SneakerBot

Virtual Seller Chatbot Consultant

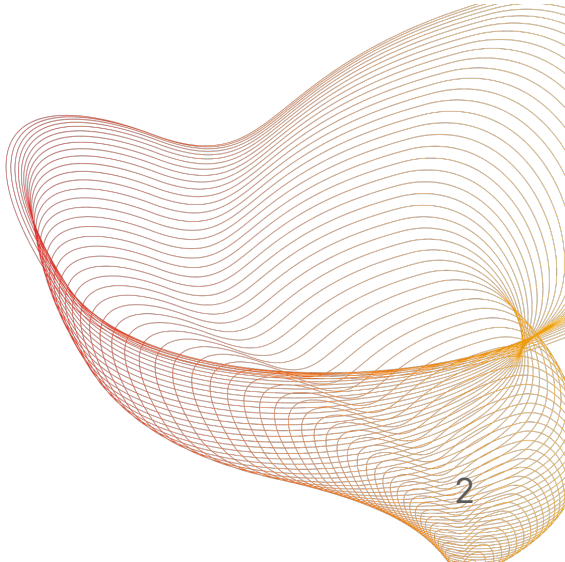
Team’s name: US_Driver
Team’s code: 110

Introduction

The current issue for fashion brands is enhancing the user experience in finding their preferred products.

SneakerBot assists customers in easily discovering desired products by providing necessary information.

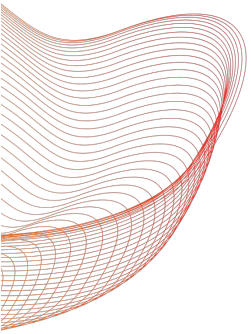
Our MVP focuses on the dataset **"Dataset 1: Adidas and Nike Products"** and collects additional necessary information to train the model.



