

IBM - NALAIYA THIRAN PROJECT

SMART FASHION RECOMMENDER APPLICATION

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ABSTRACT

Fashion is perceived as a meaningful way of self-expressing that people use for different purposes. It seems to be an integral part of every person in modern societies, from everyday life to exceptional events and occasions. Fashionable products are highly demanded, and consequently, fashion is perceived as a desirable and profitable industry. Although this massive demand for fashion products provides an excellent opportunity for companies to invest in fashion-related sectors, it also faces different challenges in answering their customer needs.

In recent years, the textile and fashion industries have witnessed an enormous amount of growth in fast fashion. On e-commerce platforms, where numerous choices are available, an efficient recommendation system is required to sort, order, and efficiently convey relevant product content or information to users. Smart Fashion Recommender Application have attracted a huge amount of attention from fast fashion retailers as they provide a personalized shopping experience to consumers. Smart Fashion Recommender Application have been introduced to address these needs.

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1. INTRODUCTION

1. PROJECT OVERVIEW

The Fashion industry is one of the larger industries around the world. One of the things that has remained constant throughout human civilization is humans covering their bodies with a piece of cloth. Initially, this cloth was worn as protection from the harsh climates of those ages. Later on, as we humans learned to fend for ourselves from the unforgiving climates, the cloth started to serve a different purpose. Fashion these days showcases the individuality of the person. There are many things that can be said about a person based on their fashion sense.

2. PURPOSE

There is currently no existing system that is capable of recommending clothes based on the occasion. Different occasions call for different clothing. Moreover, a lot of fashion is based on the color combinations of outfits. A person with no or little fashion sense will have a hard time to decide on clothes that leave a lasting impression. The proposed Fashion Recommendation System is intended to be used by individual users in order to store images of the clothes that they own in what is called a digital wardrobe and also to get recommendations by the system on what clothes to wear for a given occasion. The main aim of the project is to recommend the most appropriate clothes for a given occasion based on the clothes existing in the user's wardrobe to relieve the user of the burden of making decisions about what clothing to wear. Such a system should be capable of helping someone who has no fashion sense to wear clothes that leave a good impression on others. The system should be such that it is easily accessible and easy to take advantage of the various features that it provides. One of the features should be the ability to store images that the user uploads into a wardrobe. A wardrobe is a very useful entity that the user can use to view and manage the images of clothes that they have uploaded. This feature can also be used by the recommendation algorithm to recommend the clothes. Another feature is the classification of the type and color of the clothing that is uploaded by the user. The system should be capable of handling the 4 basic clothing types: Shirt, T-Shirt, Pants and Shoes.

2. LITERATURE SURVEY

2.1 EXISTING PROBLEM:

In existing system only simple web application and their rating has been implemented in existing system, An ecommerce product recommendation engine is a piece of technology that displays recommended products to shoppers throughout your store. It uses machine learning to get smarter and show increasingly relevant products to shoppers based on their interests and previous browsing behavior

In existing model is content based filtering scheme has been employed in existing model The content-based filtering method analyzes customer data on the likes and dislikes of each user (cookies allow tracking over multiple visits), then makes recommendations based on the browsing history of that user. The idea behind content-based filtering is that if you enjoy a certain item, you'll likely also enjoy a similar item. An example of a content based filtering system would be if you were listening to Pandora and consistently 'liked' down tempo jazz music.

The collaborative-filtering method incorporates data from users who have purchased similar products, then combines that information to make decisions about recommendations. The advantage to this filtering method is that it is capable of making complex recommendations on items such as music or movies without having to 'understand' what the item is. This method of filtering operates under the assumption that users will prefer recommendations that are based on purchases they made in the past. Here's an example: If customer A likes a specific line of products that customer B also likes (assuming they have similar interests), then collaborate-filtering would assume that customer A would like other products that customer B purchased and vice versa.

A hybrid method combines the content-based and collaborative-based methods to incorporate group decisions but focuses the output based on the attributes of a specific visitor. An example of a hybrid filtering system would be how Spotify curates its personalized 'Discover Weekly' playlists. If you've ever listened to a personalized Spotify playlist, it's shocking how accurately they're able to recommend songs based on what you like. The secret behind how they pull this off is through a complex hybrid filtering system that aggregates data on your listening habits as well as similar users' listening habits, to create a playlist of unique songs that align with your personal taste.

2. REFERENCES:

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2. Hou , M., Wu, L., Chen, E., Li, Z., Zheng, V . W., & Liu, Q.: Explainable fashion recommendation: A semantic attribute region guided approach. In Proceedings of the 28th Twenty-Eighth International Joint Conference on Artificial Intelligence, 2019; pp. 4681- 4688.
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7. M. Yang and K. Yu, "Real-time clothing recognition in surveillance videos," (2011)

In 18th IEEE International Conference on Image Processing, Brussels, 2011, pp. 2937

2940.

8. Y . Wen, X. Liu and B. Xu, "Personalized Clothing Recommendation Based on

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9. O'Connell, L. (n.d.). Topic: Apparel Market Worldwide. Retrieved August 30, 2020, from <https://www.statista.com/topics/5091/apparel-marketworldwide/>

10. Zhang, Yan & Liu, Xiang & Shi, Yunyu & Guo, Yunqi & Xu, Chaoqun & Zhang, Erwen & Tang, Jiaxun & Fang, Zhijun. (2017). Fashion Evaluation Method for Clothing Recommendation Based on Weak Appearance Feature. Scientific Programming. 2017. 1-12. 10.1155/2017/8093057.

3. PROBLEM STATEMENT DEFINITION

The personal information collected by recommenders raises the risk of unwanted exposure of that information. Also, malicious users can bias or sabotage the recommendations that are provided to other users. In recent years, the textile and fashion industries have witnessed an

Enormous amount of growth in fast fashion. On e-commerce platforms, where numerous choices are available, an efficient recommendation system is required to sort, order, and efficiently convey relevant product content or information to users.

- ☐ The problem of the work is to design static web applications deployments with customer deployment
- ☐ Lack of interaction between application and user
- ☐ User need to navigate across multiple pages to choose right product
- ☐ Confusion in choosing product
- ☐ Lack of sales
- ☐ Complex User Interface.
- ☐ Lack of proper guidance

3.IDEATION & PROPOSED SOLUTION

We have come up with a new innovative solution through which you can directly do your online shopping based on your choice without any search. It can be done by using the chat bot.

In this project you will be working on two modules : 1. Admin and 2. User

ADMIN:

The role of the admin is to check out the database about the stock and have a track of all the things that the users are purchasing.

USER:

The user will login into the website and go through the products available on the website. Instead of navigating to several screens for booking products online, the user can directly talk to Chat bot regarding the products. Get the recommendations based on information provided by the user.

FEATURESOF CHATBOT:

- ☐ Using chat bot we can manage user's choices and orders.
- ☐ The chat bot can give recommendations to the users based on their interests.
- ☐ It can promote the best deals and offers on that day.
- ☐ It will store the customer's details and orders in the database.
- ☐ The chat bot will send a notification to customers if the order is confirmed.
- ☐ Chat bots can also help in collecting customer feedback.

