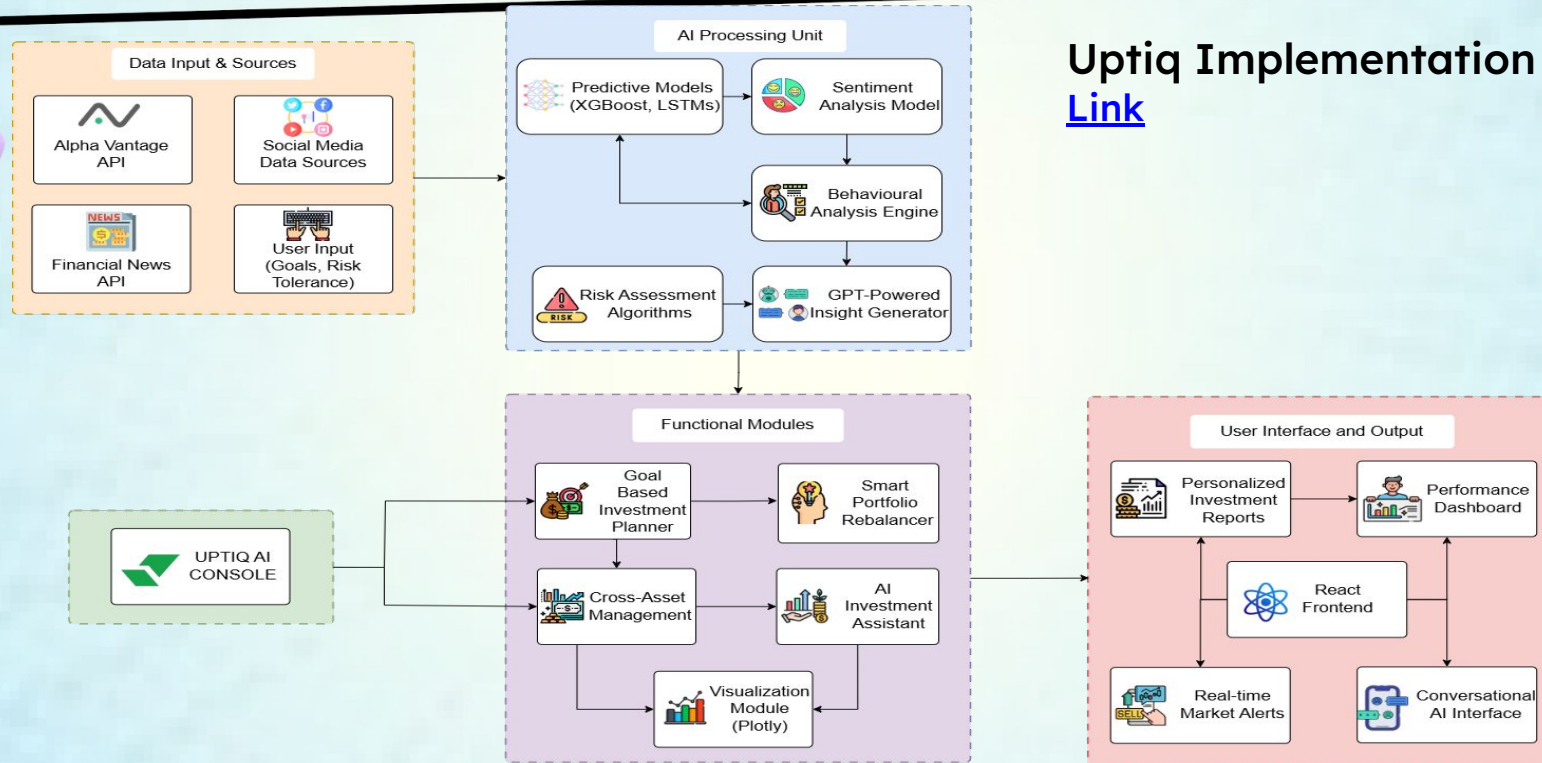
Team Name: EPIC BYTES

Institute Name: Vivekanand Education Society's Institute of Technology



Idea / Approach details (& implemented features)

Uptiq Implementation Link: [Link](#)



Innovation (Showstopper)

AI Powered Investment Assistant

Live Data: Fetch real-time stock and market data via Alpha Vantage API.

AI Insights: Predict trends using XGBoost & LSTM models.

Smart Rebalancer

Monitors portfolios and suggests rebalancing based on market volatility.

Behavioral Analysis:

Tracks Patterns: Analyzes past investments to understand user behavior.

Stock Recommendations: Suggests stocks based on user preferences (e.g., growth, tech).

Goal-Based Investment Planning:

Set Financial Goals: Users define goals (e.g., buying a house), and the system calculates how much to invest.

Optimal Strategy: Recommends monthly investments and asset allocation based on user goals and timelines.

Sentiment Analysis:

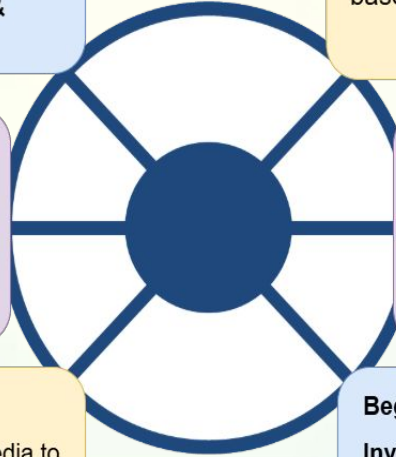
Market Sentiment: Analyzes news and social media to gauge stock mood (e.g., "Positive sentiment for AAPL").

