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# **SENTIMENTPULSE**

By Team Spirit

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**01**

## *Team Member Roles and Responsibilities*

# ***Team Member Roles and Responsibilities***



***Sandhya Reddy Kallem***

Frontend developer



***Dhruv Maheshbhai  
Ranpariya***

Frontend Developer



***Yashwanth Thalla***

Backend Developer

# *Team Member Roles and Responsibilities*



***Hema Durga Prasad Chittala***  
Backend Developer



***Sravan Kumar Ganji***  
Machine Learning Engineer



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# *Problem Statement*

# **Problem Statement**

Today's constantly changing financial market often leaves the investors bombarded with unedited, undirected news from numerous sources thus it is hard for them to quickly understand the relevance and likely effect of such articles. Without a real-time sentiment analysis tool, investors will have to manually read the news which is a time-consuming, prejudiced, and exclusion of trading opportunities or wrong decisions can result. This missing automated tool for the determination of sentiment is the main cause of persistent decision-making hurry and hence affects the sole consistency of the trading behavior.



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# *Project Description*

# Project Description

Project Name:	SentimentPulse
Team:	Team Spirit
Project Description:	<p>For stock market traders and investors who need to stay informed about stock market news, the SentimentPulse application is a news aggregator and sentiment analysis tool that pulls in stock market news from various sources and analyzes each article's sentiment (positive, negative, or neutral) using AI. Unlike traditional news platforms or manual research, our application allows users to filter news based on sentiment, relevance, and stock symbols, helping them make faster and more informed trading decisions.</p>
Benefit Outcomes:	<p>Faster decision-making by filtering news based on sentiment, relevance, and stock symbols.</p> <p>Improved accuracy in evaluating stock market news with AI-driven sentiment analysis.</p> <p>Time savings by centralizing stock market news from various sources.</p>
Github Link:	<a href="https://github.com/htmw/2024F-Team-Spirit/wiki">https://github.com/htmw/2024F-Team-Spirit/wiki</a>

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# PERSONAS

# Rajesh Verma (India)



- **Age:** 35
- **Occupation:** Software Engineer
- **Experience with Investing:** 5 years
- **Location:** Bengaluru, India
- **Investment Strategy:** Rajesh focuses on Indian stocks with occasional investments in U.S. tech stocks. He uses fundamental analysis and stays updated through financial news. However, he struggles to keep up with the sheer volume of news and seeks AI-driven tools to help quickly evaluate relevant stock-related information.
- **Goal:** To make faster, data-driven decisions on stock purchases or sales, particularly for his tech-heavy portfolio, while balancing his work schedule.

# *Elsa Thompson (United States)*



**Age:** 28

**Occupation:** Financial Analyst

**Experience with Investing:** 7 years

**Location:** New York, USA

- **Investment Strategy:** Elsa tracks market trends, particularly in the energy and healthcare sectors. She relies on research and sentiment data to make informed decisions but finds it challenging to manually sift through a large volume of news. She needs an AI-driven platform to prioritize relevant news efficiently.
- **Goal:** To improve her efficiency in analyzing news to make informed recommendations to clients and colleagues, while staying ahead of fast-moving market trends.

# **Lucas Müller (Germany, Europe)**



**Age:** 45

**Occupation:** Independent Investor & Trader

**Experience with Investing:** 15 years

**Location:** Munich, Germany

**Investment Strategy:** Lucas focuses on European and U.S. stock markets, relying on global news to inform his decisions. He's interested in using AI tools to assess the impact of international news on specific stocks, aiming to automate part of his decision-making process and reduce emotional trading.

**Goal:** To leverage AI-driven sentiment analysis to enhance his stock trading strategies and make faster, more informed decisions, particularly when reacting to international news.



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# *Technologies*

# *Technologies*



## *Backend*

Flask, Express JS

## *Frontend*

ReactJS

## *Database*

MongoDB

## *Machine Learning*

PyTorch, Huggingface

## *API*

NewsAPI

## *Cloud Hosting*

GCP

# ***Backend***

## ***What is it?***

Flask is a lightweight Python web framework, and Express JS is a fast and minimalist web framework for Node.js.



## ***How is it used?***

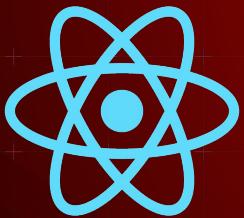
Flask or Express JS will be used to handle backend logic, manage API requests, and serve data between the frontend and the database, enabling communication between the sentiment analysis AI and the stock market news aggregator.

ex

# *Frontend*

## *What is it?*

ReactJS is a popular JavaScript library for building interactive user interfaces.