3.1 EMPATHY MAP:

An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes. It is a useful tool to helps teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges. An empathy map is a collaborative tool teams can use to gain a deeper insight into their customers.

3.2 IDEATION& BRAINSTROMING:

A group problem-solving technique that involves the spontaneous contribution of ideas from all members of the group. The mulling over of ideas by one or more individuals in an attempt to devise or find a solution to a problem.

PROPOSED SOLUTION

SMART FASHION RECOMMENDER APPLICATION

SLNO	PARAMETER	DESCRIPTION
1	Problem statement(problem To be solved)	<ul style="list-style-type: none"> •In E-commerce websites, users need to search for products and navigate across screens to view the product and order product. •A new innovative solution came up through which can directly make online shopping based on the choice of the user without any search. •It can be done by using the chat bot which can be achieved by a smart fashion recommender application.
2	Idea/ solution description	<ul style="list-style-type: none"> •The smart fashion recommender application leverages the use of a chat bot to interact with the users, gather information about their preferences, and recommend suitable products to the users. •User can be able to mention their preferences by interacting with chat bot. •The user must receive a notification on order confirmation/failure. •The chat bot must gather feedback from the user at the end of order confirmation
3	Novelty/ Uniqueness	<ul style="list-style-type: none"> •Chat bot asks and learns from user preference which recommends appropriate products to the user without making them search through various filters which reduces time and thus increases sales. •Instead of searching manually a chat bot will help to find the right product effectively, with this feature user can save time and it is an easy process, chat
		keep sending a notification about new collections

4	Social impact/Customer satisfaction	<p>Feedback from the user at the end of the session or after placing an order is one of the most important factors in deriving customer satisfaction and providing better services. •The model can recommend products that are more suitable to the customer.</p> <ul style="list-style-type: none"> • Directly do online shopping based on customer choice without any search. • It can also save a lot of time.
5	Business model (Revenue model)	<ul style="list-style-type: none"> •Due to market dynamics and customer preferences, there is a large vocabulary of distinct fashion products, as well as high turnover. •This leads to sparse purchase data, which challenges the usage of traditional recommender systems. •Better experience and Feasibility.
6	Scalability of the solution	<ul style="list-style-type: none"> •The solution can be made scalable by using micro service architecture provided that each server is responsible for certain functionality of the application. •Storing user preferences along with the product in the browser cookie will enable it to provide a response instantly and allows for fetching related products. •The scalability can be increased by increasing the number of products and also the accuracy of the product suggestions

Problem-Solution Fit canvas

Purpose / Value	SMART FASHION RECOMMENDER APPLICATION	
Discover C.S., differentiate B.C.	1. CUSTOMER SEGMENT(S) CS <ul style="list-style-type: none"> • Chatbot Shoppers who prefer the ease of contacting a chatbot to buy a product instead of search. • Website shoppers who browse online to buy products. • Discount seeking customers who often seek for discount in the product. 	6. CUSTOMER LIMITATIONS CL <small>BUDGET, DEVICES</small> <ul style="list-style-type: none"> • Website speed and search functions. • A quick finding of customer related products. • Reviews and ratings can attract customers. • Customers cannot bargain.
	2. PROBLEMS / PAINS - ITS FREQUENCY PR <ul style="list-style-type: none"> • The presence of a chatbot can help in asking and resolving customer queries. • Customer review of a product. • Availability of sort and filter options to show products relevant to customers. • Showing a comparison between products. • Showing products that are most relevant to them. • Availability of refund and return policies. • Track Order option. 	5. AVAILABLE SOLUTIONS AS <small>PROB & CONC</small> <ul style="list-style-type: none"> • FAQs to sort out queries of customers. • Availability of refund and return option. • Search for a specific product through the search bar. • Showing similar products of the selected product. • Category-wise product arrangement.
Produce and PR, keep PR as B.C., understand B.C. & B.P.	3. TRIGGERS TO ACT TR <ul style="list-style-type: none"> • Easy returns and refund policy. • Time-consuming. • Social proof and novelty. • Through advertisements, the users are triggered. 	9. PROBLEM ROOT / CAUSE RC <ul style="list-style-type: none"> • Network issue so that product could not load fast. • Long delivery. • Poor Tracking. • Product research and cross shopping. • During the festival, times may face network traffic and not on-time delivery issues. • May be slight variations in dresses on delivery than they ordered. • Sometimes customer service is not available.
	4. EMOTIONS EM <small>BEFORE / AFTER</small> <ul style="list-style-type: none"> • Before: Want to buy products on huge rush and frequently ask the vendor to show more products. • After: Anywhere anytime shopping and can easily see any number of products even if they don't buy. 	7. BEHAVIOR - ITS INTENSITY BE <ul style="list-style-type: none"> • Cross-check and compare with other sites. • Purchase the product and write a review. • Dispose goods and services over the internet. • Monitoring and evaluation. • Identify the issues. • Searching for the best fashion and good product. • Giving the best deals from sellers to customers.
Identify strong TR & B.P.	10. YOUR SOLUTION SL <ul style="list-style-type: none"> • A chatbot will recommend products related to the shoppers' search. • Get detailed information about the product and the product care. • Availability of review and rating options to give their feedback about the product bought. • Can compare products with various brands. • To provide a fashion recommender filter that clears their fashion queries. • And save the customer-related queries for future recommendations. 	8. CHANNELS OF BEHAVIOR CH <p>ONLINE</p> <ul style="list-style-type: none"> • Chat with chatbot. • Buy products. • Track and pay for the purchased products. <p>OFFLINE</p> <ul style="list-style-type: none"> • In place search for a relevant shop. • Search for products by walk. • Purchasing and manual billing. • Buy the products from the salesperson directly.

4.REQUIREMENTS ANALYSIS

4.1 FUNCTIONAL REQUIREMENTS

SMART FASHION RECOMMENDER APPLICATION

FR NO.	FUNCTIONAL REQUIREMENTS(EPIC)	SUB REQUIREMENT (STORY/SUB-TASK)
FR-1	sign up	Register by using mobile number/ Register by using e-mail id
FR-2	User verification	Verify via e-mail Verify via OTP
FR-3	login	Login by using username/password
FR-4	Profile Updation	Update the profile details like name, gender ,age, address & mobile number, etc.,
FR-5	Chat bot	Chat bot is useful to search products, view offers, discount and stock availability It is also used to solve queries and issues
FR-6	Ordering the product	After confirming the product, track the delivery via link received to your registered mobile number through SMS or registered e-mail id
FR-7	Tracking the ordered product	After ordering the product, track the delivery via link received to your registered mobile number through SMS or registered e-mail id
FR-8	logout	After receiving the product user can logout the account when he/she needs