Guided Decisions: Helps users make informed decisions based on sentiment.

Beginner-Friendly Chatbot:

Investment Guidance: Suggests beginner-friendly investments (e.g., ETFs).

Personalized Assistance: Answers investment questions and guides users.



Innovation (Showstopper)

Real-Time Stock Insights Using UPTIQ AI:

Data Collection:

Use UPTIQ's Market Data API to fetch real-time stock data, including historical prices, market indices, sectors, and individual stock data. You can set up API calls to retrieve:

- Stock prices
- Market indices
- Sector performance
- Historical price data for trend analysis

Model Deployment (XGBoost & LSTM):

UPTIQ's Model Hub: You can deploy predictive models such as XGBoost and LSTM (Long Short-Term Memory) using UPTIQ's Model Hub.

1. XGBoost will be used to analyze historical stock data and identify potential trends and patterns.
2. LSTM is ideal for time-series forecasting, predicting stock price movements over time.



Innovation (Showstopper)

Goal-Based Investment Planning Using UPTIQ AI:

1. **Financial Goal Setting:**
 - **User Input:** Users specify their financial goal (e.g., buying a house, saving for retirement), target amount (e.g., \$200,000), and timeline (e.g., 10 years).
 - **UPTIQ AI:** Collect and store user inputs using **Input** and **Question** actions in UPTIQ.
2. **Predictive Model for Optimal Investment Strategy:**
 - **Model Deployment:** Use **UPTIQ's Model Hub** to deploy models like **XGBoost** and **LSTM** for analyzing market data and calculating the best strategy.
 - **XGBoost:** Analyzes past stock performance and suggests asset allocation.
 - **LSTM:** Predicts potential returns using time-series forecasting.
 - **Calculation:** Models calculate the required monthly investment (e.g., "Invest \$600/month in a diversified portfolio with 8% expected return over 8 years").
3. **Providing Recommendations:**
 - **Output:** UPTIQ generates an optimal investment plan, displayed to the user.
 - Example: "To reach your \$200,000 goal in 10 years, invest \$600/month in a balanced portfolio with 8% expected return."



Innovation (Showstopper)

Sentiment Analysis Using UPTIQ AI:

1. Market Sentiment Analysis:

- **User Input:** Users specify the stock or asset they are interested in (e.g., "AAPL" or "S&P 500").
- **UPTIQ AI:** Use **RAG Query** or **Vector Search** to retrieve relevant financial news, social media posts, and analyst opinions.

2. Sentiment Evaluation:

- **NLP Model:** Use **BERT** or **RoBERTa** models deployed on UPTIQ's Model Hub to analyze the sentiment of the gathered data (e.g., positive, neutral, or negative sentiment around a stock).
- **Analysis:** Sentiment score is calculated based on the aggregated news and social media data. It helps understand the mood around a stock, such as "positive sentiment for AAPL."

3. User Output:

- **Display:** UPTIQ uses **Display** action to present the sentiment analysis result to the user, providing actionable insights like "Positive sentiment for AAPL due to strong earnings" or "Negative sentiment for TSLA due to market volatility."



Innovation (Showstopper)

Sentiment Analysis Using UPTIQ AI (RAG-Enhanced):

1. Market Sentiment Analysis:

- **User Input:** Users specify the stock or asset they want insights on (e.g., “AAPL” or “S&P 500”).
- **UPTIQ AI: Retrieval-Augmented Generation (RAG):** Uses **Vector Search** to fetch relevant financial news, social media posts, and analyst opinions from the **MongoDB vector store** indexed with OpenAI’s **text-embedding-3-large** model.
- **LLM-Enhanced Insights: GPT-3.5 Turbo (Azure)** generates contextualized responses based on the retrieved data.

2. Sentiment Evaluation:

- A **sentiment score** is calculated by aggregating news, social media data, and expert opinions.
- Example: “Positive sentiment for AAPL due to strong earnings” or “Negative sentiment for TSLA due to market volatility.”

3. User Output:

- **Display Action:** Sentiment analysis results are presented with key insights, supported by **retrieved evidence via RAG** for transparency.



Innovation (Showstopper)

Behavioral Analysis Using UPTIQ AI:

1. **User Behavior Tracking:**
 - **User Input:** Users input their investment preferences, past investments, and risk tolerance (e.g., "I prefer growth stocks" or "I've invested in tech stocks").
 - **UPTIQ AI:** Use **Input** actions to capture this data and store it for behavioral analysis.
2. **Clustering for Personalized Recommendations:**
 - **Clustering Algorithm:** Use **K-Means** or **DBSCAN** clustering algorithms deployed on UPTIQ's Model Hub to segment users based on their past investment patterns and risk tolerance.
 - **Analysis:** The system identifies patterns like "high-risk tolerance, growth stock preference" or "low-risk tolerance, stable dividend stocks preference."
3. **Stock Recommendations:**
 - **Personalized Recommendations:** Based on the clusters, UPTIQ provides personalized stock recommendations. For example, for a user with high risk tolerance, the system might suggest "Consider investing in TSLA or NVDA."
 - **Output:** Use the **Display** action to show the recommendations, guiding users to investment opportunities that align with their behavior and preferences.



