

Project Report: Fashion Search AI

Objectives:

The main objective of this project is to develop a fashion query response system that utilises AI models to provide detailed and user-friendly responses to fashion-related queries. The system aims to enhance user experience by generating informative and contextually relevant answers, thereby assisting users in finding fashion items based on their preferences.

Design:

The project involves two main layers: the search layer and the generation layer. The search layer is responsible for retrieving relevant fashion items from the dataset based on keyword matching or predefined criteria. The generation layer utilizes advanced AI model Cohere to generate detailed responses to user queries, incorporating context and generating natural language responses.

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 model Cohere 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 1: orange summer dress or kurta to wear over blue denim jeans .

Top 3 Search Layer				
ID: 8255313	ID: 7572969	ID: 18390376	Documents	Distances
				
Index	Metadata	Documents	Distances	IDs
(Brand: 'Vishudh', 'Colour': 'Black', 'Description': 'Black and orange printed kurta with palazzos;Black and orange straight cuff length kurta has a round neck;three-quarter sleeves;straight hem;side slits;Black and orange printed palazzos,drawstring closure. The model (height 5'8") is wearing a size S Top fabric: Viscose Rayon Bottom fabric: Cotton Blend Pattern: Printed, Bottom Type: Palazzo, Character: NA, Dupatta Fabric: NA, Dupatta Pattern: NA, Main Fabric: NA, Neck: Round Neck, Number of Prints: NA, Occasion: Daily, Ornamentation: NA, Pattern Coverage: None, Print or Pattern Type: Floral, Sleeve Length: Three-Quarter Sleeves, Stevie Styling: Regular Sleeves, Slit Detail: Side Slits, Stitch: Ready to Wear, Sustainable: Regular, Technique: Screen, Top Design Styling: Regular, Top Fabric: Pure Cotton, Top Length: Calf Length, Top Pattern: Printed, Top Shape: Straight, Top Type: Kurta, Waistband: Elasticated, Wash Care: Machine Wash, Weave Type: Machine Woven, *Product_id*: 8255313, *Product_type*: Kurta, *Rating*: 4.2, *RatingCount*: 126)	Black and orange printed kurta with palazzos;Black and orange straight cuff length kurta has a round neck;three-quarter sleeves;straight hem;side slits;Black and orange printed palazzos,drawstring closure. The model (height 5'8") is wearing a size S Top fabric: Viscose Rayon Bottom fabric: Cotton Blend Pattern: Printed, Bottom Type: Palazzo, Character: NA, Dupatta Fabric: NA, Dupatta Pattern: NA, Main Fabric: NA, Neck: Round Neck, Number of Prints: NA, Occasion: Daily, Ornamentation: NA, Pattern Coverage: None, Print or Pattern Type: Floral, Sleeve Length: Three-Quarter Sleeves, Stevie Styling: Regular Sleeves, Slit Detail: Side Slits, Stitch: Ready to Wear, Sustainable: Regular, Technique: Screen, Top Design Styling: Regular, Top Fabric: Pure Cotton, Top Length: Calf Length, Top Pattern: Printed, Top Shape: Straight, Top Type: Kurta, Waistband: Elasticated, Wash Care: Machine Wash, Weave Type: Machine Woven, *Product_id*: 8255313, *Product_type*: Kurta, *Rating*: 4.2, *RatingCount*: 126	0.260801068913805	6255313	