4.2 NON-FUNCTIONAL REQUIREMENTS:

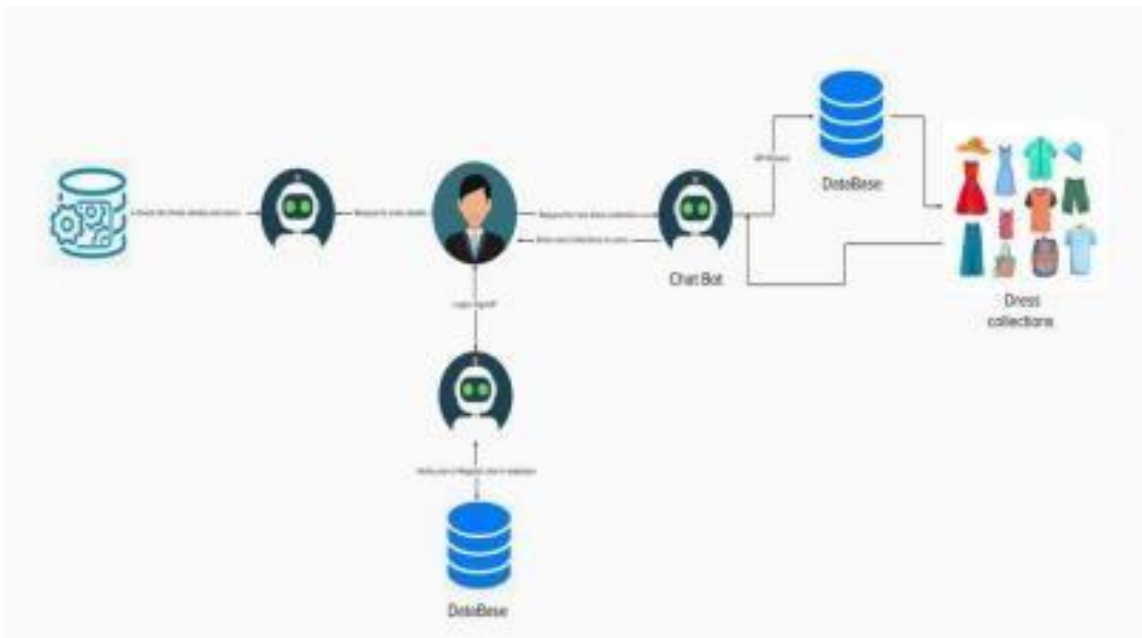
SMART FASHION RECOMMENDER APPLICATION

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The application will be designed in such a way that any user can easily navigate through it and user can easily view , order and track the product until delivery.(Easy and Compact design.)
NFR-2	Security	Using of SSL (Secure Socket Layer) certificate (Python Flask to Cloud connect) will provide security to the project. The user details will be kept as more secure.
NFR-3	Reliability	To make sure the application doesn't go down due to network traffic and the details entered in this application is kept as highly confidential, so it is highly reliable.
NFR-4	Performance	It focus on loading the application as quickly as possible irrespective of the number of users/integrator traffic.
NFR-5	Availability	This application will be available to all users (network connectivity is necessary) at any given point of time. Users can access the chatbot for raising any queries/ questions.
NFR-6	Scalability	Chatbot can be very useful during festival season to know about offers and discounts. It will be helpful whenever we make online shopping.

5.PROJECT DESIGN

5.1 DATA FLOW DIAGRAMS:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



5.2 SOLUTION & TECHNICAL ARCHITECTURE:

We have developed a new innovative solution through which you can directly do your online shopping based on your choice without any search. It can be done by using the chat bot.

In this project you will be working on two modules:

- Admin
- User Instead of searching for products in the search bar and navigating to individual products to find required preferences, this project leverages the use of chat bots to gather all required preferences and recommend products to the user. The solution is implemented in such a way as to improve the interactivity between customers and applications. The chat bot sends messages periodically to notify offers and preferences. For security concerns, this application uses a token to authenticate and authorize users securely. The token has encoded user id and role. Based on the encoded information, access to the resources is restricted to specific users.

