ZENITHZEST

Social Media Engagement Project

Team Name	**ZenithZest**
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Project Link	https://supermind-hackathon-assignment.vercel.app/

Problem Statement:

To develop a basic analytics module utilizing Langflow and DataStax to analyze engagement data from mock social media accounts.

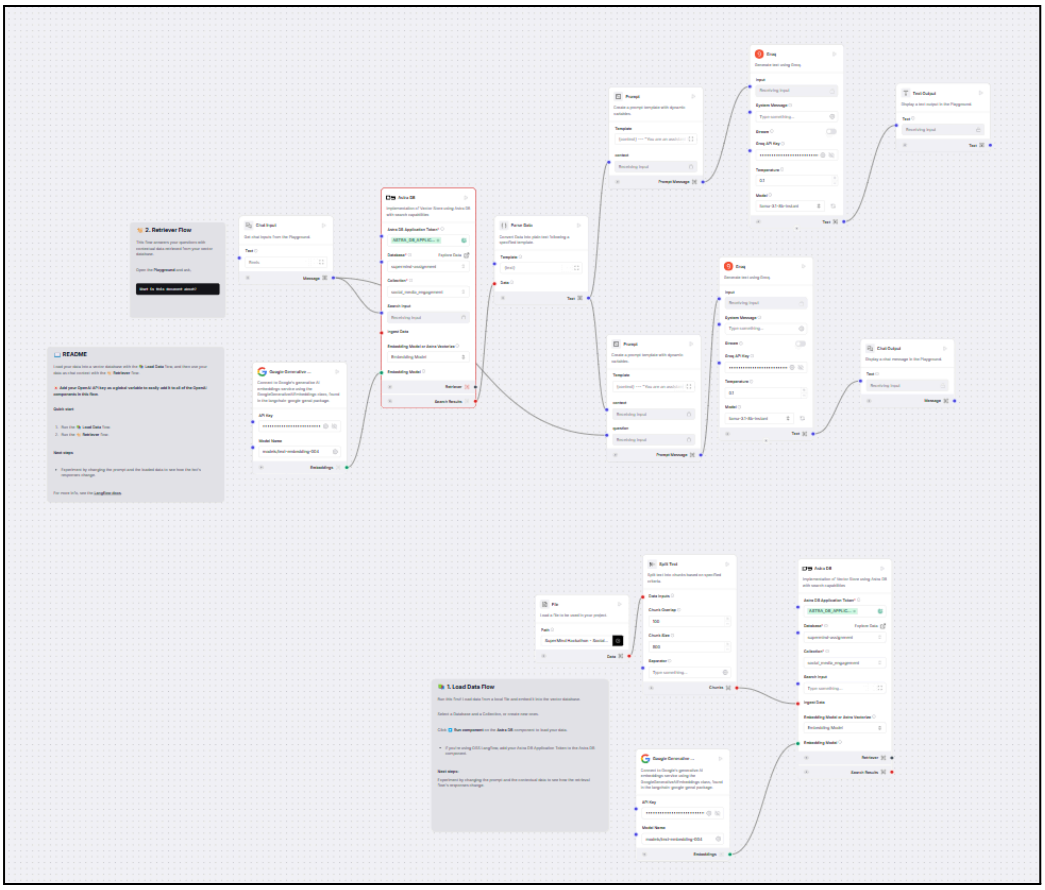
Tasks to be performed:

1. Create a small dataset simulating social media engagement.
2. Store this data in DataStax Astra DB.
3. Using Langflow, construct a simple flow
    - Accepts post types
    - calculate average engagement metrics for each post type.
4. UsingProvide Insights by integrating GPT in Langflow

Our Approach:

1. We developed a dataset that consists of 50 rows with columns as post id, post types (reels, carousel, static image, video). We developed this dataset using python. You can find the dataset here.

2. After developing the dataset we created flow using Langflow as below:



- There are total 3 modules in the above flow:
    1. Storing the Dataset into DataStack AstraDB
       Where we are loading the dataset as CSV and splitting it into chunks and then using google's embeddings model converting the chunks into vector embeddings and then storing the embeddings into Vector Database
    2. Querying the Database
       From input we are inserting any of the post types (Carousel, Static Image, Reels, Video) etc. That query is again converted to embeddings using google's embedding model.

