Fashion Search AI (Myntra)

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Objective:

The main objective of this project is to develop a system that uses AI models to answer fashion-related questions with comprehensive and accessible responses. By offering insightful and contextually relevant information, the system aims to enhance user experience by assisting users in finding fashion products that match their interests.

Design:

This project consists of two main layers: the search layer and the generation layer. The search layer identifies relevant fashion items in the dataset through keyword matching or specified criteria. The generation layer synthesizes this information to create detailed answers to user queries, utilizing advanced AI models like GPT-3.5 to produce natural language responses.

Implementation:

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

Data Processing:

The format of the CSV dataset was designed to enhance readability and data quality. Decimal points were standardized, blank entries were updated, and redundant columns were removed. Additionally, text columns were cleaned to remove HTML tags and unnecessary characters.

Query Response Generation:

Both the generating layer and the search layer handled user queries. From the dataset, the search layer extracted pertinent fashion items. Using AI models, the generation layer produced comprehensive answers to user inquiries that took context into account and producing replies in natural language.

Following is one of the queries used to test the model:

A red summer dress or kurta to wear over blue denim jeans.

Search Layer:


```
plt.tight_layout()
plt.show()

results_df
```

Query:
a red summer dress or kurta to wear over blue denim jeans .

Top 3 Search Layer

ID: 11434632   ID: 13237514   ID: 12901286   ID: 13791612   ID: 11202318

	Metadatas	Documents	Distances	IDs
0	{'Brand': 'Inddus', 'Colour': 'Red', 'Descript...	Red embroidered kurta with trousers and dupatt...	0.245898	11434632
1	{'Brand': 'Anouk', 'Colour': 'Red', 'Descripti...	Red and blue yoke design kurta with dhoti pant...	0.252165	13237514
2	{'Brand': 'Khushal K', 'Colour': 'Blue', 'Desc...	Blue and white printed kurta with palazzos ...	0.260433	12901286
3	{'Brand': 'Anouk', 'Colour': 'Red', 'Descripti...	Red embroidered kurta with palazzos Red st...	0.261100	13791612
4	{'Brand': 'Anouk', 'Colour': 'Blue', 'Descript...	Blue and gold-toned printed kurta with palazzo...	0.263814	11202318

Generation Layer:

Based on your query for a red summer dress or kurta to wear over blue denim jeans, I have found some relevant fashion items that may interest you:

1. **Red and Blue Yoke Design Kurta with Dhoti Pants**
   - **Brand:** Anouk
   - This kurta features a vibrant red and blue yoke design, making it a stylish choice for pairing with blue denim jeans.

2. **Red Embroidered Kurta with Trousers and Dupatta**
   - **Brand:** Inddus
   - This red embroidered kurta can be a versatile piece to layer over blue denim jeans for a chic look.

3. **Red Embroidered Kurta with Palazzos**
   - **Brand:** Anouk
   - This red kurta paired with palazzos offers a sophisticated option for your outfit when styled with blue denim jeans.

These fashion items provide a variety of red kurta options that can elevate your summer style when paired with blue denim jeans. You can explore these items further for detailed designs and styling options on our website page.

ID: 13237514   ID: 11434632   ID: 12901286

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Challenges:

Several difficulties arose during the installation process:

- **Processing of Metadata:** Initially, there were issues with metadata processing that affected the display of results. The solution involved debugging and refining the metadata processing code.
- **Chunking of the Dataset:** Due to memory limitations, loading the entire dataset without chunking proved challenging. However, the manageable size of the dataset and time constraints prevented the implementation of chunking.

Leason Learned:

Proper data preprocessing is crucial for ensuring data quality and readability. Integrating advanced AI models can significantly enhance the system's ability to generate detailed and contextually relevant responses. When dealing with large datasets, it's essential to implement efficient data processing algorithms and carefully consider memory limitations.

Conclusion:

Comparing the search query results from the generation and search layers clearly shows that the generation layer provides more comprehensive and understandable responses. While the search layer matches keywords or other criteria to locate relevant content, the generation layer leverages advanced AI models like GPT-3.5 to deliver dynamic, context-aware, and informative answers.

The generation layer enhances overall readability and user engagement by interpreting the context of queries and generating natural language responses. Its adaptability allows it to cater to a wide range of query types and user preferences with personalized replies. This versatility makes it an invaluable tool for tasks that require thorough understanding and effective communication of information.

In summary, the generation layer significantly boosts output quality and readability, making it the preferred choice for tasks that demand detailed and accessible responses, even though the search layer efficiently identifies relevant information.