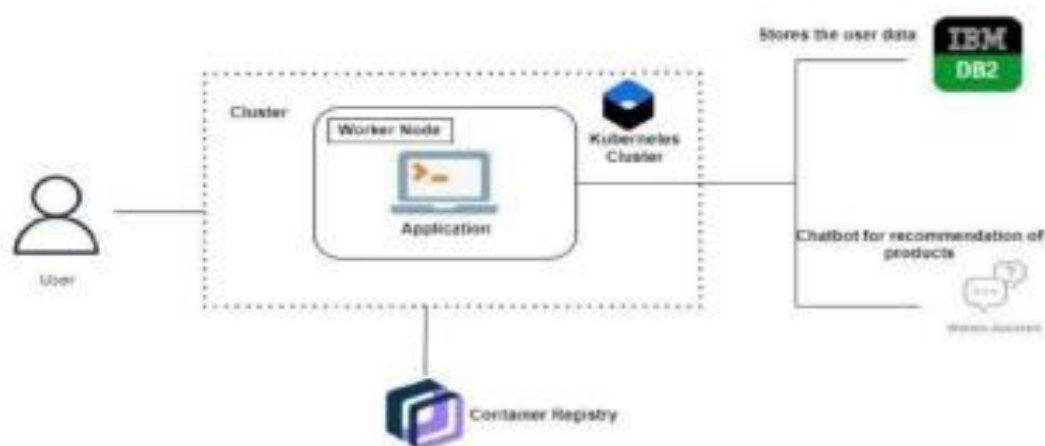


FIG 1: TECHNICAL MODEL

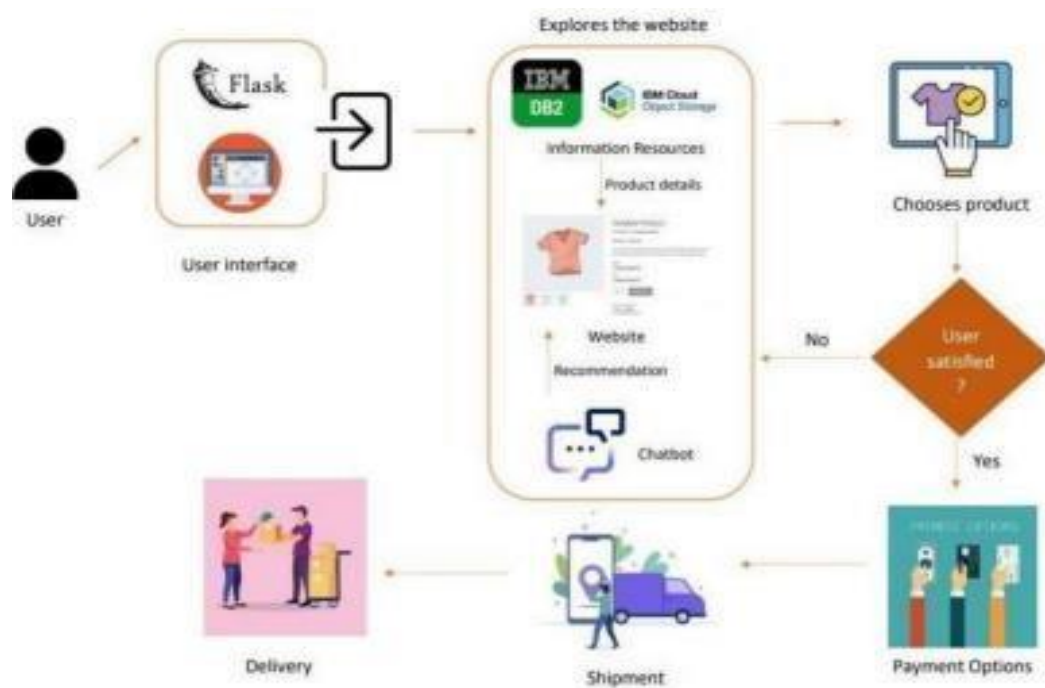


FIG 2: DEMO WORKING MODEL

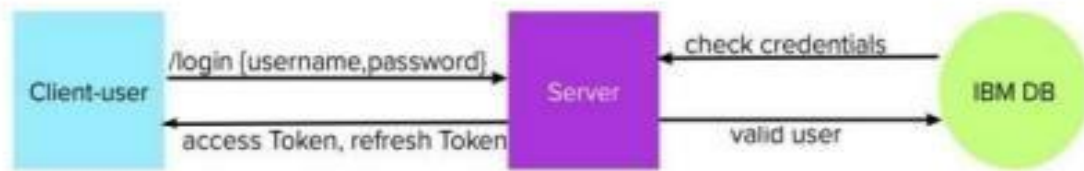


FIG 3: AUTHENTICATION PROCESS

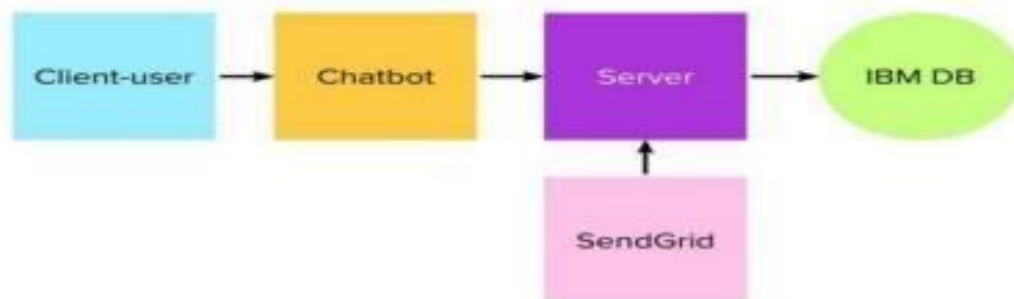


FIG 4: CLIENT-SERVER PROCESS

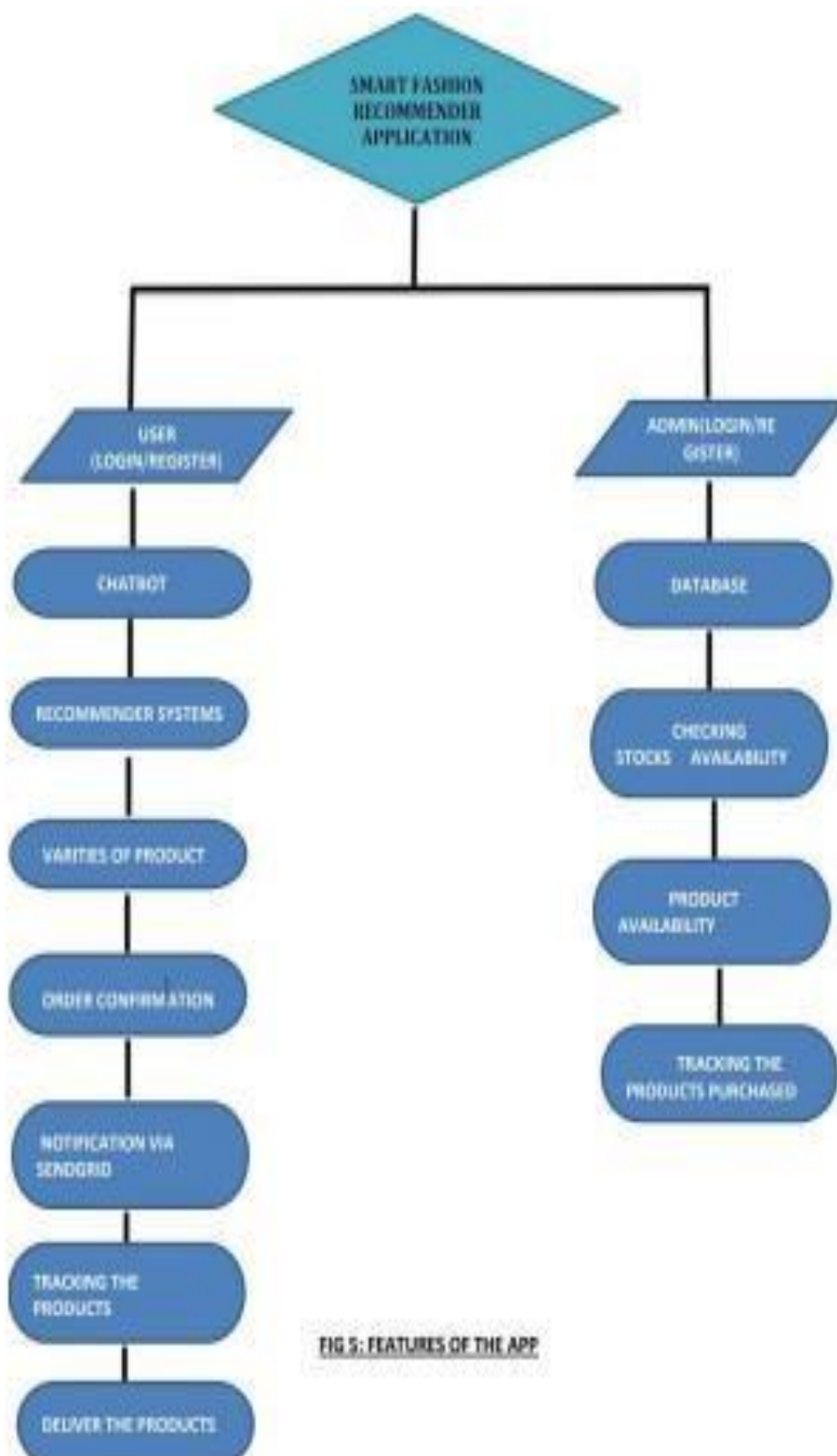


FIG 5: FEATURES OF THE APP

5.3 USER STORIES

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail		Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password	I can access my data by login	High	Sprint-1
	Dashboard	USN-6	As a user, I can view the dashboard and by products		High	Sprint -2
Customer (Web user)	Registration / Login	USN-7	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard		Sprint -1
Customer Care Executive	Contact with Customers	USN-8	As a Customer customers care executive, I solve the customer Requirements and feedback	I can receive calls from customers	High	Sprint-1