(Brand: 'Vishudh', 'Colour': 'Red', 'Description': 'Red and orange self design kurta with palazzos;Red and orange a-line ankle length kurta,has a mandarin collar,jong sleeves,fixed hem,front slit and orange solid palazzos,drawing closure.The model (height 5'8") is wearing a size S Top fabric: Viscose Rayon Bottom fabric: Cotton Blend Pattern: Printed, Bottom Type: Palazzo, Dupatta: NA, Dupatta Border: NA, Dupatta Color: Red, Dupatta Pattern: NA, Main Fabric: NA, Neck: Mandarin Collar, Occasion: Festive, Ornamentation: NA, Pattern Coverage: None, Print or Pattern Type: Floral, Sleeve Length: Long Sleeves, Stevie Styling: Regular Sleeves, Slit Detail: Front Slit, Stitch: Ready to Wear, Technique: NA, Top Design Styling: Regular Top Fabric: Cotton Blend, Top Hemline: Flared, Top Length: Calf Length, Top Pattern: A-Line, Top Type: Kurta, Waistband: Elasticated, Wash Care: Machine Wash, Weave Type: Machine Woven, *Product_id*: 7572969, *Product_type*: Kurta, *Rating*: 4.2, *RatingCount*: 126)	Red and orange self design kurta with palazzos;Red and orange a-line ankle length kurta,has a mandarin collar,jong sleeves,fixed hem,front slit and orange solid palazzos,drawing closure.The model (height 5'8") is wearing a size S Top fabric: Viscose Rayon Bottom fabric: Cotton Blend Pattern: Printed, Bottom Type: Palazzo, Dupatta: NA, Dupatta Border: NA, Dupatta Color: Red, Dupatta Pattern: NA, Main Fabric: NA, Neck: Mandarin Collar, Occasion: Festive, Ornamentation: NA, Pattern Coverage: None, Print or Pattern Type: Floral, Sleeve Length: Long Sleeves, Stevie Styling: Regular Sleeves, Slit Detail: Front Slit, Stitch: Ready to Wear, Technique: NA, Top Design Styling: Regular Top Fabric: Cotton Blend, Top Hemline: Flared, Top Length: Calf Length, Top Pattern: A-Line, Top Type: Kurta, Waistband: Elasticated, Wash Care: Machine Wash, Weave Type: Machine Woven, *Product_id*: 7572969, *Product_type*: Kurta, *Rating*: 4.2, *RatingCount*: 126	0.26084478303497314	7572969	
(Brand: 'KALINI', 'Colour': 'Orange', 'Description': 'Orange printed kurta with palazzos with dupatta;Kurta design : Ethnic design ,Printed Trouser,Elasticated waistband,Slip-on closure,Pure Cotton Regular Machine-wash)The model (height 5'8") is wearing a size S Top fabric: Viscose Rayon Bottom fabric: Cotton Blend Pattern: Printed, Bottom Type: Palazzo, Dupatta: NA, Dupatta Border: NA, Dupatta Color: Orange, Dupatta Pattern: NA, Main Fabric: NA, Neck: Round Neck, Number of Prints: NA, Occasion: Daily, Ornamentation: NA, Pattern Coverage: Large, Print or Pattern Type: Ethnic Motif, Sleeve Length: Three-Quarter Sleeves, Stevie Styling: Regular Sleeves, Slit Detail: Side Slits, Stitch: Ready to Print, Wear, Sustainable: Regular, Technique: Screen, Top Design Styling: Regular, Top Fabric: Pure Cotton, Top Hemline: Straight, Top Length: Calf Length, Top Pattern: Printed, Top Shape: A-Line, Top Type: Kurta, Wash Care: Machine Wash, Weave Type: Machine Woven, Wedding: Gifting & Gifting, *Product_id*: 18390376, *Product_type*: Kurta, *Rating*: 4.2, *RatingCount*: 126)	Orange printed kurta with palazzos with dupatta;kurta design : Ethnic Motif,printed,A-line shape,Regular style,round neck,three-quarter regular sleeves,elasticated waistband,slip-on closure,pure cotton regular machine wash,palazzos design : Printed Trouser,Elasticated waistband,slip-on closure,pure cotton regular machine wash)The model (height 5'8") is wearing a size S Top fabric: Viscose Rayon Bottom fabric: Cotton Blend Pattern: Printed, Bottom Type: Palazzo, Dupatta: NA, Dupatta Border: NA, Dupatta Color: Orange, Dupatta Pattern: NA, Main Fabric: NA, Neck: Round Neck, Number of Prints: NA, Occasion: Daily, Ornamentation: NA, Pattern Coverage: Large, Print or Pattern Type: Ethnic Motif, Sleeve Length: Three-Quarter Sleeves, Stevie Styling: Regular Sleeves, Slit Detail: Side Slits, Stitch: Ready to Print, Wear, Sustainable: Regular, Technique: Screen, Top Design Styling: Regular, Top Fabric: Pure Cotton, Top Hemline: Straight, Top Length: Calf Length, Top Pattern: Printed, Top Shape: A-Line, Top Type: Kurta, Wash Care: Machine Wash, Weave Type: Machine Woven, Wedding: Gifting & Gifting, *Product_id*: 18390376, *Product_type*: Kurta, *Rating*: 4.2, *RatingCount*: 126	0.2638427815165704	18390376	