Innovation (Showstopper)

Smart Rebalancer Using UPTIQ AI:

User Portfolio Input:

- **User Input:** Users provide their current portfolio details (assets, risk tolerance, and preferences).
- **UPTIQ AI:** Use Input actions to collect and store this data for rebalancing analysis.

Market Data Collection:

- **Data Collection:** Use UPTIQ's Market Data API to fetch real-time data on stocks, bonds, and other assets in the portfolio.
- **Risk & Performance Metrics:** Retrieve key metrics like asset performance and market volatility.

Portfolio Monitoring and Prediction:

- **AI Models:** Use LSTM and XGBoost deployed on UPTIQ's Model Hub to predict market trends and forecast future asset performance.
- **Risk Assessment:** Calculate portfolio risk (e.g., Value-at-Risk) based on market conditions.

Rebalancing Suggestions:

- **Optimization Logic:** Based on predictions, UPTIQ AI calculates the optimal portfolio adjustments (e.g., increase bonds, reduce tech stocks).
- **Proactive Advice:** Recommend actions like "Increase bond allocation by 5%" during market volatility.

Displaying Recommendations:

- **User Output:** Use UPTIQ's Display action to show rebalancing recommendations and visualizations (e.g., pie charts of portfolio allocations).



Tech Stack

Frontend



- React(Vite.js)

Backend



- Node.js, Express.js
- XGBoost, LSTMs

Data Handling and APIs

- Alpha Vantage API
- Mongo DB
- JSON, CSV



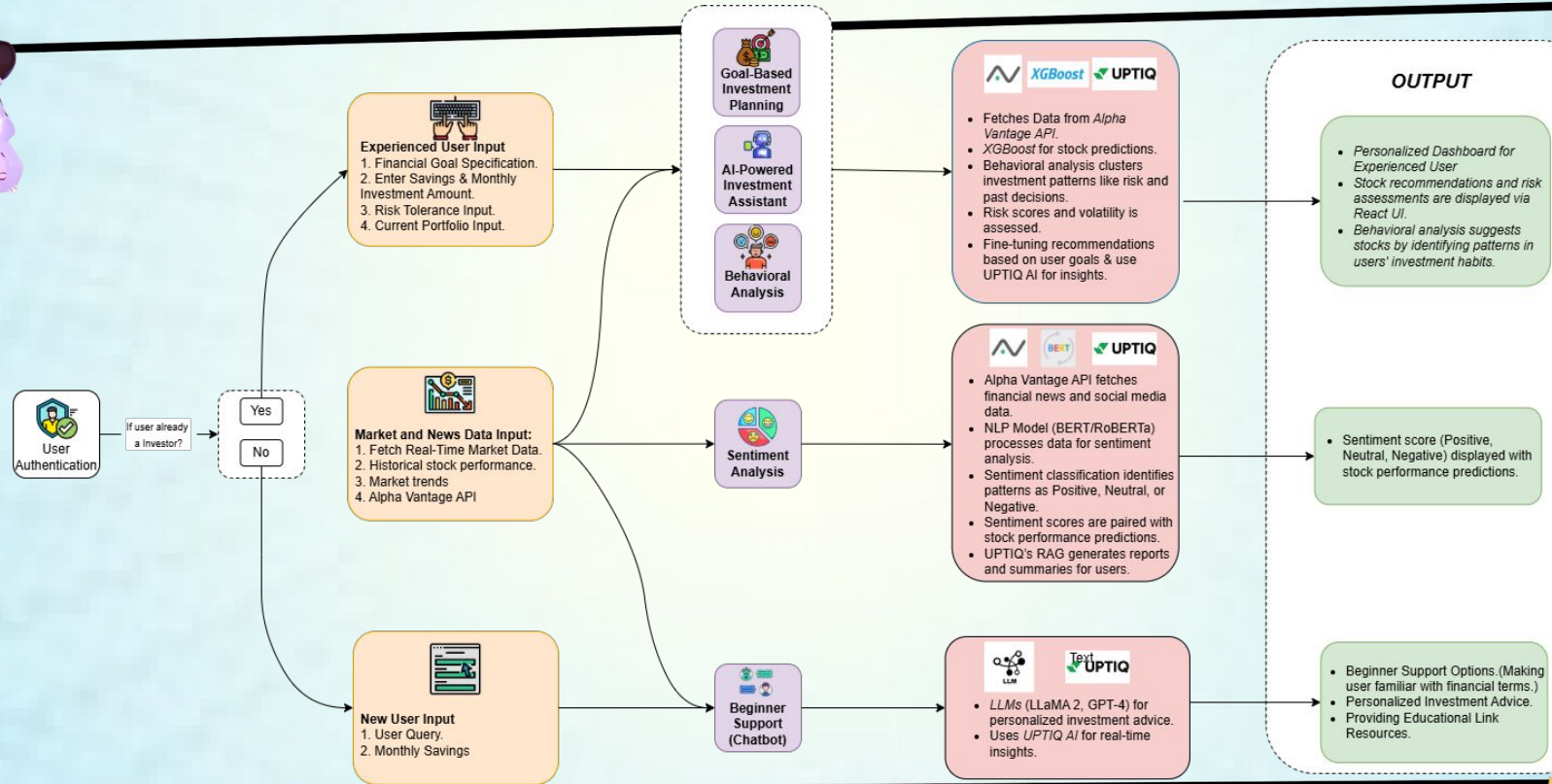
UPTIQ AI



- AI Model Hosting
- AgenticAI Automatⁿ
- Gen AI Reporting



Implementation/Prototype/Use Case Diagram (screenshots)