Administrator	Check stock and Price , orders	USN_9	As a Administrator , I can Check the database And stock details and buying and selling prices	I am the administrator of the company	High	Sprint -2
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6.PROJECT PLANNING

6.1 MILESTONES & ACTIVITY LIST

Remaining tasks (Milestones & Activities) to be completed

Milestones	Activities	Description
Project Development Phase	Delivery of Sprint – 1,2,3,4	To develop the code and submit the developed code by testing it
Setting up App environment	Create IBM Cloud account	Signup for an IBM Cloud account
	Create flask project	Getting started with Flask to create project
	Install IBM Cloud CLI	Install IBM Command Line Interface
	Docker CLI Installation	Installing Docker CLI on laptop
	Create an account in sendgrid	Create an account in sendgrid. Use the service as email integration to our application for sending emails
Implementing web Application	Create UI to interact with Application	Create UI <ul style="list-style-type: none">• Registration page• Login page• View products page• Add products page
	Create IBM DB2 & connect with python	Create IBM DB2 service in IBM Cloud and connect with python code with DB
Integrating sendgrid service	Sendgrid integration with python	To send emails form the application we need to integrate the Sendgrid service
Developing a chatbot	Building a chatbot and Integrate to application	Build the chatbot and Integrate it to the flask application
Deployment of App in IBM Cloud	Containerize the App	Create a docker image of your application and push it to the IBM container registry
	Upload image to IBM container registry	Upload the image to IBM container registry
	Deploy in kubernetes cluster	Once the image is uploaded to IBM Container registry deploy the image to IBM Kebernetes cluster

FINISHED TASK (MILESTONES & ACTIVITIES)

Milestones	Activities	Description
Ideation Phase	Literature Survey	Literature survey on the selected project & information gathering
	Empathy Map	Prepare Empathy map to capture the user Pains & Gains, prepare list of problem statement
	Ideation	Organizing the brainstorming session and prioritise the top 3 ideas based on feasibility & Importance
Project Design Phase I	Proposed Solution	Prepare proposed solution document which includes novelty, feasibility of ideas, business model, social impact, Scalability of solution
	Problem Solution Fit	Prepare problem solution fit document
	Solution Architecture	Prepare solution architecture document
Project Design Phase II	Customer Journey	Prepare customer journey map to understand the user interactions & experience with the application
	Functional requirement	Prepare functional & non functional requirement document
	Data Flow Diagram	Prepare Data Flow Diagram and user stories
	Technology architecture	Draw the technology architecture diagram
Project Planning Phase	Milestones & Activity list	Prepare milestones and activity list of the project
	Sprint Delivery Plan	Prepare sprint delivery plan

7. CODING

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <meta http-equiv="X-UA-Compatible" content="IE=edge">

  <meta name="viewport" content="width=device-width, initial-scale=1.0">

  <title>RST/Home</title>

  <link rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/fontawesome/4.7.0/css/fontawesom
e.min.css">

  <link rel="stylesheet"
href="https://rakesh87.s3.useast.cloudobjectstorage.appdomain.cloud/style.css"
>

</head>

<body>

  <section id="header">

    <a href="#"></a>

    <div>

      <ul id="navbar">
```

```

    <li><a class="active" href="index.html">Home</a></li>
<li><a href="products.html">Products</a></li>

<li><a href="blog.html">Blog</a></li>
    <li><a href="about.html">About</a></li>
    <li><a href="contact.html">Contact</a></li>
    <li><a href="cart.html"><i class="fa fa-shopping-bag"></i></a></li>
    <li><a href="register.html"><i class="fa fa-usersecret"></i></a></li>

</ul>

```

```

</section>

```

```

<section id="hero">
    <h4>"Happiness Depends Upon Ourselves"</h4>
    <h2>Smart Fashion Recommender</h2>
    <h1>Application</h1>
    <p>Dress Up In Confidence</p>
    <button class="normal">Shop now</button>

</section>

```

```

<section id="feature" class="section-p1">
    <div class="fe-box">
        
        <h6>Free Shipping</h6>
    </div>

```



```

</div>

<div class="fe-box">

        <h6>Online Order</h6>

</div>

<div class="fe-box">

    <h6>Save Money</h6>
</div>
<div class="fe-box">
    
    <h6>Promotions</h6>
</div>
<div class="fe-box">
    
    <h6>Happy Sell</h6>
</div>
<div class="fe-box">
    
    <h6>F24/7 Support</h6>
</div>
</section>

<section id="product1" class="section-p1">
    <h2>Featured Product</h2>
    <p>New Collections New Modern Designs</p>
    <div class="pro-container">
        <div class="pro">
            
            <div class="des">
                <span>Attitude</span>
                <h5>Blue n Brown T-Shirts</h5>
                <div class="star">

```

```

<i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
<i class="fa fa-star"></i>
    </div>
    <h4>₹1500</h4>
    </div>
    <a href="#"><i class="fa fa-shopping-bag bag"></i></a>
</div>
<div class="pro">
    
    <div class="des">
        <span>U.S.Polo Assnn</span>
        <h5>Blue strip T-Shirts</h5>
        <div class="star">
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
        <i class="fa fa-star"></i>
    </div>
    <h4>₹1570</h4>
    </div>
    <a href="#"><i class="fa fa-shopping-bag bag"></i></a>
</div>
<div class="pro">
    
    <div class="des">
        <span>Zara</span>
        <h5>Plain T-Shirts</h5>
        <div class="star">
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
        <i class="fa fa-star"></i>
    </div>
    <h4>₹1400</h4>
    </div>
    <a href="#"><i class="fa fa-shopping-bag bag"></i></a>
</div>
<div class="pro">
    

```

```

<div class="des">
  <span>Ruralking</span>
  <h5>Checked T-Shirts</h5>
  <div class="star">
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
  <i class="fa fa-star"></i>
</div>
  <h4>₹2000</h4>
</div>
  <a href="#"><i class="fa fa-shopping-bag bag"></i></a>      </div>
<div class="pro">
  
  <div class="des">
    <span>Banarasi</span>
    <h5>Georgette Bandhani Rama Blue & Olive Green Saree</h5>
    <div class="star">
      <i class="fa fa-star"></i>
      <i class="fa fa-star"></i>
      <i class="fa fa-star"></i>
      <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
  </div>
    <h4>₹10,000</h4>
  </div>
  <a href="#"><i class="fa fa-shopping-bag bag"></i></a>
</div>
  <div class="pro">
    
    <div class="des">
      <span>Banarasi</span>
      <h5>Banarasi Silk Jaal Dark Maroon Saree</h5>
      <div class="star">
        <i class="fa fa-star"></i>
        <i class="fa fa-star"></i>
        <i class="fa fa-star"></i>
        <i class="fa fa-star"></i>
      <i class="fa fa-star"></i>
    </div>
      <h4>₹9000</h4>
    </div>
    <a href="#"><i class="fa fa-shopping-bag bag"></i></a>
  </div>

```