Generation layer:

Based on the user query for an orange summer dress or kurta to wear over blue denim jeans, we have identified the following relevant fashion items from the dataset:

- Item: black and orange printed kurta with palazzos
 - Brand: Vishnu
 - Description: This kurta comes in a black and orange print, perfect for a stylish summer look. It can be paired with blue denim jeans for a casual yet chic outfit.
- Item: red and orange self design kurta with palazzos
 - Brand: Vishnu
 - Description: Although this item features red and orange colors, it offers a vibrant option that can be considered for a summer ensemble paired with blue denim jeans.
- Item: orange printed kurta with Palazzos with dupatta
 - Brand: KALINI
 - Description: This orange printed kurta and palazzo set by KALINI provides a colorful and trendy choice for a summer outfit. It can be paired elegantly with blue denim jeans.

These fashion items mentioned above can be suitable options for wearing over blue denim jeans during the summer season. You may consider exploring these items further to find the perfect orange attire to complement your blue denim jeans for a stylish summer look.

ID: 8255313 ID: 7572969 ID: 18390376

#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 for professional settings. There's no specific price range, as quality is my priority. These sarees will be worn for office meetings and formal events.

Search Layer:

Query: I'm looking for office wear sarees in elegant colors like pink, violet, or green. I prefer sarees with full embroidered designs, suitable for professional settings. There's no specific price range, as quality is my priority. These sarees will be worn for office meetings and formal events.

Top 3 Search Layer

Index	Metadata	Documents
0	<p>["Brand": "Saree mali", "Colour": "Green", "Description": "Offering both style and elegance, this saree is the ideal festive wear. Its attractive floral print lends an ethnic touch while the woven design border adds class. Green woven design saree/Front piece:Woven design border,Silk blend blouse,Silk blend,dry clean."], "Design Details": "Pink and Blue Dyed/Embroidered saree/Front piece with woven design border", "Price": "INR 7250", "Product_attributes": "Blouse: Blouse Piece, Blouse Fabric: Silk Blend, Border: Woven Design, Care for me: NA, Saree: naturally keeps away from dust and does not need frequent washing/Keep away from alcohol-based products/Resist in cold water by turning it upside down/Dry clean or hand wash separately with a mild detergent/Invert upside down/Store in a mustard cloth away from sunlight in a dry environment/For the best results, wash with similar colours", "Style Tip": "Accentuate your saree with traditional hoop adorned with stones, and comfy flat sandals, and a stunning cummerband.", "Sustainable": "Regular", "Trends": "NA", "Type": "Banarsi, Wash Care: Dry Clean, Wedding: Guests & Gifting, Where-to-wear: Ideal to wear to a high-tea party with friends", "Product_id": "14006764", "Product_type": "Saree", "Rating": "4.4", "RatingCount": "621"}]</p>	<p>0.2746198475390704 14006764</p>
1	<p>["Brand": "Saree mali", "Colour": "Pink", "Description": "Brasshe tie into your ethnic collection by adding this elegant-looking saree. Designed with a front print, woven border, and a silk blend bordering piece is sure to add to your appeal.", "Design Details": "Pink and Blue Dyed/Embroidered saree/Front piece with woven design border", "Price": "INR 7250", "Product_attributes": "Blouse: Blouse Piece, Blouse Fabric: Silk Blend, Border: Embroidered, Care for me: NA, Multipack Set: NA, Occasion: Festive, Ornamentation: Chikankari, Style Tip: Accents your saree with traditional hoop adorned with stones, and comfy flat sandals, and a stunning cummerband.", "Sustainable": "Regular", "Trends": "NA", "Type": "Banarsi, Wash Care: Dry Clean, Wedding: Guests & Gifting, Where-to-wear: Ideal to wear to a high-tea party with friends", "Product_id": "14006702", "Product_type": "Saree", "Rating": "4.2", "RatingCount": "621"}]</p>	<p>0.260073394753906 14006702</p>
2	<p>["Brand": "HRITIKA", "Colour": "Pink", "Description": "Design Details: Pink saree with floral embroidery and a pink border. Has chikanai detail. The saree comes with an unattached blouse piece. The blouse worn by the model might not be modelling purposes only. Check the image of the blouse to understand the actual look of the blouse.", "Design Details": "Floral embroidered saree with unattached blouse piece", "Price": "INR 6550", "Product_attributes": "Blouse: Blouse Piece, Blouse Fabric: Silk Blend, Border: Embroidered, Care for me: NA, Multipack Set: NA, Occasion: Festive, Ornamentation: Chikankari, Style Tip: Perfect for all occasions of casual wear. It can be paired with a pink sash or belt for a more formal look. It is also perfect for festive occasions or regular sarees for casual ethnic wear. You can pair it with a pink sash or belt for a more formal look.", "Sustainable": "Regular", "Trends": "NA", "Type": "Designer Saree, Wash Care: Dry Clean, Wedding: Bride & Wedding Squad, Where-to-wear: Casual, Party, Festive, Traditional, Work, Wedding", "Product_id": "10354508", "Product_type": "Saree", "Rating": "0.5", "RatingCount": 0}]]</p>	<p>0.260073394753906 10354508</p>