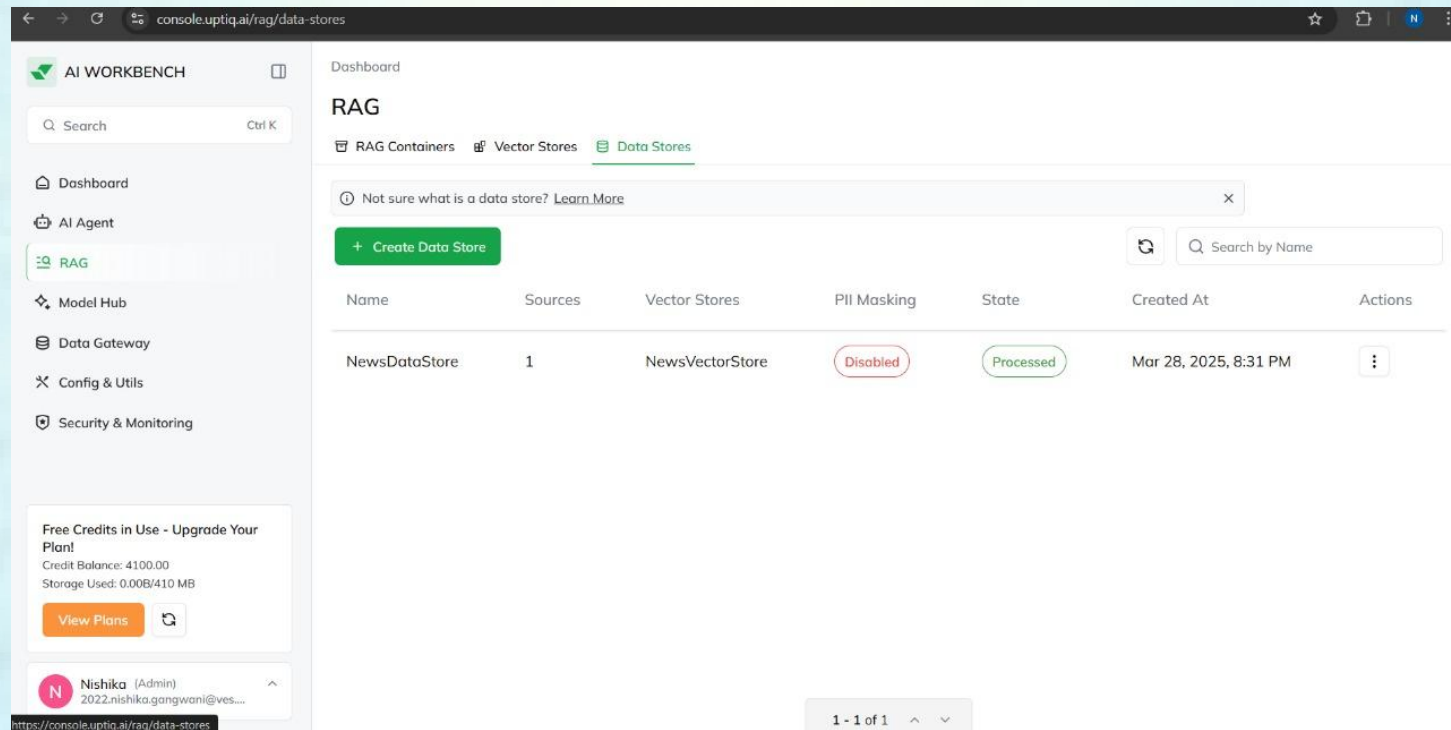
Implementation of Sentiment Analysis

Steps

- 1) Created a API key in NewsAPI.
- 2) Ran a Python Code and got a JSON file which we then converted to CSV due to some incompatibility issues.
- 3) Then we created Data sources after that created vector store and after that we made a RAG Container.
- 4) We choose the LLM model as GPT-3.5 Turbo Azure.
- 5) Then the model was working fine with the queries it was tried on.



Implementation of Sentiment Analysis



console.uptiq.ai/rag/data-stores

AI WORKBENCH

Search Ctrl K

Dashboard

AI Agent

RAG

Model Hub

Data Gateway

Config & Utils

Security & Monitoring

Free Credits in Use - Upgrade Your Plan!

Credit Balance: 4100.00

Storage Used: 0.00B/410 MB

View Plans

Nishika (Admin)
2022.nishika.gangwani@ves...