```

        <div class="pro">
            
            <div class="des">
                <span>Banarasi</span>
                <h5>Banarasi Silk Buttis Yellow Saree</h5><br>
                <div class="star">
                    <i class="fa fa-star"></i>
                    <i class="fa fa-star"></i>
                    <i class="fa fa-star"></i>
                    <i class="fa fa-star"></i>
                </div>
                <i class="fa fa-star"></i>
            </div>
            <h4>₹8000</h4>
        </div>
        <a href="#"><i class="fa fa-shopping-bag bag"></i></a>
    </div>
    <div class="pro">
        
        <div class="des">
            <span>Banarasi</span>
            <h5>Banarasi Silk Jaal Purple Saree</h5><br>
            <div class="star">
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
            </div>
            <h4>₹6000</h4>
        </div>
        <a href="#"><i class="fa fa-shopping-bag bag"></i></a>
    </div>
</div>
</section>

<section id="banner" class="section-m1">
    <h4>Repair Services</h4>
    <h2>Up to <span>70% off</span> All t-Shirts & Accessories</h2>
    <a href="products.html"><button class="normal">Explore More</button></a>
</section>

<section id="product1" class="section-p1">
    <h2>New Arrivals</h2>
    <p>Branded shoe's and T-shirts </p>
    <div class="pro-container">

```

```

    <div class="pro">
        
        <div class="des">
            <span>adidas</span>
<h5>Blue Shoe</h5>
            <div class="star">
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
<i class="fa fa-star"></i>
            </div>
            <h4>₹6000</h4>
        </div>
        <a href="#"><i class="fa fa-shopping-bag bag"></i></a>
    </div>
    <div class="pro">
        
        <div class="des">
            <span>Bata</span>
<h5>Brown leather shoe</h5>
            <div class="star">
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
<i class="fa fa-star"></i>
            </div>
            <h4>₹8000</h4>
        </div>
        <a href="#"><i class="fa fa-shopping-bag bag"></i></a>
    </div>
    <div class="pro">
        
        <div class="des">
            <span>Nike</span>
<h5>Sandle High Heel</h5>
<div class="star">
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
<i class="fa fa-star"></i>
        </div>
    </div>

```

```

        <h4>₹6600</h4>
    </div>
    <a href="#"><i class="fa fa-shopping-bag bag"></i></a>
</div>
<div class="pro">
    
    <div class="des">
        <span>Walkaroo</span>
        <h5>Brown High Heel</h5>
        <div class="star">
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
        <i class="fa fa-star"></i>
    </div>
    <h4>₹7800</h4>
</div>
<a href="#"><i class="fa fa-shopping-bag bag"></i></a>
</div>
<div class="pro">
    
    <div class="des">
        <span>Zara</span>
        <h5>Black Smile T-Shirts</h5>
        <div class="star">
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
        <i class="fa fa-star"></i>
    </div>
    <h4>₹900</h4>
</div>
<a href="#"><i class="fa fa-shopping-bag bag"></i></a>
</div>
<div class="pro">
    
    <div class="des">
        <span>Zara</span>
        <h5>Pink dog T-Shirts</h5>
        <div class="star">
            <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>

```

```

        <i class="fa fa-star"></i>
        <i class="fa fa-star"></i>
    <i class="fa fa-star"></i>
    </div>
    <h4>₹900</h4>
    </div>
    <a href="#"><i class="fa fa-shopping-bag bag"></i></a>
    </div>
    <div class="pro">
        
        <div class="des">
            <span>Zara</span>
            <h5>Black and White Trendy Shirt</h5>
            <div class="star">
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
            <i class="fa fa-star"></i>
        </div>
        <h4>₹1500</h4>
    </div>
    <a href="#"><i class="fa fa-shopping-bag bag"></i></a>
    </div>
    <div class="pro">
        
        <div class="des">
            <span>Zara</span>
            <h5>Green Panda Shirt</h5>
            <div class="star">
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
                <i class="fa fa-star"></i>
            </div>
            <h4>₹600</h4>
        </div>
        <a href="#"><i class="fa fa-shopping-bag bag"></i></a>
    </div>
</div>
</section>

<section id="sm-banner" class="section-p1">
    <div class="banner-box">

```

```

    <h4>Crazy Deals</h4>
    <h2>Buy 1 get 1 free</h2>
    <span>The best classic dress is on sale at U Nik</span>
    <a href="products.html"><button class="white">Learn More </button></a>
</div>
<div class="banner-box banner-box2">
    <h4>spring/summer</h4>
    <h2>upcommig seasons</h2>
    <span>The best classic dress is on sale at U Nik</span>
    <a href="blog.html"><button class="white">Collection</button></a>
</div >
</section>
<section id="banner3">
    <div class="banner-box">
        <h2>SEASONAL SALE</h2>
        <h3>Winter collection 50% off</h3>
    </div >
    <div class="banner-box banner-box2">
        <h2>SEASONAL SALE</h2>
        <h3>Winter collection 50% off</h3>
    </div >
    <div class="banner-box banner-box3">
        <h2>SEASONAL SALE</h2>
        <h3>Winter collection 50% off</h3>
    </div >
</section>

<section id="newsletter" class="section-p1">
    <div class="newstext">
        <h4>Sign up for NewsLetters</h4>
        <p>Get Email updates about our latest shop and <span>special offer</span>
        </p>
    </div>
    <div class="form">
        <input type="text" placeholder="Your E-mail Address">
        <button class="normal">Sign Up</button>
    </div>
</section>

<footer class="section-p1">
    <div class="col">
        
        <h4>Contact</h4>
        <p><strong>E-Mail: </strong>rstsmartfashion@gmail.com</p>
        <p><strong>Phone: </strong>1234567890</p>

```



```

        <div class="follow">
<h4>Follow us</h4>
        <div class="icon">
            <i class="fa fa-facebook-f"></i>
            <i class="fa fa-twitter"></i>
            <i class="fa fa-instagram"></i>
            <i class="fa fa-pinterest-p"></i>
            <i class="fa fa-youtube"></i>
        </div>
    </div>
</div>

<div class="col">
    <h4>About</h4>
    <a href="#">About us</a>
    <a href="#">Delivery Information</a>
    <a href="#">Privacy Policy</a>
    <a href="#">Terms & Conditions</a>
    <a href="#">Contact us</a>
</div>

<div class="col">
    <h4>My Account</h4>
    <a href="#">Sign In</a>
    <a href="#">View Cart</a>
    <a href="#">My Wishlist</a>
    <a href="#">Track my order</a>
    <a href="#">Help</a>
</div>

</footer>
    <div class="copyright">
        <center><p>© 2022, PNT2022TMI36870 - Smart Fashion Recommender
Application </p></center>
    </div>