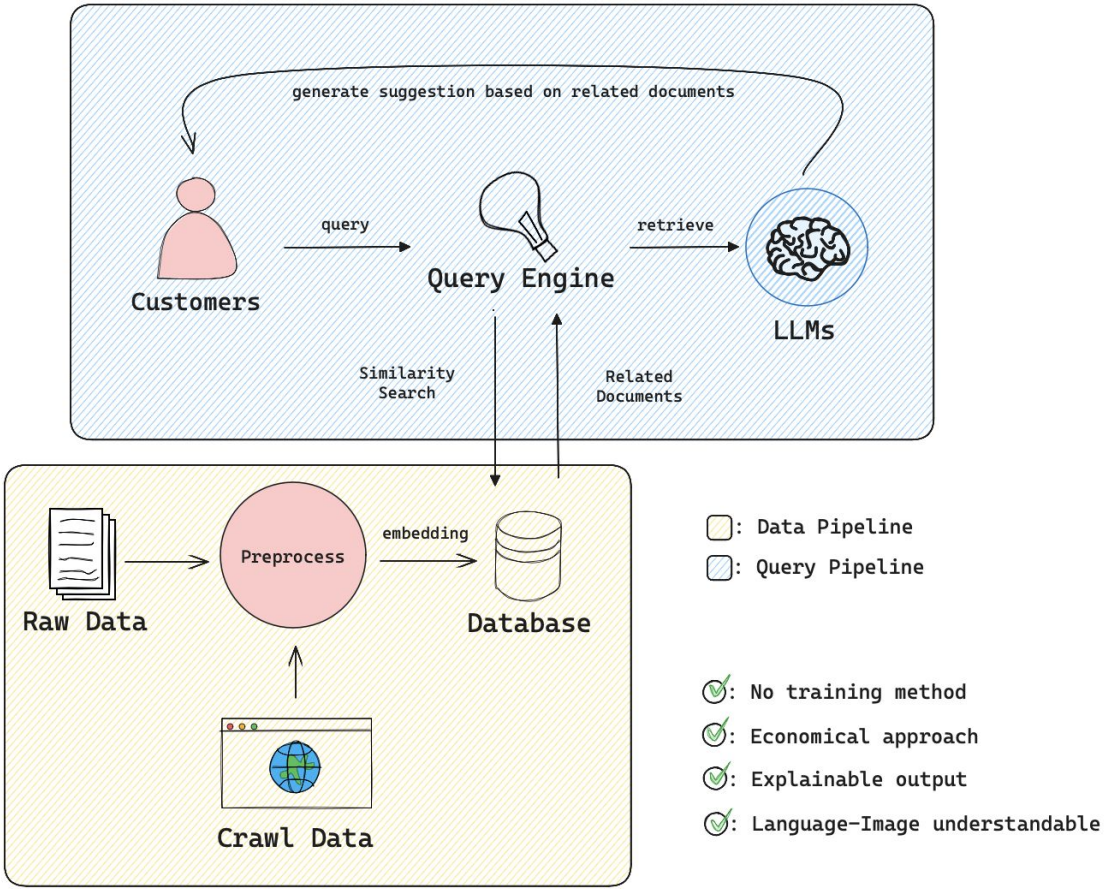
Problem Statement

Nowadays, major fashion brands like Nike and Adidas are introducing more and more new products to keep up with market trends. Customers often spend a lot of time selecting fashion items in stores. While shops provide search engine on their websites, the sheer variety of products makes it time-consuming for customers to find what they need.

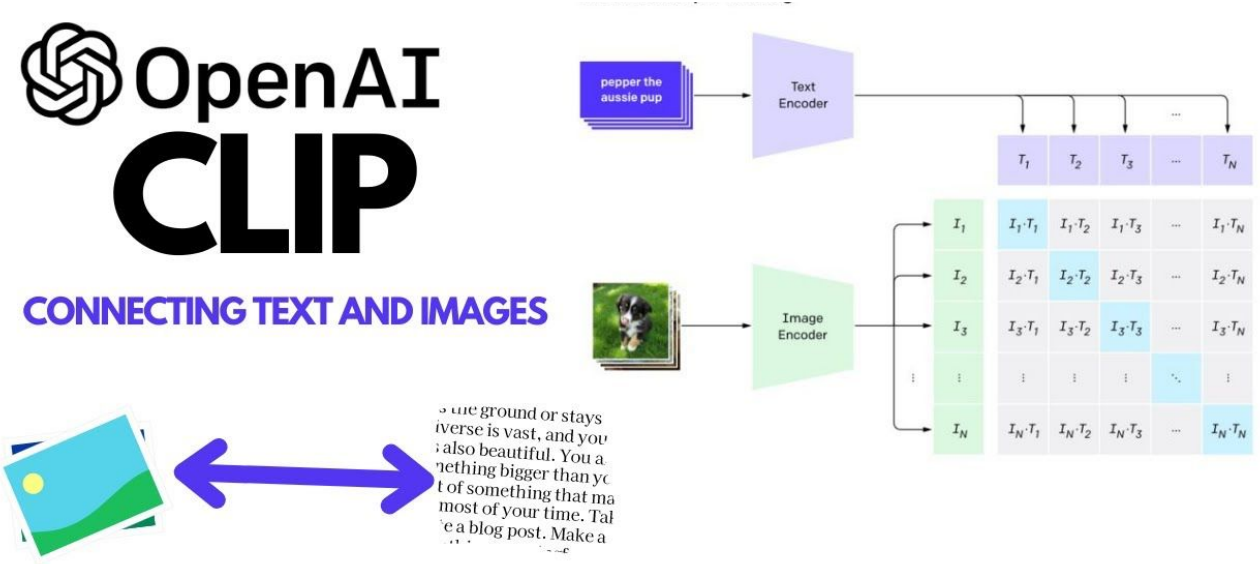
The MVP focuses on improving the search for preferred products and enhancing user experience by providing a chatbot consultant



