# Intelligent Reasoning System Project
# Financial Sentiment Recommender User Guide

## TEAM: IS06PT-GRP-SenTEAMent



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# Contents

# 1. Background

Investors thrive on having instant access to information that enables them to make quick decisions. However, reading through articles and discerning the content can be time-consuming and may result in missed opportunities. The objective of this project is to create a solution where a trader can promptly access news data that directly impacts the performance of their stocks and receive recommendation for their securities positions based on the real-time news sentiments.

# 2. Objective

The objective of this document is to provide an overview of the Financial Sentiment Recommender solution and the necessary information to use the application.

# 3. Scope

- System Overview
- Installation
- User Manual

# 4. System Overview

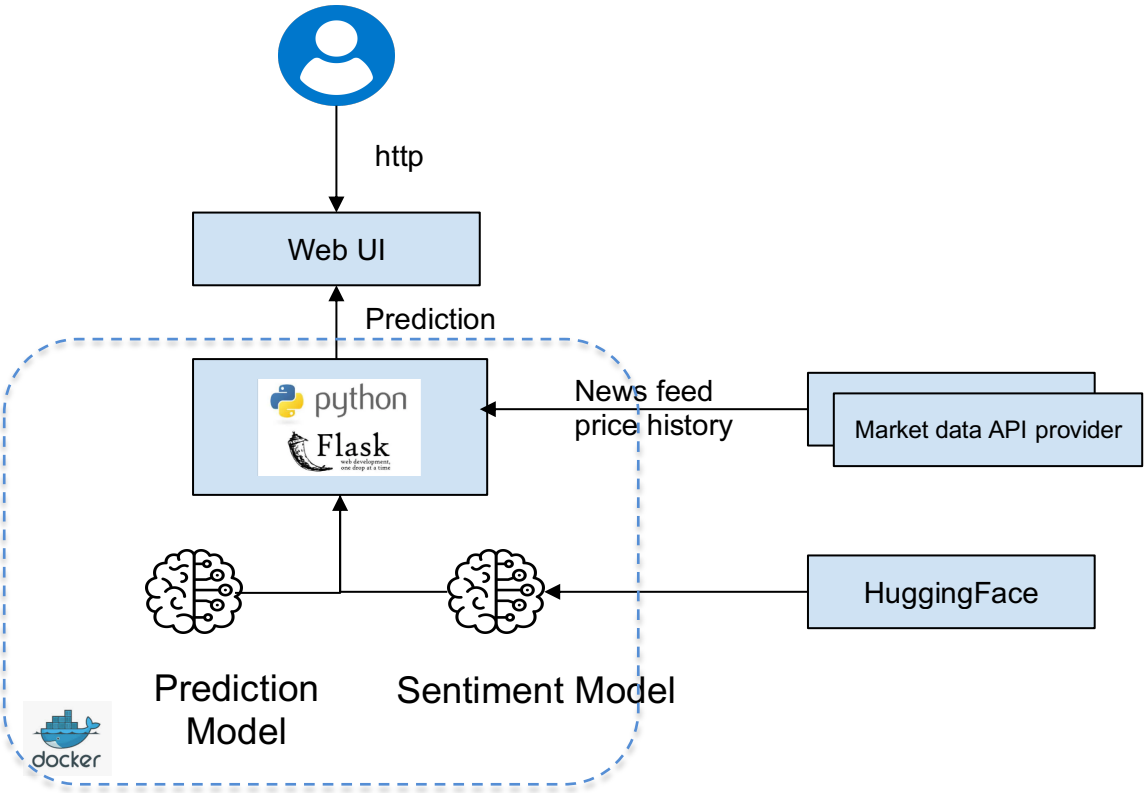



Figure1 : High level system overview

The RapidAPI market data provider offers stock price history and news feeds.