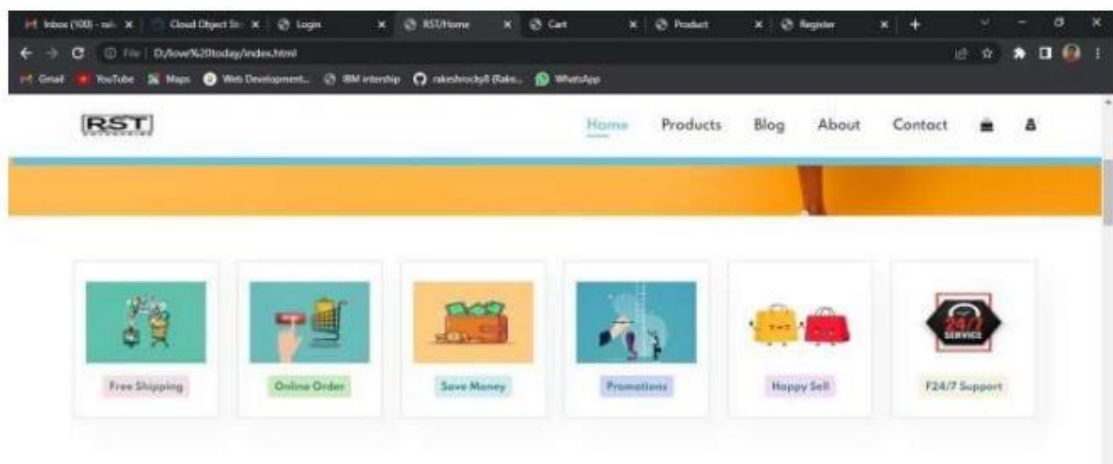
    <script src="script.js"></script>

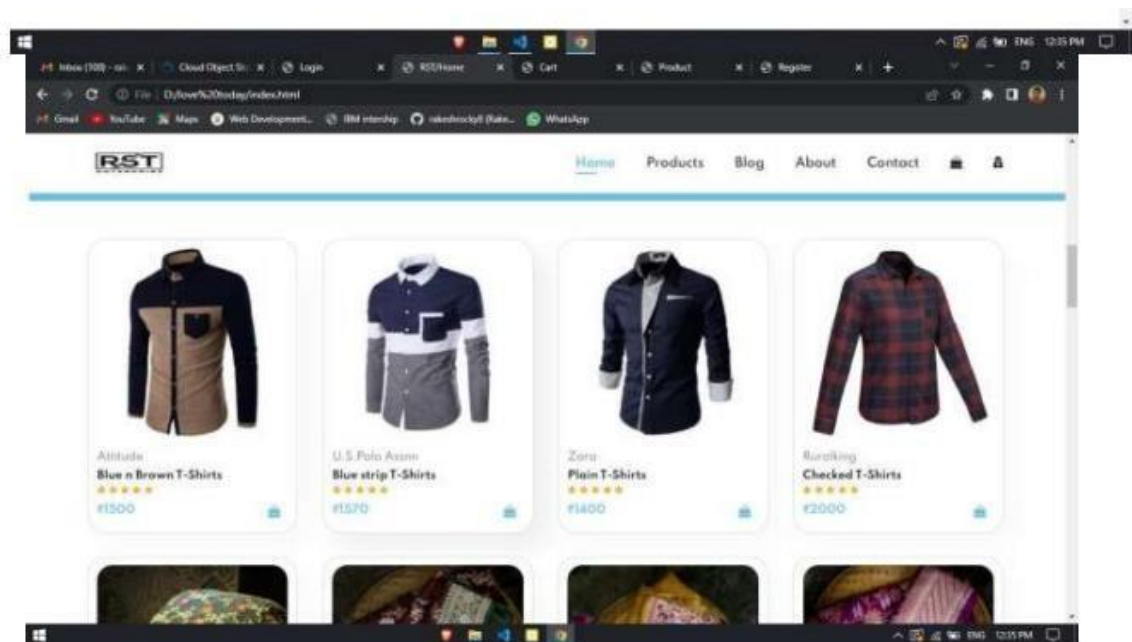
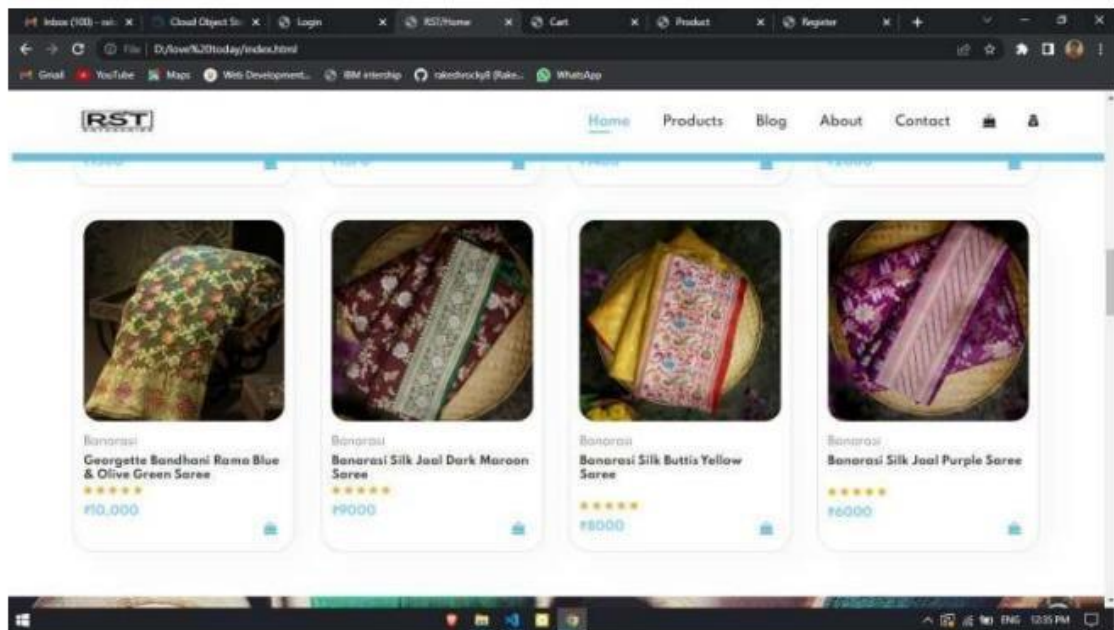
</body>