Solution Overview - Multimodal RAG

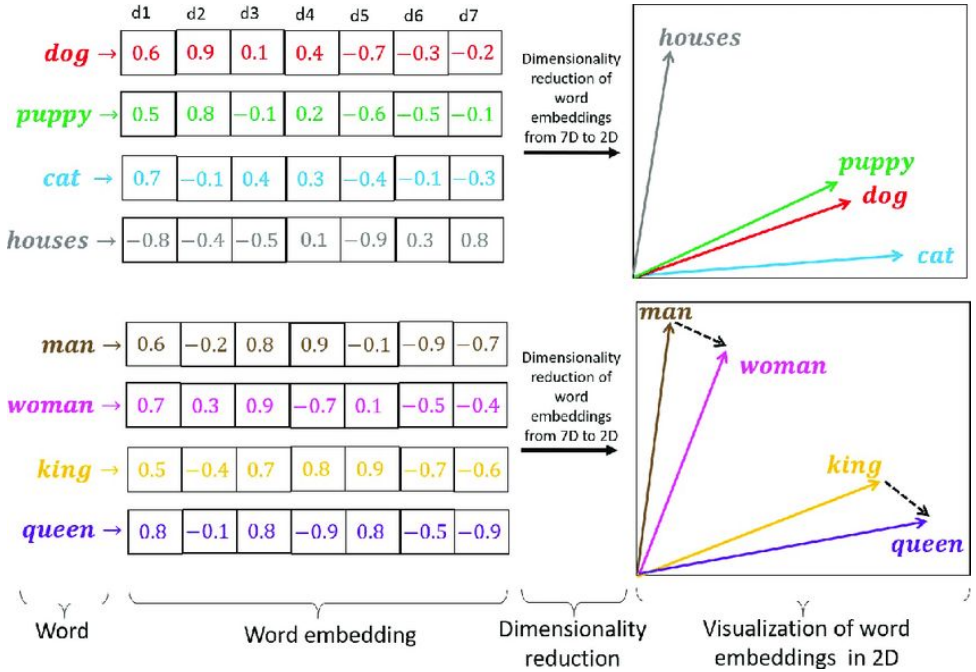


Methodologies



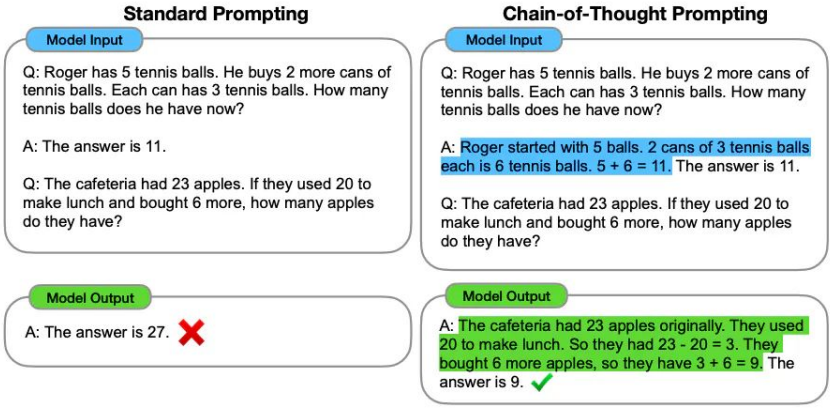
First of all, we are utilizing OpenAI Vision to apply the technique of Grounded Language Image Pretrained (GLIP) in order to make the core connection of user query with any image of products in database. To convert images into captions or hashtags for future search.

Methodologies



With the storage, we using Vector Storage, in which, all the texts would be encoded into vectors and stored as points in Dimension. Similarity Search would detect out which points is nearest and identify it as most similar.

Methodologies

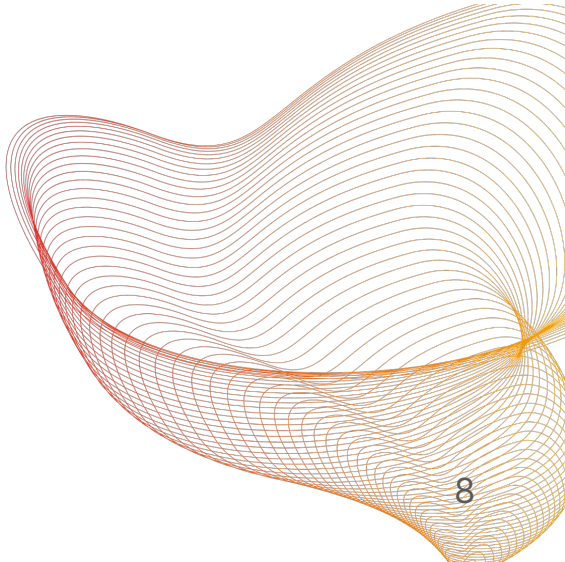


Finally, we using technical Chain of Thought (CoT) Prompting to improve the performance of chatbot, in which, it has to thought carefully before generate out final answer for user. In top of that, we introduce Reason-Action (ReAct) Agent, which is an innovation of CoT for the final version of chatbot.

