



***Problem Statement : Conversational Fashion Outfit
Generator powered by GenAI.***

Team Name: TripleX

Team members details

Team Name	TripleX		
Institute Name/Names	Indian Institute of Information Technology (IIIT), Pune		
Team Members >	1 (Leader)	2	3
Name	Vinit Agarwal	Ishan Upadhyaya	Arvind Khandelwal
Batch	2025	2025	2025

Deliverables

- Develop GenAI-powered outfit generator for Flipkart.
- A lightweight model optimized for minimal resource consumption.
- Implement natural conversational interface for personalized outfits.
- Use purchase history and preferences for tailored recommendations.
- Include social media trends (Instagram, Fashion Blogs) for current fashion ideas.
- Analyze style, color, and brands for unique outfit suggestions.
- Generate complete outfits, including clothing, accessories, footwear.
- Consider body type, occasion, region, and age for diverse suggestions.
- Enable user interaction for customization and feedback.
- Provide seamless, confidence-boosting user experience.

Glossary

- LLM- Large Language Model
- NLTK – Natural Language ToolKit
- GPU – Graphics Processing Unit
- rembg- remove background
- PIL - Pillow, a Python Imaging Library

Use-cases

- **Personalized Outfits** : The generator analyze a user's purchase history, and social media trends to tailor outfits. This ensure that the outfit recommendations align with the fashion taste.
- **Enhanced Experience** : The generator helps in enhancing the overall shopping experience. When the users feel that their preferences and latest fashion trends has taken into account they are more likely to make confident decisions.
- **Fashion Trend Analysis** : The generator's ability to scrape the data from social media or fashion blogs and analyze fashion trends, provide users latest fashion recommendations.
- **Feedback and Customization** : Users can interact with the generator to provide feedback on the outfits . The interactive feedback allows user to express their preferences, like and dislike certain aspects of the outfit, requests adjustments, creating a collaborative experience.
- **List of Fashion Influencers** : As the generator scrapes the data from social media or fashion blogs, It makes the users aware about the fashion influencers who are currently in trends.
- **Complete outfit Recommendation** : The ability to generate complete outfits, helps user to visualize and put together cohesive looks. This feature helps in simplifying the outfit creation process for the user who may not have strong fashion sense.

Tech Stack / Libraries Used :

- **For Scraper :**

Python , Google , BeautifulSoup , NLTK , Transformers , Selenium, rembg, Pillow
(Model Used: openai – clip) , (Pipeline: Zero Shot Image classification)

- **LLM :**

Gen-AI Model , Torch , LangChain , Transformers , Bits and Bytes.
(Model Used: arvind2626/f6 {Falcon 7B Fine Tuned})
(For Fine Tuning: qLoRA)