# 5 Installation

## 5.1 Requirements

| | |
|---|---|
| Hardware | CPU: Intel(R) Core(TM) i5-10210U CPU @ 1.60GHz or higher<br>GPU: *Optional<br>RAM: 10 GB or bigger<br>Hard disk: 35GB or bigger |
| OS/Software | OS: Windows 10 or Ubuntu 22<br>Software: Python3.11, Docker |
| Packages | We have included all packages needed in the requirements.txt. Please use pip install command to install them |
| Web Broswer | Recommended Google Chrome version 136 and above. |

## 5.2 Pre-requisite.

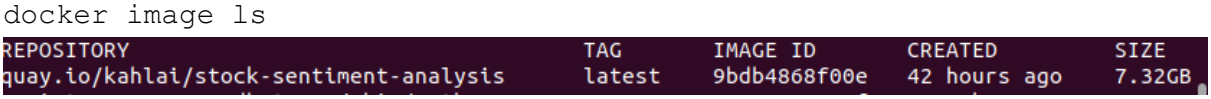
1. Install docker on Ubuntu.
   a. `sudo apt install docker.io -y`
   b. `sudo snap install docker`
   c. `docker –version`

2. After docker is installed properly, clone or download the package from the GitHub repository.
   https://github.com/iss-senteament/stock-sentiment-analysis.git

3. Register for an API key from RapidAPI website for the API call to Mboum Finance
   https://rapidapi.com/sparior/api/mboum-finance

## 5.3 Deployment steps

1. Build the docker image using the Dockerfile provided in the package.
   ```
   docker build -f ./Docker/Dockerfile --platform linux/amd64 -t quay.io/kahlai/stock-sentiment-analysis .
   ```

2. Check if the docker image is built successfully.
   ```
   docker image ls
   ```
   
   

3. Create the docker container. Replace the <mykey> with the rapidAPI Key.
   ```
   docker run -e RAPIDAPI_KEY=<mykey> -p 81:81 --platform
   linux/amd64 quay.io/kahlai/stock-sentiment-analysis
   ```

4. Check if the container is created successfully.
   ```
   docker ps -a
   ```
   ```
   CONTAINER ID   IMAGE                                    COMMAND           CREATED          STATUS          PORTS                                                 
   67bf3a0b445b   quay.io/kahlai/stock-sentiment-analysis   "python app.py"   3 minutes ago   Up 3 minutes   0.0.0.0:81->81/tcp, :::81->81/tcp, 8080/tcp
   ```

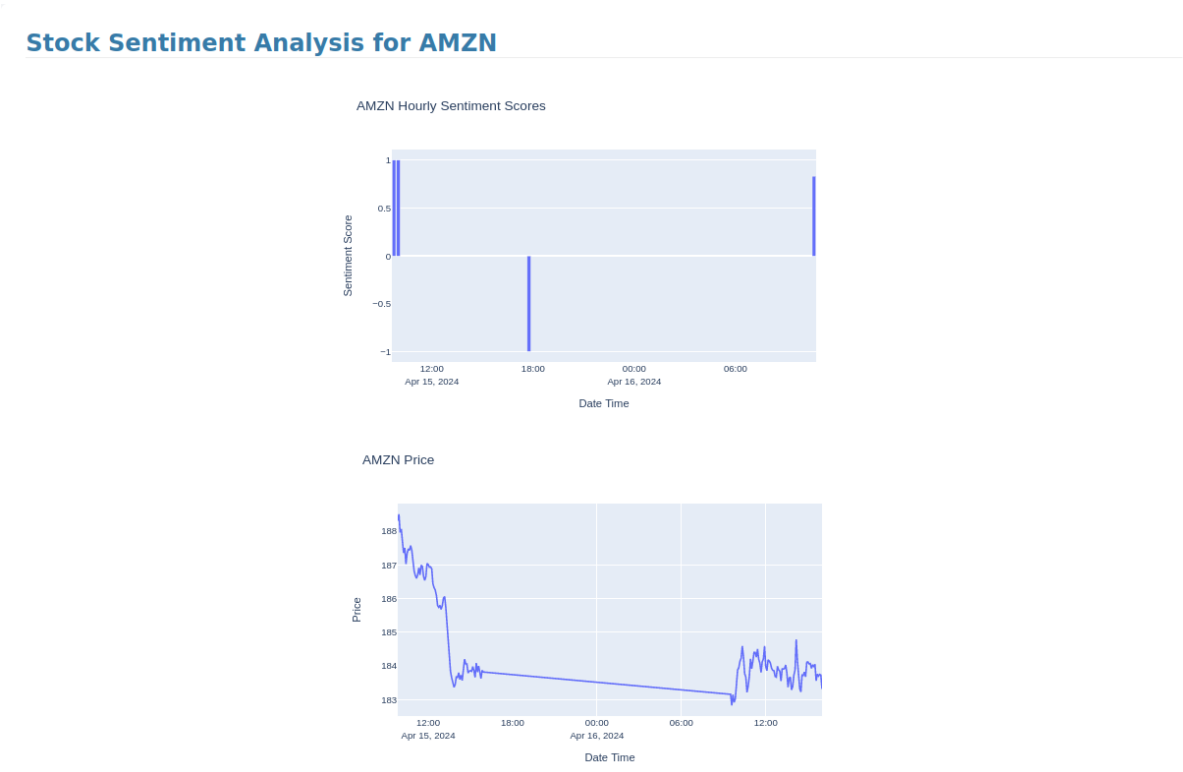
5. Launch the web browser and access the application via port 81 on either localhost or IP address assigned.
   ```
   Loading Tokenizer :  mrm8488/distilroberta-finetuned-financial-news-sentiment-analysis
   Loading Model :  mrm8488/distilroberta-finetuned-financial-news-sentiment-analysis
    * Serving Flask app 'app'
    * Debug mode: on
   WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI se
   rver instead.
    * Running on all addresses (0.0.0.0)
    * Running on http://127.0.0.1:81
    * Running on http://172.17.0.2:81
   ```