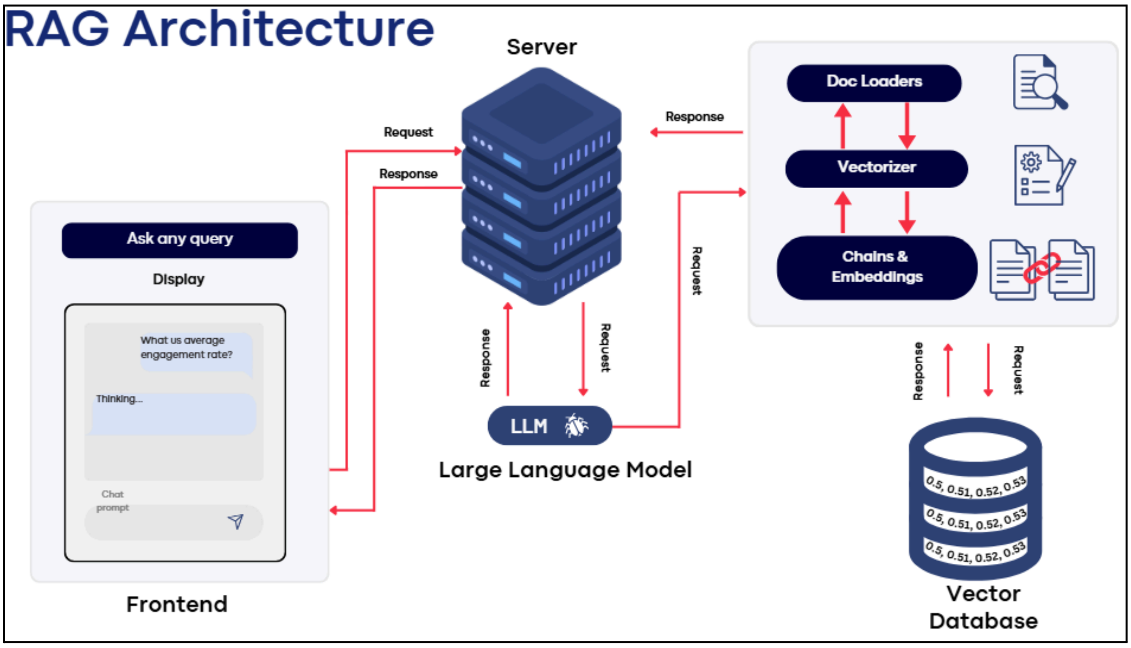
       Now there is cosine similarity used between the vectors of AstraDB and the vectors created from the input query. All the related documents are fetched from the database.

       Now based on the fetched vectors and query vectors a textual response is created by the LLM (llama-3.1) which we are using via groq AI. This response served as average engagement metrics for a particular post type.
    3. Generating Insights
       To generate insights based on the dataset we have added one branch to the above mentioned flow, where we have changed the prompt that is to be

passed to the LLM and the text response that is generated is served as Insights on Social Media Data.

3. All the responses that our LLM is generating we have restricted it to JSON format using prompt template. And to extract the data from that JSON like text structure we are making the use of Regex.
4. We exported the code as python API and integrated that API in to our Flask backend, we developed the UI using Nextjs and Tailwindcss and integrated all API's Frontend and Backend and deployed frontend on Vercel and backend on Render

Retrieval Augmented Generation (RAG) Architecture:



Tech Stack:

1.	Next.js , TailwindCss	[Frontend]
2.	Python-Flask	[Backend]
3.	Langflow, Langchain	[AI Framework]
4.	Datastack AstraDB	[Vector Database]
5.	Vercel , Render	[Deployment]

Video Link:

Github Link:

Frontend: https://github.com/Rudalph/supermind-hackathon-assignment

Backend: https://github.com/Rudalph/social-media-engagement-backend

Deployed Project Link:

Social Media Engagement: https://supermind-hackathon-assignment.vercel.app/

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