- **FrontEnd :**

React , Axios

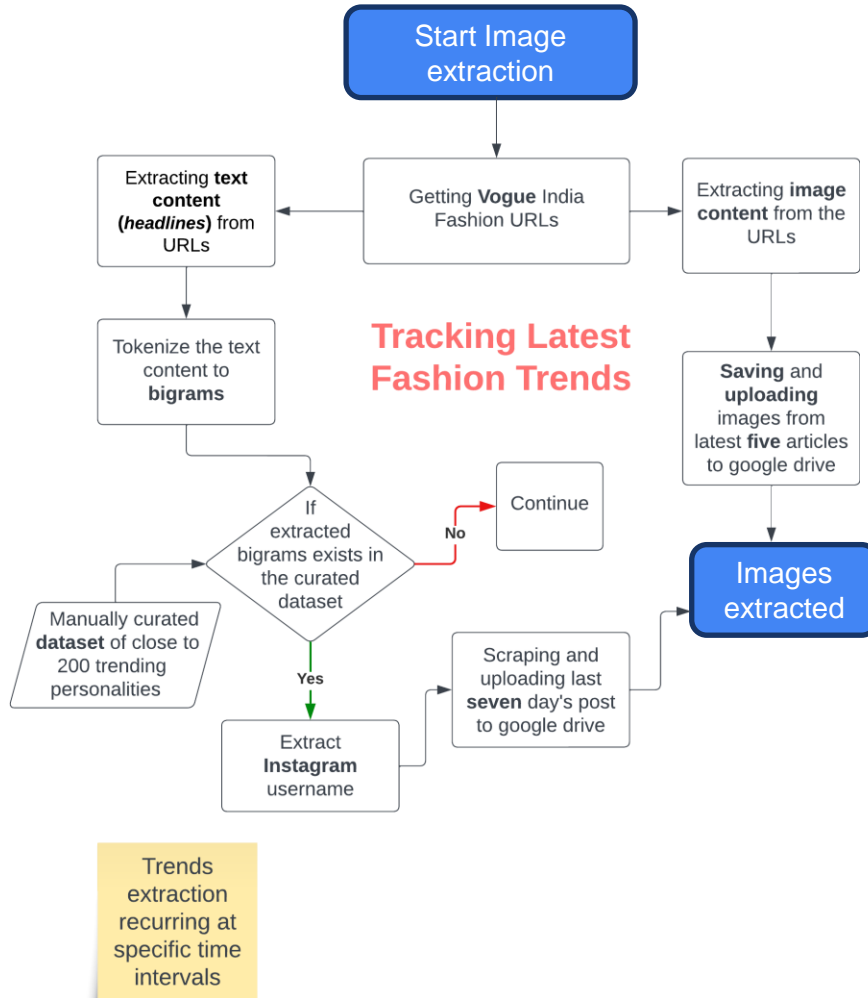
- **BackEnd :**

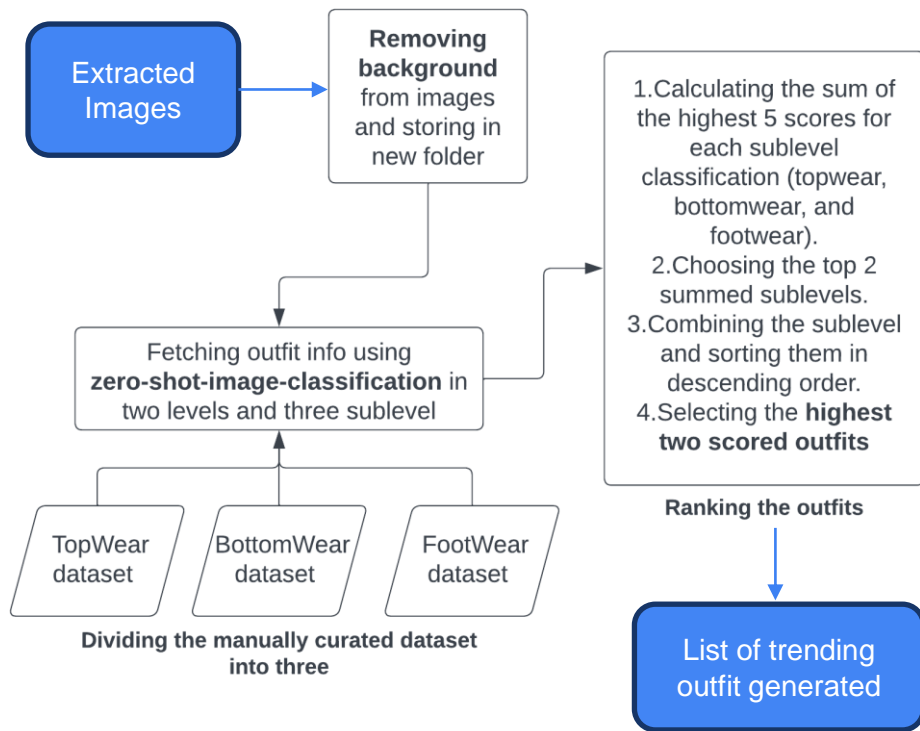
Python , FastAPI

Github url: <https://github.com/agarwalvinit5678/FashionOutfitRecommenderGenAI/>

Methodology

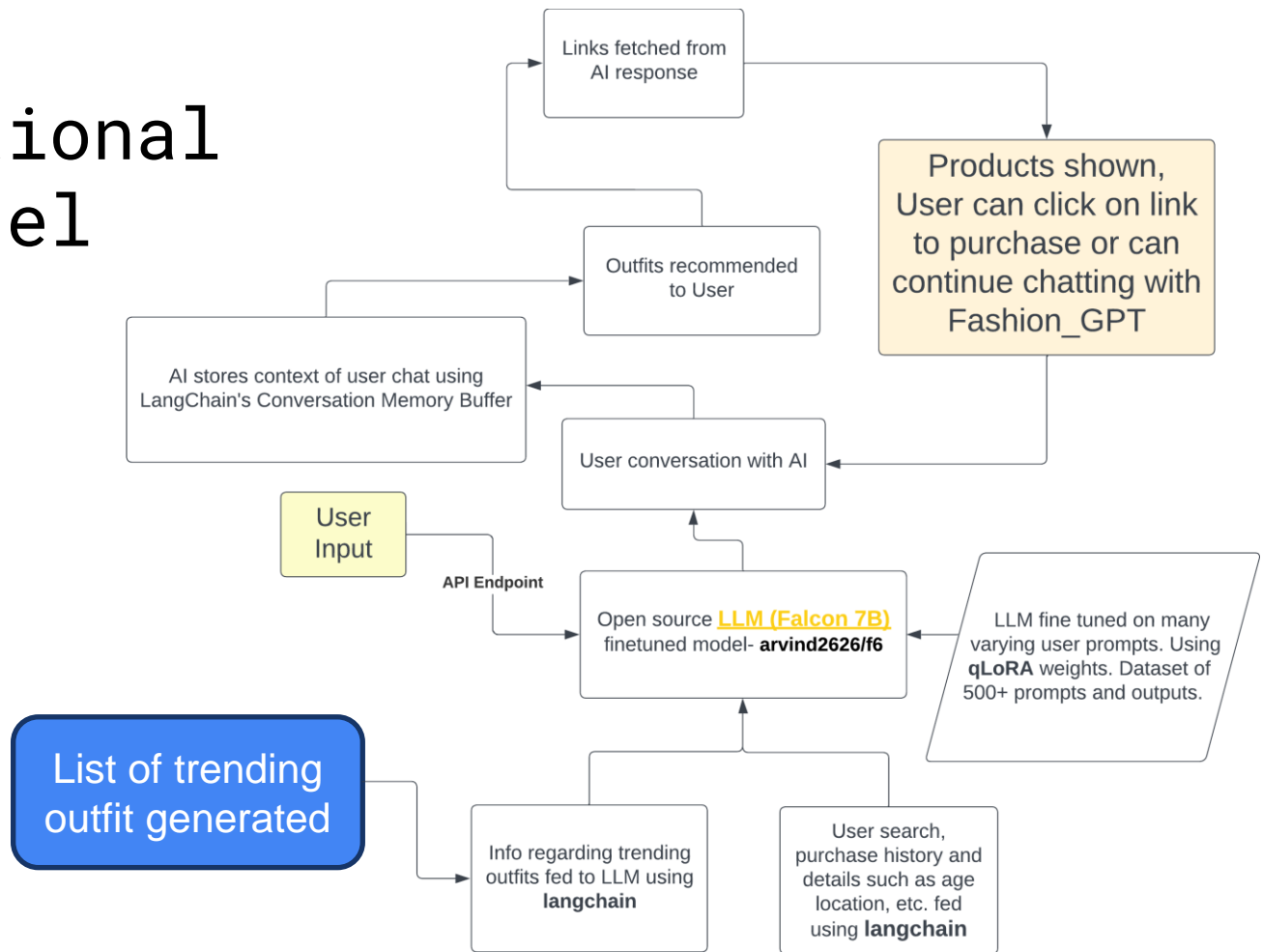
- Firstly, getting Vogue India Fashion URLs and then extracting the images and influencer names from these URLs. Also scraping Instagram for post.
- The next step is to save the extracted images and upload the images to google drive.
- Now , From the stored images remove the background and then store them into a new folder.





- Now , The images which are stored in the new folder are used to fetch outfit using zero-shot-image-classification.
- The next step is to rank the outfits on the basis of their score and then select the two outfits which have the highest scores, for each image.

Conversational AI Model



Our approach



localhost:3000

You: Hello I am Vinit.

AI: Hi Vinit! How can I help you today?

You: I prefer comfortable and loose-fitting clothing.


AI: Sure! Baggy clothes work well for your body type. You can try a short-sleeve t-shirt in a light color like white or light blue. The t-shirt should be loose and comfortable.