Dashboard

RAG

RAG Containers Vector Stores Data Stores

Not sure what is a data store? [Learn More](#)

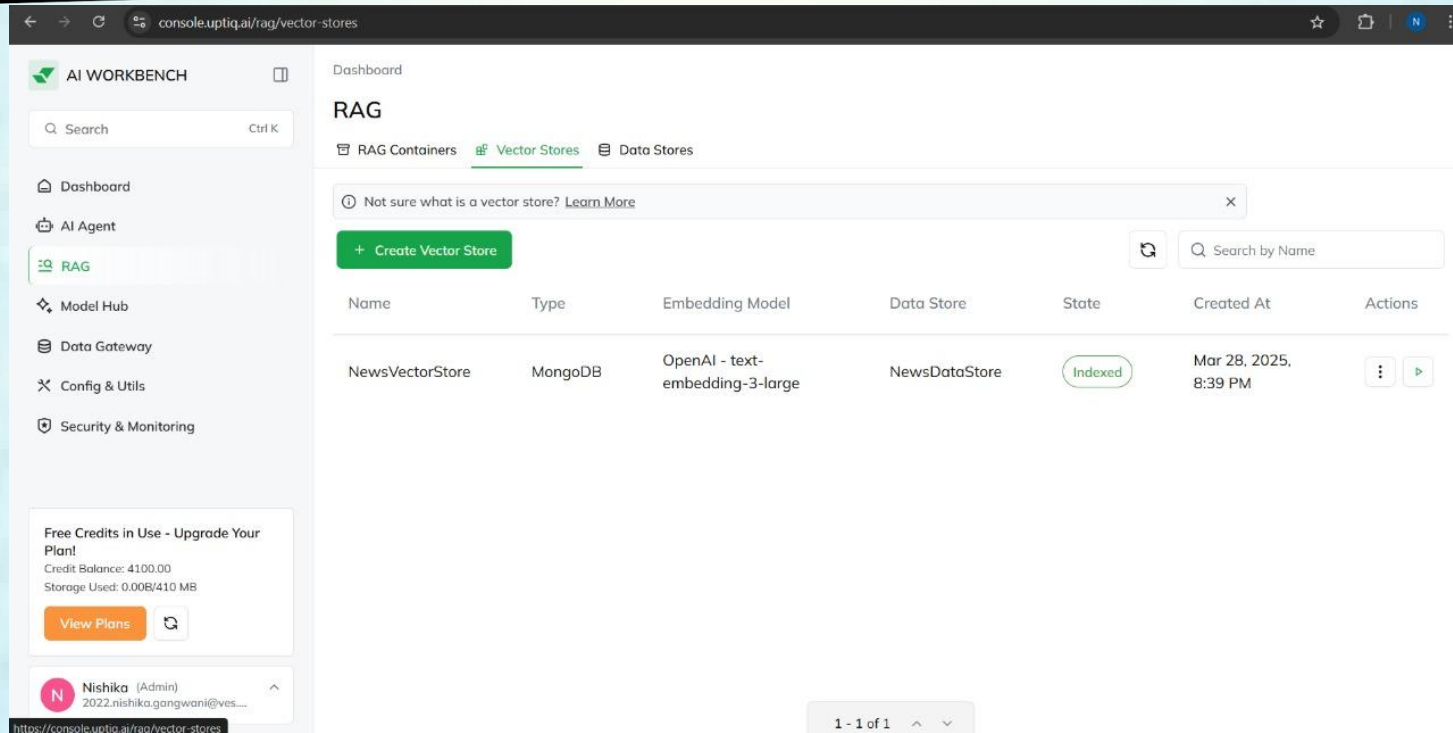
+ Create Data Store

Search by Name

Name	Sources	Vector Stores	PII Masking	State	Created At	Actions
NewsDataStore	1	NewsVectorStore	Disabled	Processed	Mar 28, 2025, 8:31 PM	

1 - 1 of 1

Implementation of Sentiment Analysis



The screenshot displays the Uptiq AI console interface for managing Retrieval-Augmented Generation (RAG) components. The left sidebar contains navigation links for AI WORKBENCH, Dashboard, AI Agent, RAG (selected), Model Hub, Data Gateway, Config & Utils, and Security & Monitoring. The main content area is titled 'RAG' and shows the 'Vector Stores' tab. A table lists the existing vector store, 'NewsVectorStore', which uses MongoDB as the type, OpenAI - text-embedding-3-large as the embedding model, and NewsDataStore as the data store. The state is 'Indexed' and it was created on Mar 28, 2025, at 8:39 PM. A '+ Create Vector Store' button is available for adding new stores. A bottom status bar shows the user 'Nishika (Admin)' and the URL 'https://console.uptiq.ai/rag/vector-stores'.

console.uptiq.ai/rag/vector-stores

AI WORKBENCH

Search Ctrl K

Dashboard

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https://console.uptiq.ai/rag/vector-stores