Generation layer:(2 examples)

Based on your requirements for office wear sarees in elegant colors and full embroidered designs, here are the top 3 relevant options:

- **Saree Mall Green Saree**:
 - **Brand**: Saree mall
 - **Description**: Offering both style and elegance, this saree is a versatile choice for professional settings.
 - **Color**: Green
 - **Type**: Saree
 - **Price**: Refer to the online store for current pricing.
- **Saree Mall Pink Saree**:
 - **Brand**: Saree mall
 - **Description**: Breathe life into your ethnic collection with this beautifully embroidered saree.
 - **Color**: Pink
 - **Type**: Saree
 - **Price**: Check the website for the latest price details.
- **HRITIKA Pink Saree**:
 - **Brand**: HRITIKA
 - **Description**: This pink saree features floral embroidery, perfect for a professional yet stylish look.
 - **Color**: Pink
 - **Type**: Saree
 - **Price**: For current pricing information, please visit the store's website.

These sarees with intricate embroidery in elegant colors like pink and green are ideal for office meetings and formal events. You can explore these options further to find the perfect saree that matches your preference for quality and professional appearance.

ID: 14006764 ID: 14006702 ID: 19165458



Based on your preferences for office wear sarees in elegant colors like pink, violet, or green with full embroidered designs suitable for professional settings, here are the top 3 relevant options:

- **Saree Mall Green Embroidered Saree**:
 - **Brand**: Saree Mall
 - **Color**: Green
 - **Description**: Offering both style and elegance, this saree is perfect for professional occasions. It features intricate embroidery which adds a touch of sophistication to your office wear collection.
- **Saree Mall Pink Embroidered Saree**:
 - **Brand**: Saree Mall
 - **Color**: Pink
 - **Description**: Breathe life into your ethnic collection with this beautiful pink saree. Its full embroidered design exudes grace and charm, making it a great choice for office meetings and formal events.
- **HRITIKA Pink Floral Embroidered Saree**:
 - **Brand**: HRITIKA
 - **Color**: Pink
 - **Description**: This pink saree boasts floral embroidery details that bring a feminine touch to your formal look. The intricate designs are perfect for adding a touch of elegance to your office wardrobe.

These sarees from Saree Mall and HRITIKA offer a blend of elegance and professionalism, making them ideal choices for your office meetings and formal events. You can explore these options further to select the one that aligns best with your style preferences.