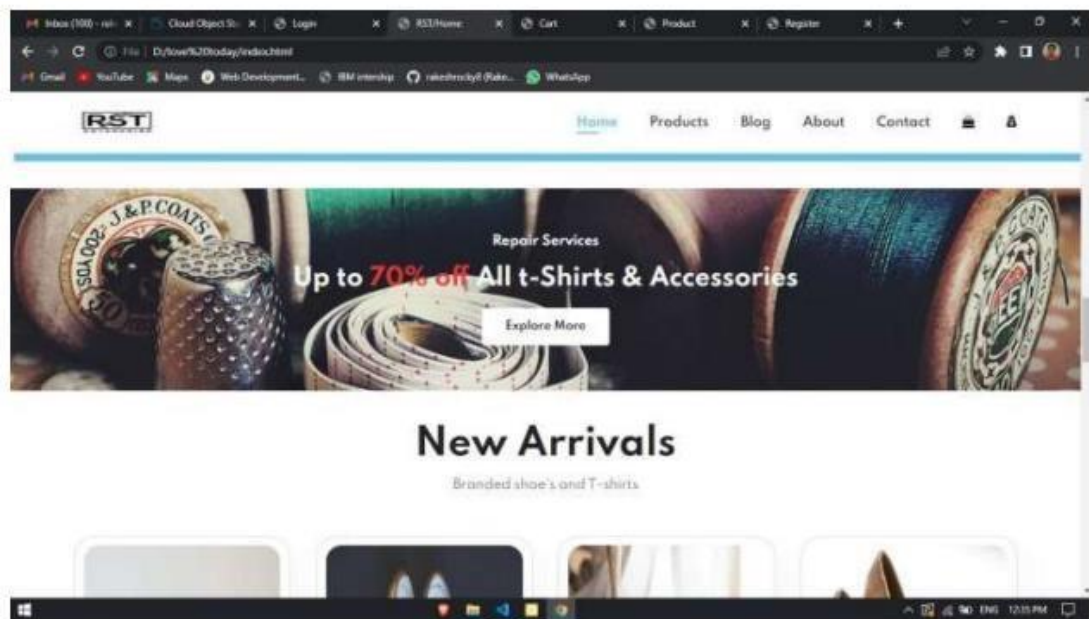
</html>

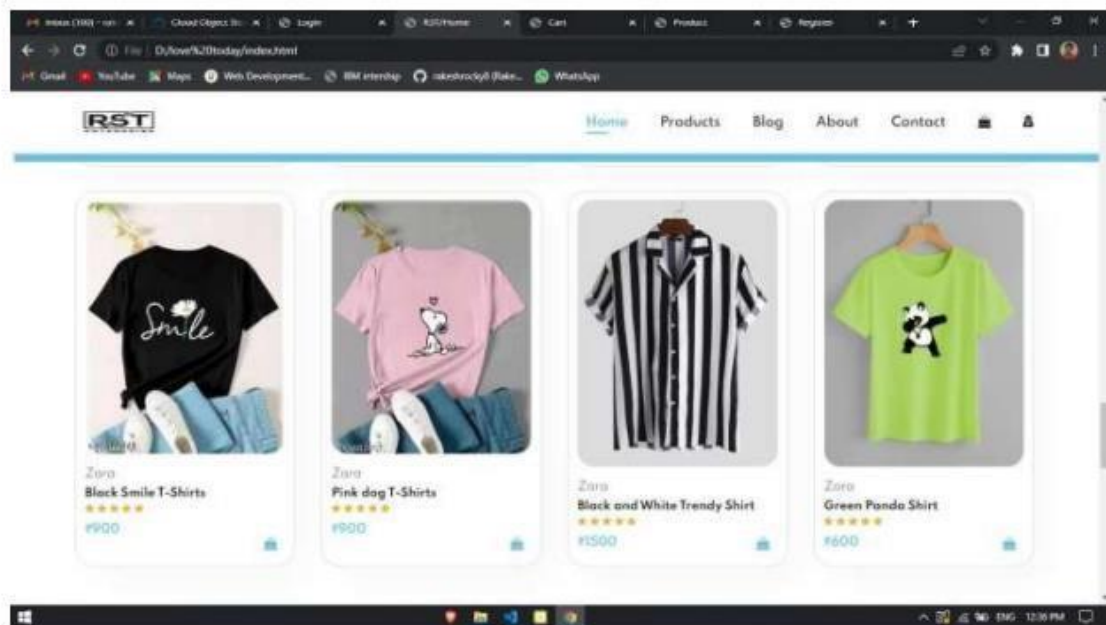
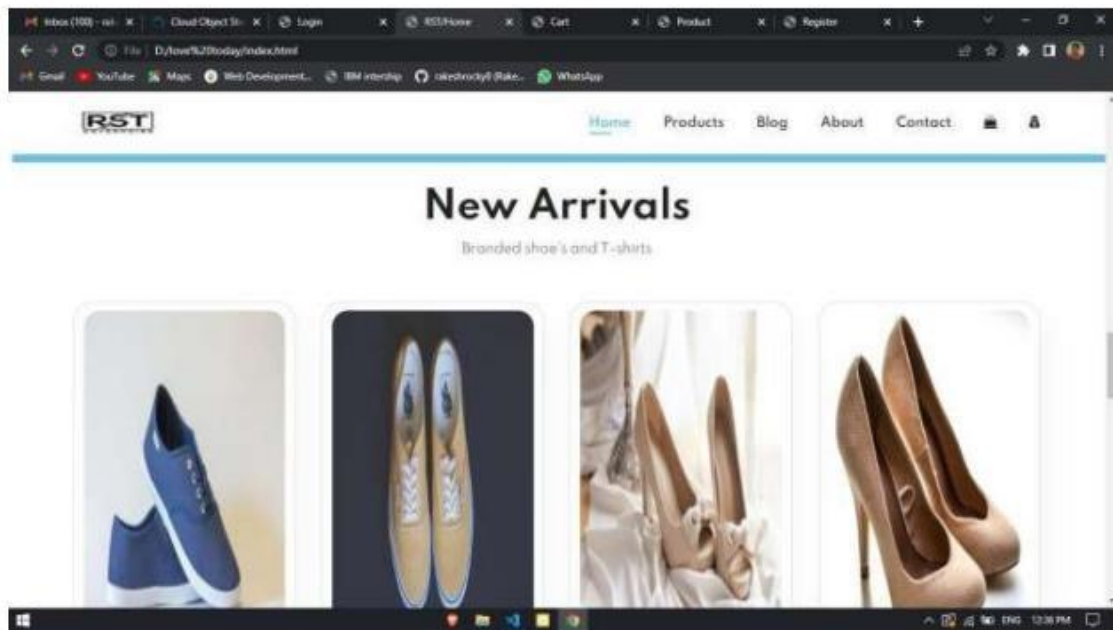
```

8.OUTPUT









9.CONCLUSION

The Fashion Recommendation System is mainly used to recommend the best possible outfit combinations to a user who has no fashion sense based on their wardrobe. It may not always provide the best possible outfit to wear for an occasion as the system is dependent completely on the clothes present in the user's wardrobe. Also another reason is that fashion is highly dependent on the time period. However the system does a great job in inculcating a fashion sense among the users and can provide the best recommendations based on the user's wardrobe. Since the system is implemented as a website, it is very easy for the end users to access as well as use. The scope of this system can be expanded by including the ability to detect the various design and patterns on clothing, and to increase the number of occasions. Recommendation systems have the potential to explore new opportunities for retailers by enabling them to provide customized recommendations to consumers based on information retrieved from the Internet. They help consumers to instantly find the products and services that closely match with their choices.

DEMONSTRATION LINK:

https://1drv.ms/v/s!AtCxzZB6dAVYbTjx8LOtBtHP__4