Dashboard

RAG

RAG Containers Vector Stores Data Stores

Not sure what is a vector store? Learn More

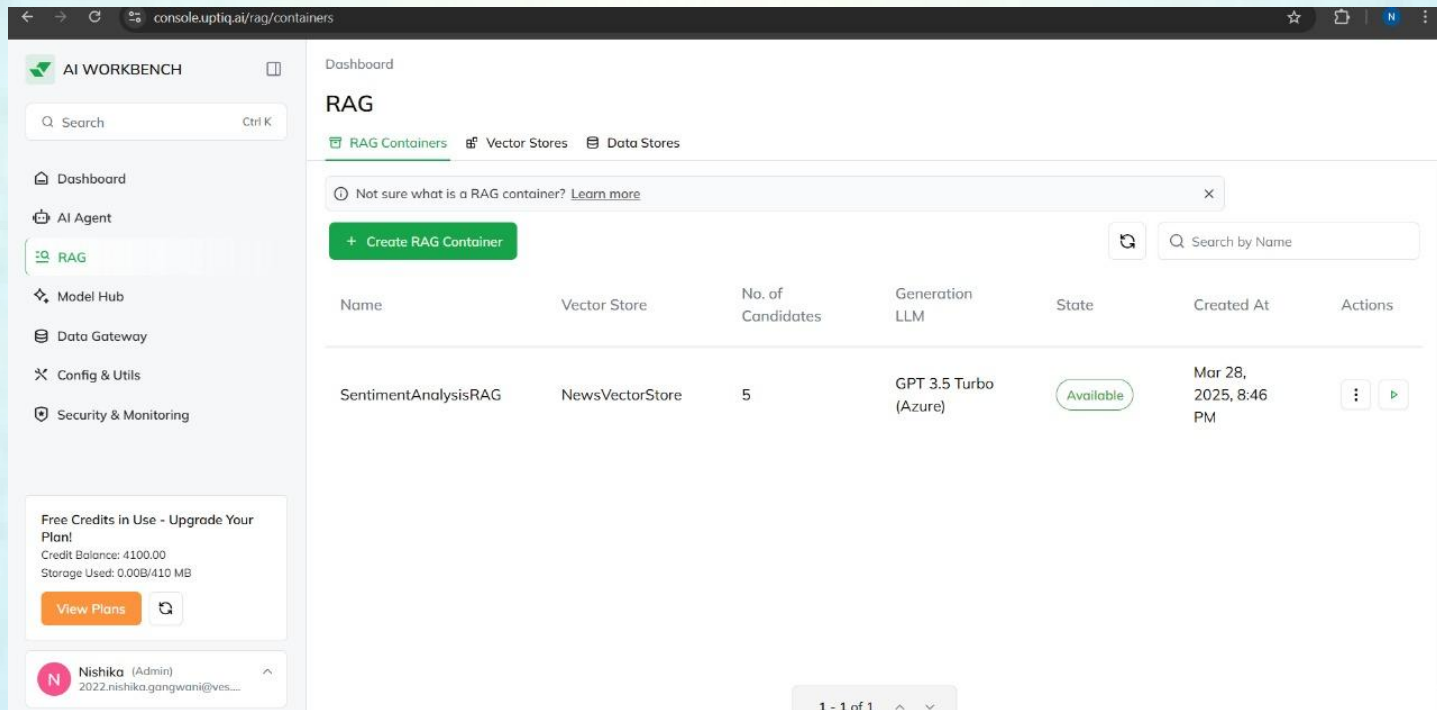
+ Create Vector Store

Search by Name

Name	Type	Embedding Model	Data Store	State	Created At	Actions
NewsVectorStore	MongoDB	OpenAI - text-embedding-3-large	NewsDataStore	Indexed	Mar 28, 2025, 8:39 PM	

1 - 1 of 1

Implementation of Sentiment Analysis



console.uptiq.ai/rag/containers

AI WORKBENCH

Search Ctrl K

Dashboard

AI Agent

RAG

Model Hub

Data Gateway

Config & Utils

Security & Monitoring

Free Credits in Use - Upgrade Your Plan!

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Storage Used: 0.00B/410 MB

View Plans

Nishika (Admin)

2022.nishika.gangwani@ves...

Dashboard

RAG

RAG Containers Vector Stores Data Stores

Not sure what is a RAG container? [Learn more](#)

+ Create RAG Container

Search by Name

Name	Vector Store	No. of Candidates	Generation LLM	State	Created At	Actions
SentimentAnalysisRAG	NewsVectorStore	5	GPT 3.5 Turbo (Azure)	Available	Mar 28, 2025, 8:46 PM	

1 - 1 of 1

Implementation of Sentiment Analysis

▶ RAG Playground



GPT 3.5 Turbo (Azure)
An economical model
designed for speed and
simple tasks.

SentimentAnalysisRAG

Filter

Config



Retrieve the top 5 news articles about AAPL and provide a summary of their content.



Based on 5 sources

I can provide summaries of the top 5 news articles about AAPL based on the information available in the dataset. Here are the summaries:

1. Article 1:

- Title: CIBC World Market Inc. Acquires 117,592 Shares of Apple Inc.
- Description: CIBC World Market Inc. increased its holdings in Apple Inc. by 2.8% in the fourth quarter. The institutional investor acquired 117,592 shares of Apple Inc. This acquisition shows a positive sentiment towards the company's stock.

2. Article 2:

- Title: FSA Investment Group LLC Invests \$495,000 in Apple Inc.
- Description: FSA Investment Group LLC invested \$495,000 in Apple Inc. during the 4th quarter, acquiring 2,123 shares of the company's stock. This

Enter query

Send



Implementation of Sentiment Analysis

RAG Playground



GPT 3.5 Turbo (Azure)
An economical model designed for speed and simple tasks.

SentimentAnalysisRAG

Filter

Config



Retrieve the top 5 news articles about TSLA and provide a summary of their content.



Based on 5 sources

I will provide summaries of the available news articles about TSLA from the dataset:

1. Article 1:

- Title: Best Electric Vehicle Stocks To Add to Your Watchlist – March 25th
- Description: MarketBeat's stock screener tool recommends seven Electric Vehicle stocks to watch, including Tesla, Shell, Baidu, Rivian Automotive, XPeng, Vale, and NIO. These stocks represent companies in the electric vehicle industry and are highlighted for potential investor consideration.