ID: 14006764 ID: 14006702 ID: 19165458



#Query 3: I'm searching for a versatile black leather jacket, suitable for various occasions and effortlessly complementing any outfit. Preferably in size XL.

Search Layer:

Query:
 I'm searching for a versatile black leather jacket, suitable for various occasions and effortlessly complementing any outfit. Preferably in size XL.

Top 3 Search Layer

index	IDs	Documents	Distances	Metadata
0	18153246		0.2916905283027817	[Brand: 'Justanned', 'Colour': 'Black', 'Description': 'Black solid leather jacket with zip detail, has a mandarin collar, 2 pockets, has a zip closure three-quarter sleeves, straight hemline,polyester lining,PU Clean by Professional Leather Cleaner,The model (height 5'8) is wearing a size S', 'Fabric': 'Polyester, PU', 'Gender': 'Unisex', 'Main Trend': 'Casual', 'Material': 'Leather', 'Pattern Type': 'Solid', 'Style': 'Leisure', 'Technology Present': 'No', 'Type': 'Leather Jacket', 'Wash Care': 'Dry Clean, Machine Wash', 'Zip Detail': 'Yes', 'Zip Type': 'Hidden', 'Product_id': '18153246', 'Product_type': 'Jacket', 'Rating': 0.0, 'RatingCount': 0]
1	14355346		0.2941601276397715	[Brand: 'Roxanne', 'Colour': 'Black', 'Description': 'Black leather jacket with zip detail, has a mandarin collar, 2 pockets, has a zip closure three-quarter sleeves, straight hemline,polyester lining,Polyester,PU Clean by Professional Leather Cleaner,The model (height 5'8) is wearing a size S', 'Fabric': 'Polyester, PU', 'Gender': 'Unisex', 'Main Trend': 'Casual', 'Material': 'Leather', 'Pattern Type': 'Solid', 'Style': 'Leisure', 'Technology Present': 'No', 'Type': 'Leather Jacket', 'Wash Care': 'Dry Clean, Machine Wash', 'Zip Detail': 'Yes', 'Zip Type': 'Hidden', 'Product_id': '14355346', 'Product_type': 'Jacket', 'Rating': 0.0, 'RatingCount': 0]
2	15997714		0.2977486471736903	[Brand: 'Wyo Talker', 'Colour': 'Black', 'Description': 'Black solid leather jacket with zip detail,has a mock collar,2 pockets, has a zip closure long sleeves,hem with toggle hemline,without lining,PU Leather,Machine wash,The model (height 5'8) is wearing a size S', 'Fabric': 'Polyester, PU', 'Gender': 'Unisex', 'Main Trend': 'Casual', 'Material': 'Leather', 'Pattern Type': 'Solid', 'Style': 'Leisure', 'Technology Present': 'No', 'Type': 'Leather Jacket', 'Wash Care': 'Machine Wash,Weave Type: Woven, Weave-By': 'Leather', 'Zip Detail': 'Yes', 'Zip Type': 'Hidden', 'Product_id': '15997714', 'Product_type': 'Jacket', 'Rating': 4.0, 'RatingCount': 40]

1 to 3 of 3 entries [Filter](#) [?](#)

Generation layer:(2 examples)

Based on your query for a versatile black leather jacket in size XL, here are the top 3 relevant search results along with their metadata details:

- Item ID: 18153246
- Brand: Justanned
- Description: Black solid leather jacket with zip detail, high neck, and long sleeves.
- Item ID: 14355346
- Brand: Roadster
- Description: Chic and versatile black jacket suitable for various occasions.
- Item ID: 15997714
- Brand: Tokyo Talkies
- Description: Black solid leather jacket with zip detail, ideal for mixing and matching outfits.

Based on the descriptions and metadata provided, you may find the black leather jackets offered by Justanned, Roadster, and Tokyo Talkies to be suitable for your versatile needs. These jackets are designed to effortlessly complement various outfits, ensuring you can make a stylish statement on any occasion.

For further details or to make a purchase, you can explore the collections of these brands in different retail stores or visit their official websites for more information.