## *How is it used?*

ReactJS will be used to build the web application's dynamic and responsive frontend, allowing users to interact with the platform, view stock market news, and access AI-driven sentiment insights.

# **DATABASE**

## ***What is it?***

MongoDB is a NoSQL database designed for flexibility and scalability, storing data in JSON-like documents.



## ***How is it used?***

MongoDB will store news articles, user preferences, and AI-generated sentiment analysis, enabling fast retrieval and updates as new data comes in from the API.

# ***Machine learning***

## ***What is it?***

PyTorch is a machine learning framework, and Huggingface is a platform that provides pre-trained models and tools for NLP tasks.



## ***How is it used?***

PyTorch and Huggingface will be used to develop and deploy sentiment analysis models that process stock market news and classify the sentiment of each article (positive, neutral, or negative).

# API

## *What is it?*

NewsAPI is a service that provides access to news articles from various sources around the world.

## *How is it used?*

NewsAPI will be integrated into the backend to pull relevant stock market news articles, which will be processed by the sentiment analysis model before being displayed to users.

# *Cloud Hosting*

## *What is it?*

Google Cloud Platform is a suite of cloud computing services that provides infrastructure for hosting applications.



## *How is it used?*

GCP will host the web application, manage the backend servers, store data, and provide the resources necessary for running the machine learning models and API integrations efficiently.



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# Algorithm

# **Algorithm**

## ***What is BERT?***

BERT is an advanced Natural Language Processing (NLP) model developed by Google. It is formulated on the Transformer architecture and is devised to comprehend the context of a word in a sentence by studying it in both directions—left and right from the word—thus, it is very useful for sentiment analysis tasks, for example, understanding the sentiment of the text.

## ***In what way is it applied?***

In the context of your project, BERT can be utilized through Huggingface to analyze stock market news articles and perform sentiment analysis. It will monitor the text and determine the sentiment(s) expressed in the news as positive, neutral, or negative. Therefore the technology enabling the categorization of each news piece and, consequently the provision of sentiment insights to the investors that quick assess of how the news may impact the stock performance. BERT's success in learning complex language patterns makes sentiment analysis more precise, which gives a more well-founded recommendation compared to the traditional NLP models.

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# *Project Schedule*

# *Daily Standups*

15 minutes for daily updates.

## *Weekly Sprint Planning*

One hour to discuss the upcoming sprint and priorities.

## *Sprint*

## *Retrospective*

At the end of each sprint to discuss what went well and what needs improvement.

# **All Sprints**

***Sprint 0***

**09/26**

***Sprint 1***

**10/24**

***Sprint 2***

**11/21**

***Sprint 3***

**12/12**

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# *Team Agreement*

# **Team Agreement**

- **Meetings:** Team meetings every Wednesday and Thursday at 7 PM.
- **Communication:** Use Slack for daily communication and GitHub for code reviews.
- **Commitment:** Each team member is responsible for completing tasks by their deadline.
- **Work Submission:** Ensure all tasks are submitted for review at least 24 hours before deadlines.
- **Accountability:** If a task cannot be completed, notify the team at least 48 hours in advance.
- **Collaboration:** Help teammates if you finish your work early or if they are struggling.
- **Team Members**
  - a. **Sandhya Reddy Kallem**
  - b. **Dhruv Maheshbhai Ranpariya**
  - c. **Yashwanth Thalla**
  - d. **Hema Durga Prasad Chittala**
  - e. **Sravan Kumar Ganji**

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# *Retrospective*

# Retrospective

## sprint 0

### What went well

Listening and communication	helpful support
+3	+1
team collaboration	regular updates
+1	+2
define goals	Flexible for meetings
+0	+1
clarity on roles	Team members learned new abilities through teamwork.
+1	+0
document practices	
+0	

### What can be improved

team management	feedback loop
+1	+1
risk assessment	Proper planning and execution
+2	+2
Analyze workload when distribution.	Everyone should cooperate to team members.
+2	+1

### Action Items

future sprint planning	set time limits
+0	+0
deadline monitoring	Extra Meetings and updates
+0	+0
sprint 1 planning and execution	listening to the team
+0	+0
document standards	
+0	

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# *Wikipedia Link*

<https://github.com/htmw/2024F-Team-Spirit/wiki>



*Thank you*