2. Article 2:

- Title: Tesla, Inc. (TSLA) Deliveries Fall Short, But Morgan Stanley Says It's Still an AI Winner
- Description: Despite falling short on deliveries, Tesla, Inc. (TSLA) is noted to be a winner in the field of AI. The article provides insights into Tesla's position and performance as an AI leader, potentially influencing investor sentiment.

Enter query

Send



Implementation of Sentiment Analysis

Build an AI Agent

decisions like buy (positive), sell (negative), or hold (neutral); and format structured insights in the format "Summary: [summary text]. Sentiment: [sentiment]. Investment Recommendation: [recommendation] [SYMBOL] stock" for seamless integration with the platform's React frontend, ensuring users can make informed investment decisions based on market sentiment.

Building AI Agent

- ✓ Created AI Agent: Financial Sentiment Analyzer Agent
- ✓ Created Sub Agent: News Sentiment Analysis
- ✓ Created Sub Agent: Investment Recommendation Generation

AI Agent and all the sub agents created successfully!

We have created a skeleton for your agent, you can start configuring it! [Click here](#) to access your AI Agent.

Enter query

Send

Financial Sentiment Analyzer Agent

AI Agent Summary

2 Sub Agents

2 Total Intents

Sub Agents

News Sentiment Analysis 1 Intent

Investment Recommendation Generation 1 Intent

Implementation of Sentiment Analysis

Build an AI Agent

decisions like buy (positive), sell (negative), or hold (neutral); and format structured insights in the format "Summary: [summary text]. Sentiment: [sentiment]. Investment Recommendation: [recommendation] [SYMBOL] stock" for seamless integration with the platform's React frontend, ensuring users can make informed investment decisions based on market sentiment.

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Send

Financial Sentiment Analyzer Agent

AI Agent Summary

2 Sub Agents

2 Total Intents

Sub Agents

News Sentiment Analysis 1 Intent

Investment Recommendation Generation 1 Intent

Implementation of Sentiment Analysis



Financial Sentiment Analyzer Agent

financial-sentiment-analyzer-agent-2379

Try Agent

Basic Config

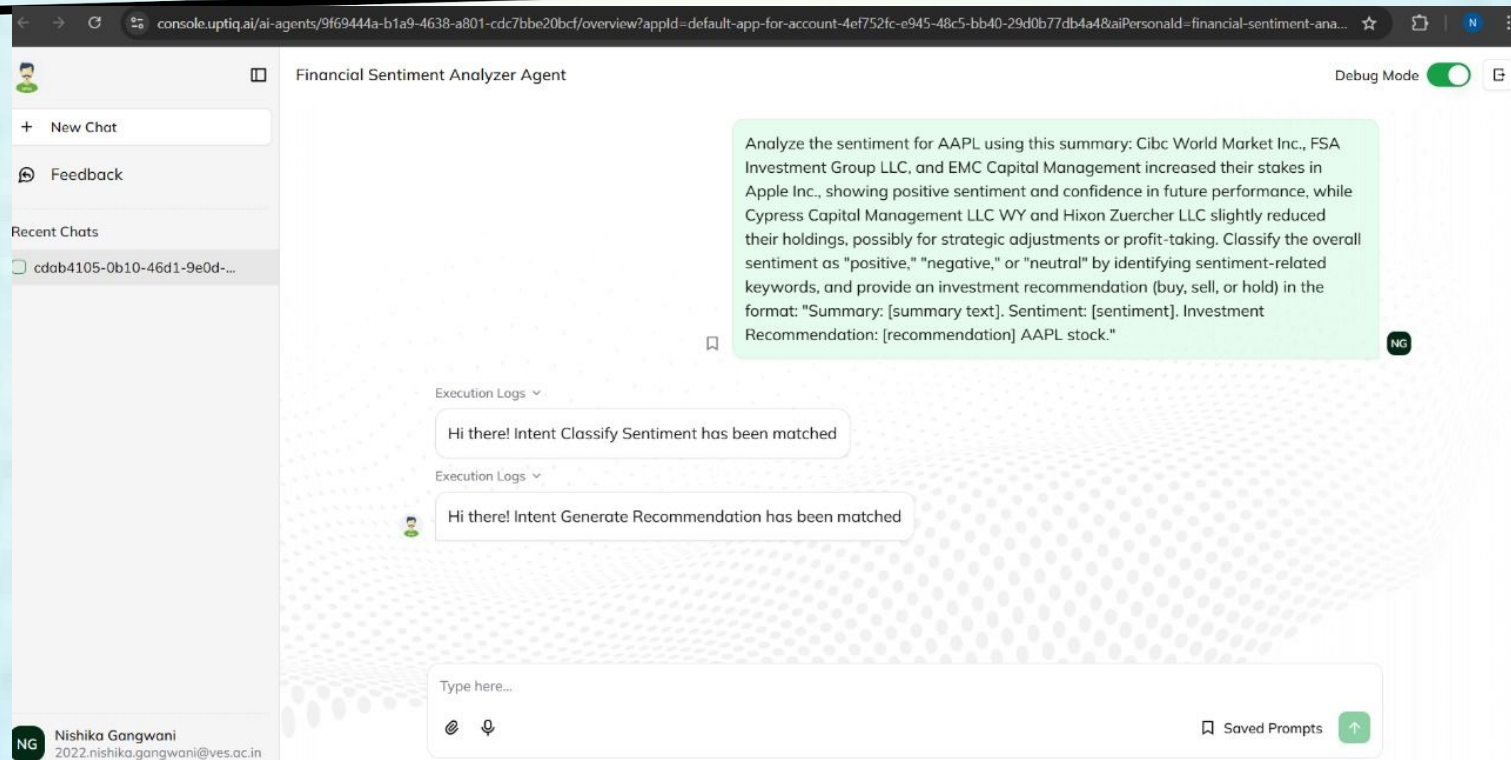
Overview Sub Agents Workflows Knowledge PII Masking Secrets & Variables Agentic App Widgets Integrations Triggers