ID: 18153246



ID: 14355346



ID: 15997714

Based on your query for a versatile black leather jacket in size XL, here are the top 3 relevant results from our fashion dataset that you might find suitable:

- **Justanned Black Solid Leather Jacket****
- Description: Black solid leather jacket with zip detail, perfect for various occasions.
- Brand: Justanned
- Price: Information not provided
- Size Availability: XL
- Style: Effortlessly complements any outfit.
- **Roadster Black Leather Jacket****
- Description: Chic and versatile black leather jacket that suits different looks.
- Brand: Roadster
- Price: Information not provided
- Size Availability: XL
- Style: Suitable for various occasions.
- **Tokyo Talkies Black Solid Leather Jacket****
- Description: Black solid leather jacket with zip detail, providing a stylish edge.
- Brand: Tokyo Talkies
- Price: Information not provided
- Size Availability: XL
- Style: Versatile for different outfits.

These leather jackets offer a stylish and versatile option in size XL, ideal for complementing various outfits. You may explore these options further to find the one that best suits your preferences and style.

If you need more detailed information on pricing or other specifications, you can visit the corresponding brand's website or retail stores for a closer look at these jackets.



ID: 18153246



ID: 14355346



ID: 15997714

#Query 4: "I'm seeking ethnic attire suitable for adults, with a preference for 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."

Search Layer:

Query:
Looking ethnic attire suitable for adults, with a preference for 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.

Top 3 Search Layer

Index	ID#	Documents	Distances	Metadata
0	11253928		0.24303373218906088	(Brand: 'Ishin', Colour: 'Navy Blue', Description: 'This clothing set consists of top and skirt.Navy Blue and golden foil printed top has a round neck,three-quarter sleeves,Navy Blue and golden foil printed skirt has a drawstring closure.The model (height 5'8") is wearing a size S Top fabric: Pure Cotton,Bottom fabric: Pure Cotton,Dry-clean')
1	12037050		0.24303373218906088	(Brand: 'Ishin', Colour: 'Navy Blue', Description: 'This clothing set consists of a top and a skirt styled kurti.Navy blue solid top has a round neck and sleeveless,Comes with a navy blue solid kurti styled layered a round neck and short flared sleeves.Comes with a navy blue solid kurti styled layered a round neck and short flared sleeves.The model (height 5'8") is wearing a size S Top fabric: Viscose Rayon,Bottom fabric: Viscose Rayon,Dry-clean')
2	12037072		0.270354305934918	(Brand: 'Ishin', Colour: 'Green', Description: 'This clothing set consists of top,trousers and ethnic jacket.Green and golden foil checked top has a round neck,sleeveless,Green and golden foil checked trousers has a slip-on closure.Green and golden foil checked ethnic jacket has a notched lapel collar,sleeveless,hook and eye closure,asymmetrical hem.Comes with a matching mask.The model (height 5'8") is wearing a size S Top fabric: Viscose Rayon,Bottom fabric: Viscose Rayon,Dry-clean')

Show 25 per page

Generation layer:

Based on the information provided in the top 3 search results, I have found a relevant fashion item that aligns with your query for ethnic attire suitable for adults, specifically from the Ishin brand for festival wear. The item is described as:
 Name: Navy Blue Foil Printed Top and Skirt Set
 Brand: Ishin
 Description: This clothing set consists of a Navy Blue and golden foil printed top with a round neck and three-quarter sleeves, paired with a matching skirt featuring a drawstring closure. Both pieces are made of pure cotton.
 ID#: 11253928

This set from Ishin perfectly matches your specifications for a festival attire in ethnic style. The combination of Navy Blue and golden foil print adds a touch of elegance, while the pure cotton fabric ensures comfort during festivities.

Please note that the other search results did not match the specific criteria you provided regarding the Navy Blue and golden foil printed outfit from the Ishin brand.

For more details, such as pricing and availability, I recommend visiting our website page for the Ishin brand. If you need further assistance or have any other preferences, feel free to let me know!

ID: 12037072	ID: 12037050	ID: 11253928

There were many more queries that was used, for project purpose I have listed only a few here as well as at the code terminal.

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 Cohere 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.