

Project: Fashion Search AI

Objectives:

The primary objective of this project is to design and implement an AI-driven fashion query response system capable of delivering detailed, user-friendly, and contextually relevant answers to fashion-related inquiries. By leveraging advanced AI models, the system aims to enhance the user experience by providing precise and informative responses, assisting users in discovering fashion items that align with their preferences.

Design:

The project comprises two core layers: the **Search Layer** and the **Generation Layer**. The **Search Layer** is responsible for retrieving relevant fashion items from the dataset using keyword matching or predefined criteria, ensuring accurate and efficient filtering of results. The **Generation Layer**, on the other hand, leverages advanced AI models such as GPT-3.5 to produce detailed, context-aware, and natural language responses to user queries, enhancing the system's ability to deliver informative and engaging interactions.

Implementation:

The implementation involved several steps, including **data preprocessing**, **model integration**, and **query response generation**.

Data Preprocessing:

- The CSV dataset was formatted to enhance data quality and readability.
- Blank entries were replaced, decimal points were standardized, and unnecessary columns were removed.
- Text columns were cleaned to remove HTML tags and extra characters.

Model Integration:

- Advanced AI models like GPT-3.5 were integrated into the system to generate responses to user queries.
- Queries were passed through the model to generate detailed and contextually relevant responses.

Query Response Generation:

- User queries were processed by both the search layer and the generation layer.
- The search layer retrieved relevant fashion items from the dataset.
- The generation layer utilized AI models to generate detailed responses to user queries, incorporating context and generating natural language responses.

Here are the few queries that were used to test the model:

Query:

I am seeking ethnic attire suitable for adults, with a preference for the Ishin brand. These outfits are intended for festival wear. The clothing set I'm looking for should include a Navy Blue and golden foil printed top with a round neck and three-quarter sleeves, along with a matching skirt featuring a drawstring closure. Both pieces should be made of pure cotton.

ID: 12073072



ID: 10806700



ID: 18297822



Generation layer:

... I found a relevant fashion item that matches your criteria:

- **Brand:** Ishin
- **Color:** Navy Blue
- **Description:** Navy Blue and golden foil printed top with a round neck and three-quarter sleeves, along with a matching skirt featuring a drawstring closure. Both p:

Fashion Item:

- **Name:** Navy Blue and Golden Foil Printed Top and Skirt Set
- **Brand:** Ishin

You can explore more details about this item on our website.

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Challenges:

- Several challenges were encountered during the implementation process:
- Metadata Processing: Initially, there were issues with processing metadata, which affected the display of results.
- This was resolved through debugging and refining the metadata processing code.
- Dataset Chunking: Loading the entire dataset without chunking posed a challenge due to memory constraints.
- However, chunking was not implemented due to time constraints and the manageable size of the dataset.

Lessons Learned:

- Proper data preprocessing is crucial for ensuring data quality and readability.
- Integrating advanced AI models can significantly enhance the system's capabilities in generating detailed and contextually relevant responses.
- Handling large datasets requires careful consideration of memory constraints and implementation of efficient data processing techniques.

Future Scope:

- As a future scope, the project can be extended by implementing it as a Flask web application and hosting it on a website.
- This would provide better interaction and aesthetics for users.
- Additionally, rephrasing prompts and introducing interactive sessions with criteria-based filters could further enhance the system's performance and user experience.

Conclusion:

- Upon comparison of the search query outcomes from both the search and generation layers, it becomes apparent that the generation layer produces more detailed and comprehensible results.
- While the search layer retrieves relevant information through keyword matching or set criteria, the generation layer utilizes advanced
- AI models like GPT-3.5 to dynamically generate responses, incorporating context and furnishing tailored and informative answers.
- The generation layer's capability to comprehend query context and furnish responses in natural language enhances overall readability and user engagement. Its flexibility allows it to adapt to various query formats and provide customized responses, catering to diverse user preferences.
- This versatility makes it a valuable tool for tasks necessitating comprehensive understanding and communication of information. In summary, while the search layer efficiently retrieves relevant information, the generation layer significantly enhances output quality and readability, making it a preferred choice for tasks requiring detailed and user-friendly responses