+ -



Implementation of Sentiment Analysis



The screenshot displays a web application titled "Financial Sentiment Analyzer Agent". The interface includes a sidebar on the left with a "New Chat" button, a "Feedback" button, and a "Recent Chats" section. The main area shows a chat conversation with a green message box containing a detailed instruction: "Analyze the sentiment for AAPL using this summary: CIBC World Market Inc., FSA Investment Group LLC, and EMC Capital Management increased their stakes in Apple Inc., showing positive sentiment and confidence in future performance, while Cypress Capital Management LLC WY and Hixon Zuercher LLC slightly reduced their holdings, possibly for strategic adjustments or profit-taking. Classify the overall sentiment as 'positive,' 'negative,' or 'neutral' by identifying sentiment-related keywords, and provide an investment recommendation (buy, sell, or hold) in the format: 'Summary: [summary text]. Sentiment: [sentiment]. Investment Recommendation: [recommendation] AAPL stock.'" Below this, two system messages are visible: "Hi there! Intent Classify Sentiment has been matched" and "Hi there! Intent Generate Recommendation has been matched". At the bottom, there is a "Type here..." input field, a "Saved Prompts" button, and a user profile for "Nishika Gangwani" with the email "2022.nishika.gangwani@ves.ac.in". A "Debug Mode" toggle is located in the top right corner.

Financial Sentiment Analyzer Agent

Debug Mode ☒

Analyze the sentiment for AAPL using this summary: CIBC World Market Inc., FSA Investment Group LLC, and EMC Capital Management increased their stakes in Apple Inc., showing positive sentiment and confidence in future performance, while Cypress Capital Management LLC WY and Hixon Zuercher LLC slightly reduced their holdings, possibly for strategic adjustments or profit-taking. Classify the overall sentiment as "positive," "negative," or "neutral" by identifying sentiment-related keywords, and provide an investment recommendation (buy, sell, or hold) in the format: "Summary: [summary text]. Sentiment: [sentiment]. Investment Recommendation: [recommendation] AAPL stock."

Execution Logs ▾

Hi there! Intent Classify Sentiment has been matched

Execution Logs ▾

Hi there! Intent Generate Recommendation has been matched

Type here...

NG Nishika Gangwani
2022.nishika.gangwani@ves.ac.in

Saved Prompts

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

UPTIQ Platform Features

- ❖ **Sentiment Analysis**
 - Scans financial news and social media with BERT/roBERTa.
 - Tracks trends, updates sentiment, and suggests stocks using **UPTIQ Agentic AI**.
- ❖ **Goal-Based Planning**
 - Accesses market data via Model Hub.
 - Creates financial plans (e.g., \$500/month for a \$100k house).
 - Offers guidance using **UPTIQ RAG Model**.
- ❖ **Smart Rebalancer**
 - Assesses market volatility with LSTMs.
 - Adjusts assets (e.g., reduce tech by 5%).
 - Ensures trust using **UPTIQ Agentic AI**.
- ❖ **Behavioral Analysis**
 - Evaluates trading habits and updates clusters with K-Means.
 - Recommends stock picks (e.g., TSLA) via **UPTIQ Agentic AI**.
- ❖ **Investment Assistant**
 - Gathers data via **Alpha Vantage/XGBoost**.
 - Customizes stock recommendations and adds market context.
 - Provides insights using **UPTIQ RAG Model**.

UPTIQ RAG Model Features

- ❖ **Personalized Summaries**
 - Generate daily/weekly portfolio performance reports.
 - Provide contextual market insights.
 - Adapt reports based on user preferences.
- ❖ **Beginner Support Chatbot**
 - Deploy conversational **AI using LLMs**.
 - Provide guided financial advice.
 - Generate adaptive responses based on user queries.



Future Objectives

- **Expand Data Sources Globally**

Integrate international market data using APIs like Quandl and FRED for diversified insights.

- **Enhance AI Model Accuracy**

Improve prediction reliability with explainable AI using advanced models like XGBoost and LSTMs.

- **Support Diverse Asset Classes**

Enable investments in cryptocurrencies, REITs, and commodities for comprehensive portfolio management.

- **Hyper-Personalize User Experience**

Offer AI-driven dashboards tailored to individual goals and risk profiles, adding gamified challenges for engagement.

- **Implement Real-Time Stress Testing**

Simulate market shocks and economic scenarios to provide proactive risk management strategies.

- **Introduce AI-Driven Tax Optimization**

Analyze gains using tax data APIs and recommend tax-efficient strategies to maximize user savings.

