Generative Fashion Search System

Objective

Developing an Intelligent Fashion Search System

- Enable users to search product descriptions and receive tailored recommendations based on their queries.
- Utilize the Myntra dataset from Kaggle for implementation.

Project Scope

Implementing the Three-Layered Architecture

1. **Embedding Layer**: Process and prepare product descriptions for embedding.
2. **Search Layer**: Perform semantic search using query embeddings and implement re-ranking for accuracy.
3. **Generation Layer**: Use LLM prompts to generate personalized and accurate responses.

Implementation Details

Embedding Layer

Step 1: Preprocess the Dataset

- Upload, clean, and preprocess the CSV file containing product data.
- Generate embeddings for product descriptions using a pre-trained embedding model.

Search Layer

Step 2: Perform Vector Search and Re-Ranking

- Execute semantic search using query embeddings and test with at least three sample queries.
- Implement a caching mechanism for optimized performance.
- Re-rank search results using HuggingFace cross-encoding models.

Generation Layer

Step 3: Design the Prompt for the LLM

- Incorporate user queries and retrieved search results into detailed prompts.
- Generate accurate and meaningful product recommendations tailored to user needs.

Outcome

By following this layered architecture, the system aims to deliver an efficient, user-centric fashion search and recommendation experience.

Query1: I'm looking for some pink lehengas. I prefer lehenga with full embroidered designs, suitable for parties and functions.


```
# Prompt the user to enter a fashion-related query with specific requirements
query = input("Please enter your fashion-related query. For example, you can mention the color, size, price range, style, and any specific patterns o

#Query 1: I'm looking for some pink lehengas. I prefer lehenga with full embroidered designs, suitable for parties and functions.
#Query 2: I'm looking for office wear sarees in elegant colors like pink, violet, or green. I prefer sarees with full embroidered designs, suitable f
#Query 3: I'm searching for a versatile black leather jacket, suitable for various occasions and effortlessly complementing any outfit. Preferably in
#Query 4: "I'm seeking ethnic attire suitable for adults, with a preference for Ishin brand. These outfits are intended for festival wear. The clothi
#Query 5: A silk purple summer dress, for beach party

patterns or designs you prefer: I'm looking for some pink lehengas. I prefer lehenga with full embroidered designs, suitable for parties and functions.
```

Output:

Based on your preferences for pink lehengas with full embroidered designs suitable for parties and functions, here are the top 3 relevant results from the fashion dataset:

1. **Pink and blue embroidered lehenga choli by HERE&NOW**
   - Description: Pink and blue embroidered lehenga choli with detailed designs. Perfect for parties and functions.
   - Brand: HERE&NOW
   - ID: 19301938

2. **Pink and purple embroidered lehenga choli by Mitera**
   - Description: Beautiful pink and purple embroidered lehenga choli ideal for special occasions.
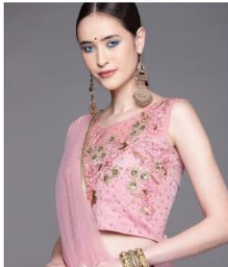   - Brand: Mitera
   - ID: 16877306

3. **Pink and green embroidered lehenga choli by Pothys**
   - Description: Pink and green embroidered lehenga choli featuring intricate embroidery. Great for events and celebrations.
   - Brand: Pothys
   - ID: 17493338

These pink lehengas fulfill your criteria of being full embroidered designs and suitable for parties and functions. You can explore these items further on our website for more detailed information including pricing and availability.

ID: 19301938   ID: 16877306   ID: 17493338

Query2: `Please provide some two piece casual co-ord suit`

```
# Prompt the user to enter a fashion-related query with specific requirements
query = input("Please enter your fashion-related query. For example, you can mention the color, size, price range, style, and any specific patterns or designs you prefer: ")

#Query 1: I'm looking for some pink lehengas. I prefer lehenga with full embroidered designs, suitable for parties and functions.
#Query 2: Please provide some two piece casual co-ord suits.
#Query 3: I'm searching for a versatile black leather jacket, suitable for various occasions and effortlessly complementing any outfit. Preferably in size XL.
#Query 4: A silk purple summer dress, for beach party
```

your fashion-related query. For example, you can mention the color, size, price range, style, and any specific patterns or designs you prefer: Please provide some two piece casual co-ord suits.

Output:

Based on the provided fashion dataset, here are some two-piece casual co-ord suits:

1. **Athena Fuchsia Two-Piece Co-ord Suit**
   - Description: Enhance your appearance by wearing this appealing two-piece co-ord suit in fuchsia color. Perfect for a casual yet stylish look.
   - Brand: Athena
   - ID: 15715754

2. **ZIYAA White Two-Piece Co-ord Suit**
   - Description: Make a statement at your next outing with friends in this white two-piece co-ord suit. A trendy and versatile choice for casual occasions.
   - Brand: ZIYAA
   - ID: 16616206

3. **anayna Maroon Two-Piece Co-ord Suit**
   - Description: Glam up your style quotient by opting for this maroon two-piece co-ord suit. Ideal for a casual chic look with a touch of elegance.
   - Brand: anayna
   - ID: 17724428

These co-ord suits offer a blend of style and comfort, making them perfect for casual outings, gatherings, or everyday wear. For more detailed information and specific styling options, you can explore these

ID: 15715754   ID: 16616206   ID: 17724428

Query3: `Recommend some straight fit jeans. It should be only black in colour and no design. No skinny fit also.`

```
# Prompt the user to enter a fashion-related query with specific requirements
query = input("Please enter your fashion-related query. For example, you can mention the color, size, price range, style, and any specific patterns or designs you prefe

#Query 1: I'm looking for some pink lehengas. I prefer lehenga with full embroidered designs, suitable for parties and functions.
#Query 2: Please provide some two piece casual co-ord suits.
#Query 3: I'm searching for a versatile black leather jacket, suitable for various occasions and effortlessly complementing any outfit. Preferably in size XL.
#Query 4: A silk purple summer dress, for beach party
```

ice range, style, and any specific patterns or designs you prefer: Recommend some straight fit jeans. It should be only black in colour and no design. No skinny fit also.

Output:

[75]

Based on your criteria for straight fit black jeans without any design and not in a skinny fit, I have found the following relevant options from the fashion dataset:

1. **Item**: Dark shade, no fade black jeans
   - **Brand**: Kotty
   - **Description**: These black jeans are designed in a straight fit without any fading or design, offering a classic and versatile look.

2. **Item**: Dark shade, no fade black jeans
   - **Brand**: Vero Moda
   - **Description**: Vero Moda presents a pair of black jeans that meet your requirements with a straight fit and no design for a sleek and polished style.

3. **Item**: Stay in vogue by donning this trendy pair of jeans
   - **Brand**: FREAKINS
   - **Description**: FREAKINS offers a trendy pair of black jeans in a straight fit, ensuring both style and comfort without compromising on your preferences for a clean look.

You can explore these options further by visiting our website page for more details such as pricing and availability.

ID: 18507630   ID: 18074032   ID: 19259882