Outfit 1:
Top: Short-sleeve t-shirt in white or light blue
Bottom: Baggy jeans in dark wash
Footwear: White sneakers
Accessories: A black baseball cap and a leather bracelet

Outfit 2:
Top: Crew neck t-shirt in a neutral color like gray or black
Bottom: Baggy chinos in a light color like khaki or beige
Footwear: Brown loafers
Accessories: A leather belt and a watch
Outfit 3:
Top: V-neck t-shirt in a light color like light blue or white
Bottom: Baggy shorts in a neutral color like khaki or beige
Footwear: White sneakers
Accessories: A canvas backpack and a beanie

Collection 1

Topwear




max

Round Neck Lounge Tshirts

Rs. 198

BUY NOW

ADD TO CART




Lacoste

Polo Collar Casual T-shirt

Rs. 750

BUY NOW

ADD TO CART




Bonkers Corner

Printed Short Sleeve T-shirt

Rs. 799

BUY NOW

ADD TO CART




UNDER ARMOUR

Tech Vent Short Sleeve T-shirt

Rs. 2239

BUY NOW

ADD TO CART




UNDER ARMOUR

Logo Embroidered T-shirt

Rs. 2639

BUY NOW

ADD TO CART



UNDER ARMOUR


Tech Vent Short Sleeve T-shirt

Rs. 2799

BUY NOW

ADD TO CART

Bottomwear




Moda Rapido

Men Mid-Rise Baggy Fit Jeans

Rs. 1274

BUY NOW

ADD TO CART




Moda Rapido

Men Baggy Fit Mid-Rise Jeans

Rs. 1099

BUY NOW

ADD TO CART




H&M

90s Baggy Regular Jeans

Rs. 2699

BUY NOW

ADD TO CART




Levi's

Women Relaxed Fit Jeans

Rs. 2519

BUY NOW

ADD TO CART



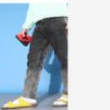
Kook N Keesh

Men Vintage Straight Jeans

Rs. 776

BUY NOW

ADD TO CART



Kook N Keesh

Men Street Look Denim


Rs. 1103

BUY NOW

ADD TO CART

Footwear

Footwear




U.S. Polo Assn.

Men Clarkin Sneakers

Rs. 1349

BUY NOW

ADD TO CART




Mast & Harbour

Men Striped Sneakers

Rs. 836

BUY NOW

ADD TO CART




Roadster

Men Sneakers

Rs. 872

BUY NOW

ADD TO CART




Kook N Keesh

Men Colourblocked Sneakers

Rs. 674

BUY NOW

ADD TO CART




El Paso

Men Colourblocked Sneakers

Rs. 838

BUY NOW

ADD TO CART



HIGHLANDER


Men Solid Sneakers

Rs. 696

BUY NOW

ADD TO CART

Accessories




Puma

Unisex Solid Baseball Cap

Rs. 279

BUY NOW

ADD TO CART




WROGN

Unisex Solid Baseball Cap

Rs. 599

BUY NOW

ADD TO CART




Jack & Jones

Men Printed Baseball Cap

Rs. 799

BUY NOW

ADD TO CART




New Era

Unisex Baseball Cap

Rs. 2699

BUY NOW

ADD TO CART




Yellow Chimes

Men Leather Bracelet

Rs. 311

BUY NOW

ADD TO CART



Fossil

Men Leather Link Bracelet

Rs. 4995

BUY NOW

ADD TO CART

Web application snippets

Limitations

- **Low GPU Resources** : Generally there are 4GB GPU RAM computers available which makes it difficult to use powerful LLMs . Due to which , currently we are using 7B LLM and if required resources are available we can use 70B LLM which may yield better results.
- **Unavailability of Flipkart API** : As sign-up for Affiliate program of Flipkart is closed, we could not use Flipkart's API for product searching.

Given adequate resources, we are confident in extending the project and optimizing the model to provide significantly improved accuracy and faster response times.

Future Scope

- **Advanced AI Techniques:** As AI technology continues to evolve, the outfit generator could incorporate more advanced techniques such as deep learning and reinforcement learning. This would lead to improved outfit recommendations, better understanding of user preferences, and more dynamic interactions.
- **Virtual Try-Ons:** Integrating virtual try-on capabilities would allow users to see how outfits look on their own images or avatars. This could be achieved using augmented reality (AR) or virtual reality (VR) technologies, giving users a more immersive shopping experience.
- **Real-Time Fashion Trend Analysis:** The generator could be equipped to analyze real-time fashion trends and adjust its recommendations accordingly. This could involve monitoring fashion shows, celebrity events, and other relevant sources.
- **Voice and Visual Inputs:** Expanding input options beyond text to include voice commands and image recognition would make the interaction more natural and intuitive.
- **Lip-Sync Voice NPC Interaction:** The user and the AI generator can be converted into two different NPC characters which can engage in conversations simulating human-like interaction for a more immersive and engaging experience.



Thank You