The system is hosted on a dedicate server and is accessible on https://iss.justexample.com/

# 6. User Manual

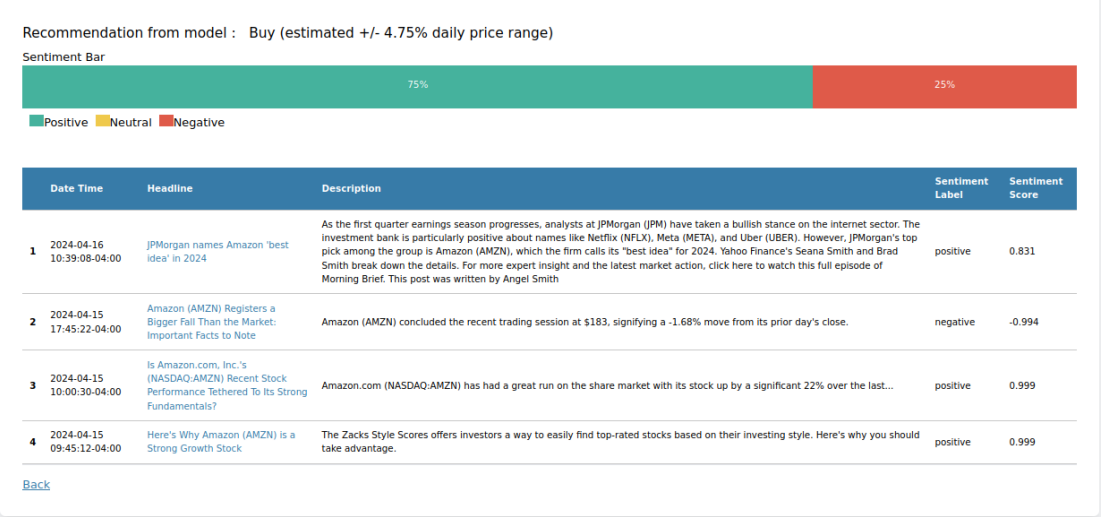
1. On the homepage, enter the ticker name (for example AMZN) to preview the latest news feeds and stock price leveraging on market data API.


2. Sentiment score and stock price is displayed to demonstrate any correlation between news sentiment and stock price performance over the same period.




Note:
News feeds with sentiment label ‘neutral’ are displayed with sentiment score of zero, while news feeds with sentiment label ‘positive’ are displayed with positive sentiment score, new feeds with sentiment label ‘negative’ as displayed with negative sentiment score.

3. Sentiment bar shows the distribution of postive, neutral and negative news to give users a general sense of the overall sentiment of the stock for the day. A recommendation is also provided based on the prediction of the model.




4. For those users who are interested to read through the actual news, a link to the actual new data is provided. Upon clicking on the link, user should be re-directed to the actual news article.