Core Functionality

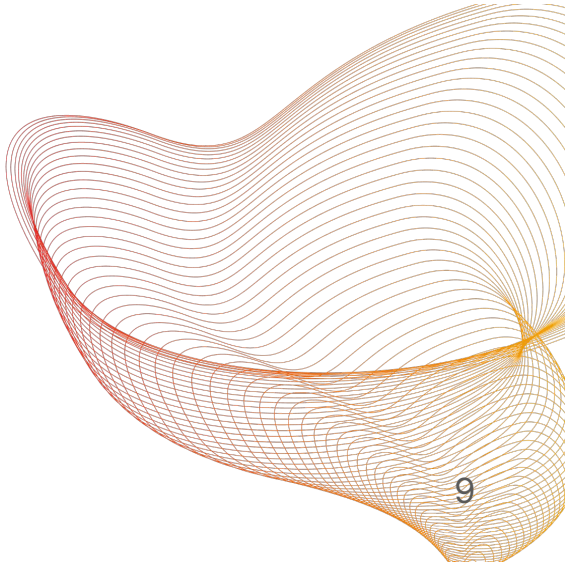
The primary features and functionalities of the MVP:

- Efficient data exploration
- User-friendly interface
- Personalized recommendation
- Multimodal capability
- Real-time updates

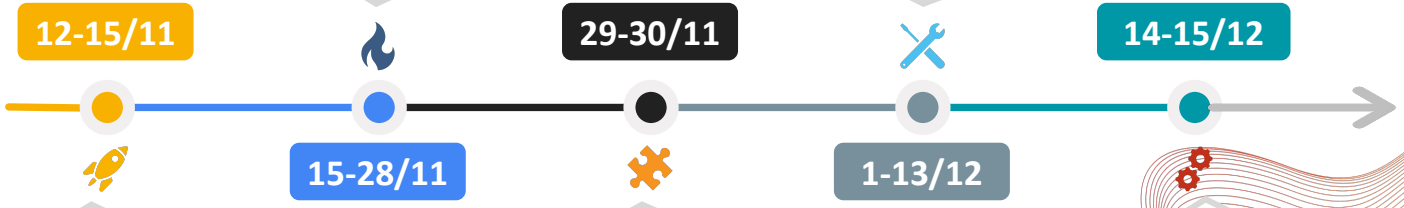


Performance Metrics

- **Sentence Similarity** using **Vector-based similarity**: use embeddings to capture semantic information and determine the similarity between two texts based on their vectors
- Type of methods:
  - Distributional Sentence Similarity
  - Average of Word Vectors
  - Learning Based Vectors
  - Skip-Thought Vectors



Timeline



Research Idea

Chatbot Product Consultant: E-commerce platforms are increasingly adopting chatbots to enhance customer support, provide personalized recommendations, and improve the overall shopping experience.

Research Method

Retrieval Augmented Generation (RAG) is a pattern that works with pre trained Large Language Models (LLM) and your own data to generate responses.

Data Processing

Using the provided dataset, we perform preprocessing steps such as data cleaning, normalization, and feature engineering. Additionally, we augment the dataset by incorporating additional relevant data to enhance the quality and diversity of the input

