Marketing Analysis Application using Multi-Agent RAG

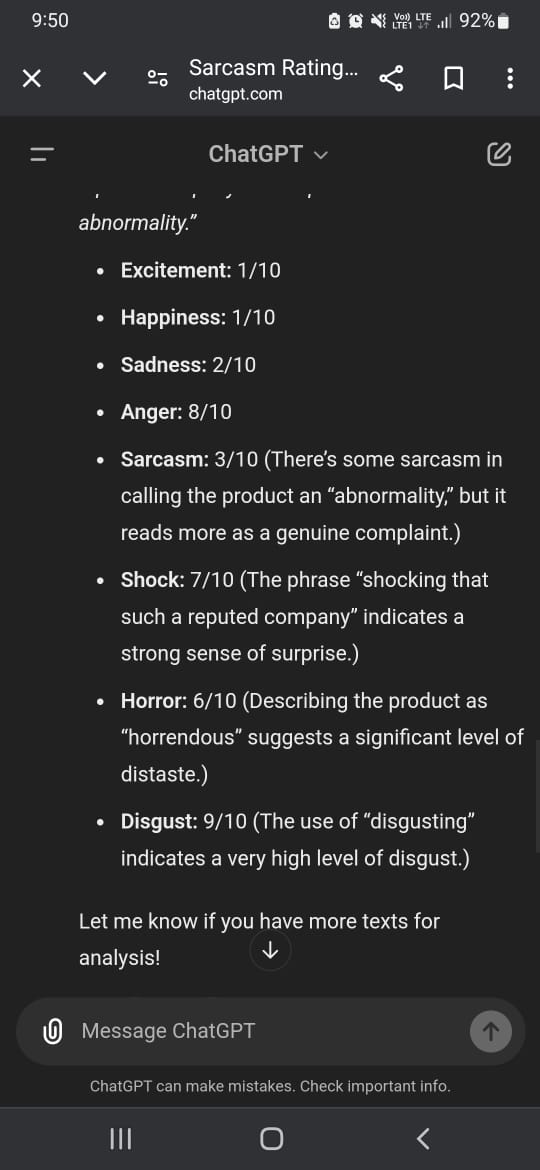
## Introduction

For this year’s problem statement, we need to showcase pathway’s RAG architecture and how it can be used for fast data retrieval. The most commonly available platform for fast flowing data is social media. Hence the best place to showcase improvements in fast retrieval pipelines would be to create an application which allows large corporations to see product perception on social media platforms and internet articles.

## Basic Structure

This flowchart gives a broad overview of what this platform aims to achieve. We first send a query depending on the product whose analysis we require. Pathway’s RAG retrieval pipeline would then be used to collect data from various social media platforms as well as other data which the company will feed in.

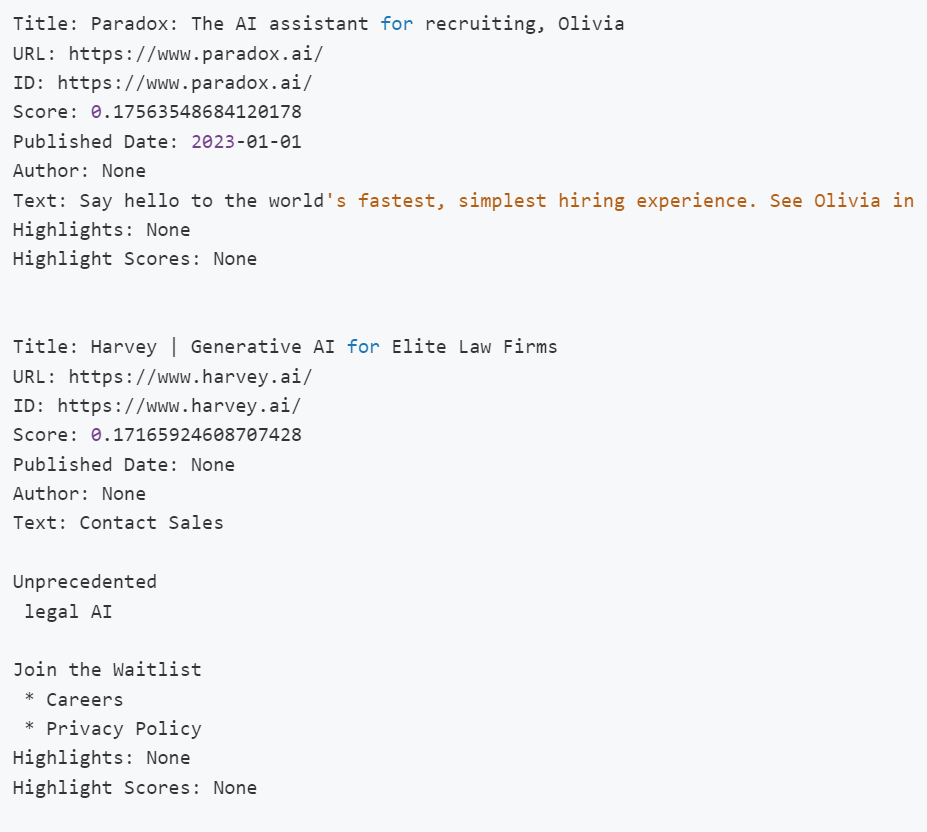
This will give us some relevant documents which will be processed in a multi-agent sentiment analysis system. Each agent will analyze the corpus of data for different emotions. One agent will also generate a concise summary of the text.



Asking ChatGPT to rank a piece of text based on different

emotions. This can be improved using a multi-agent approach

For internet articles, we can get live web data using the existing python framework EXA (<https://exa.ai>). This API uses RAG on the internet to give us a list of relevant articles. These can be used to conduct market research on articles written about a particular product.



Using EXA to get relevant articles from the web.

After we process our data and rate it for different emotions, we can combine this data to give an overall sentiment analysis of our product. The summary generator will also produce a report which will give an overview of the customer feedback on a particular product.

# Summary

Our platform aims to do the following:

* Use pathway’s RAG pipeline to get useful insights from a large corpus of social media data.
* Analyze sentiments and other aspects using a multi-agent system.
* Generate sentiment analysis of a product, along with a summary of features and drawbacks of the product

# Useful links

<https://pathway.com/developers/templates/twitter>

<https://github.com/pathwaycom/pathway/tree/main/examples/projects/twitter>

<https://exa.ai>

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