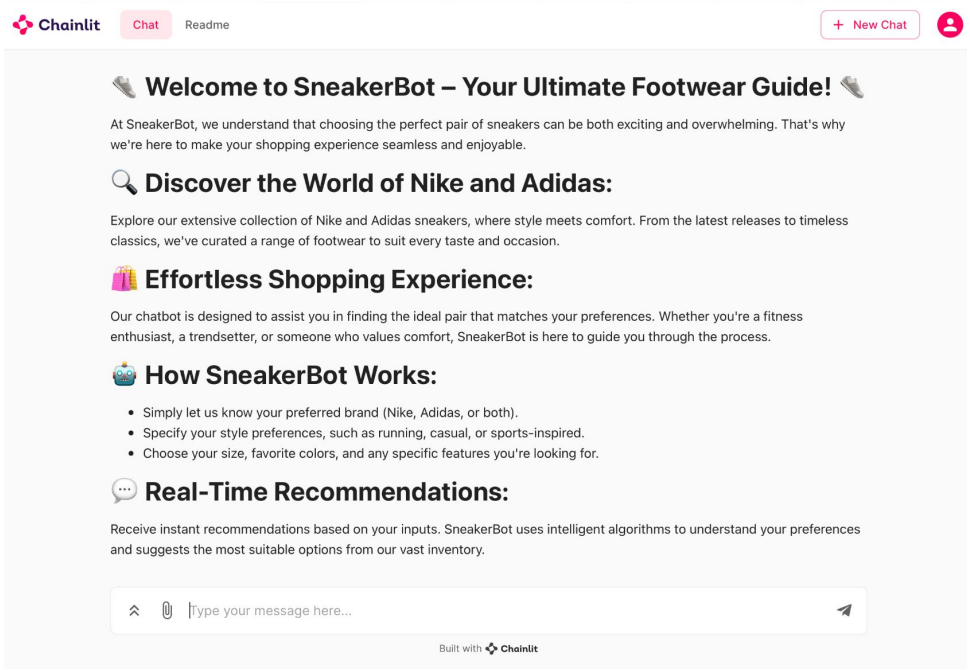
Solution Experiment

After finalizing the solution improvements, we proceed to deploy it using the processed dataset, ensuring that the solution is ready for real-world usage and delivering the desired outcomes.

Evaluate Solution

Based on the test results, we iteratively refine and enhance the solution, incorporating improvements to address any identified issues and create a more robust and effective solution.

User Interaction



This is the first page of our Chatbot, in which, there is an introduction of Sneaker Bot Seller. You could start the conversation with the box below.

User Interaction

User
22:51:01

I love this kind of Hoodie, do you any product that same with this ? Especially cheap and color similar

Chatbot
22:51:19

I can certainly help you find a hoodie similar to the one you like! Based on the color and style you've shared, I can recommend the following option from the product list:

1. adidas Sportswear Future Icons Hoodie (Color: Purple, Price: $46.00)

- While it is not an exact color match as it comes in purple, this hoodie has a relaxed and comfortable style that is versatile for different occasions. And it's quite affordable too. You can view it and purchase from this URL: adidas Sportswear Future Icons Hoodie

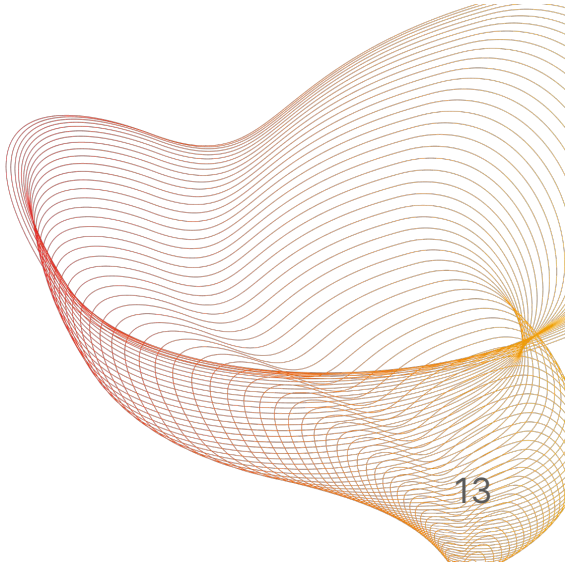
Would you like to look into this option or is there any specific feature you would want the hoodie to have?

This is a sample query of customer, where user found an attracted image of Hoodie, and he wants to find relevant sample with an economical price. And the chatbot give out directly the recommendation of product for user and its website.

Limitations and Future Enhancements

The limitation of vector search is the accuracy of object relationship.

The future work is to replace the vector search with graph search that brings the better result.



Conclusion

The MVP aims to improve the user experience by offering a chatbot consultant that not only enhances product discovery but also provides personalized recommendation.

The potential impact and benefits of the AI solution:

- **Enhanced efficiency**: Accelerated decision-making through the rapid analysis of vast datasets.
- **Cost savings**: Streamlining of business processes, resulting in cost savings and resource optimization.
- **Responsive Customer Support**: In-app support features and prompt customer service to address user queries.