

SMART FASHION RECOMMENDER APPLICATION

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1. INTRODUCTION

1.1 PROJECT OVERVIEW

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. Image-based fashion recommendation systems (FRSs) have attracted a huge amount of attention from fast fashion retailers as they provide a personalized shopping experience to consumers. With the technological advancements, this branch of artificial intelligence exhibits a tremendous amount of potential in image processing, parsing, classification, and segmentation. Despite its huge potential, the number of academic articles on this topic is limited. The available studies do not provide a rigorous review of fashion recommendation systems and the corresponding filtering techniques. To the best of the authors' knowledge, this is the first scholarly article to review the state-of-the-art fashion recommendation systems and the corresponding filtering techniques. In addition, this review also explores various potential models that could be implemented to develop fashion recommendation systems in the future. This paper will help researchers, academics, and practitioners who are interested in machine learning, computer vision, and fashion retailing to understand the characteristics of the different fashion recommendation systems.

1.2 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 the online internet era, the idea of Recommendation technology was initially introduced in the mid-90s. Proposed CRESA that combined visual features, textual attributes and visual attention of the user to build the clothes profile and generate recommendations. Utilized fashion magazines photographs to generate recommendations. Multiple features from the images were extracted to learn the contents like fabric, collar, sleeves, etc., to produce recommendations. In order to meet the diverse needs of different users, an intelligent Fashion recommender system is studied based on the principles of fashion and aesthetics. To generate garment recommendations, customer ratings and clothing were utilized in The history of clothes and accessories, weather conditions were considered in to generate recommendations.

2.2 REFERENCES

1. Guan, C.; Qin, S.; Ling, W.; Ding, G. Apparel recommendaton system evoluton: An empirical review. *Int. J. Cloth. Sci. Technol.* 2016, 28, 854–879, doi:10.1108/ijcst-09-20150100.

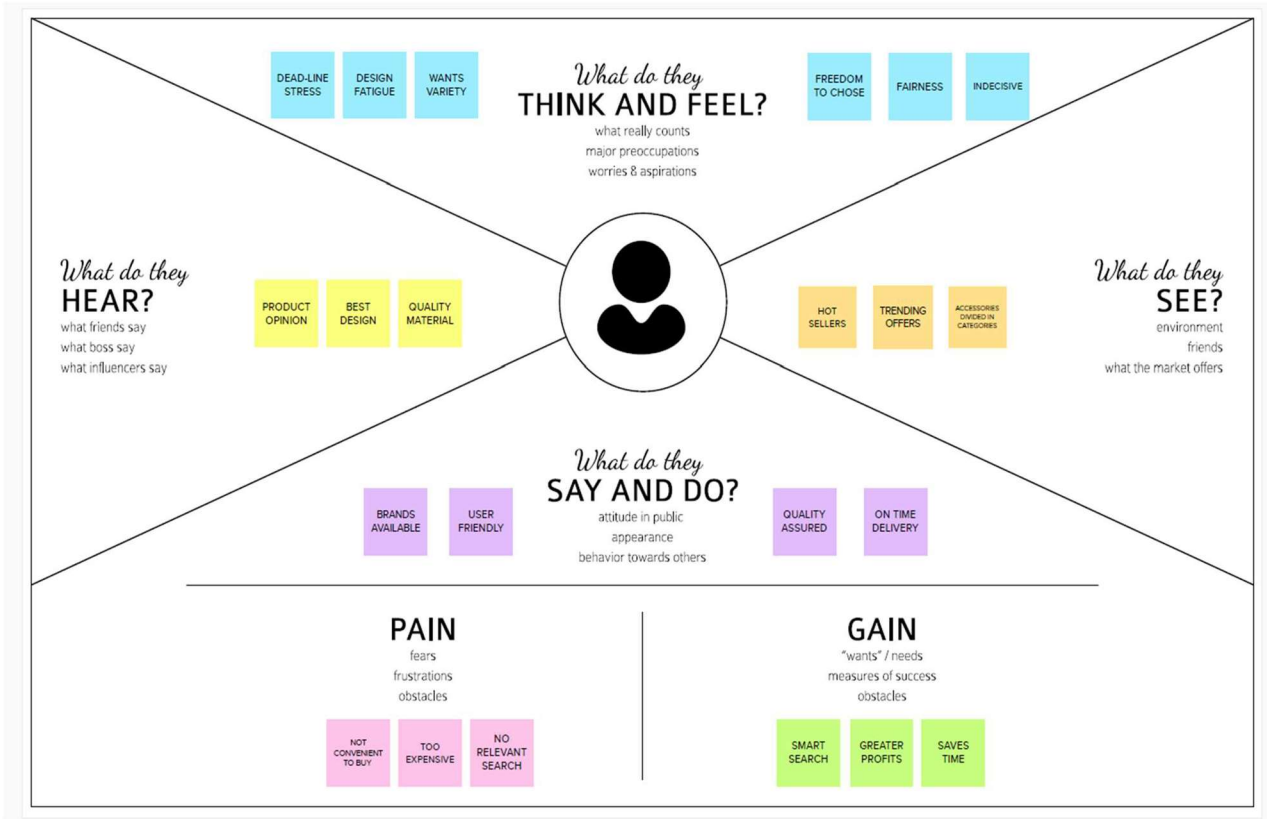
2. Hu, Y.; Manikonda, L.; Kambhampati, S. What we Instagram: A first analysis of Instagram photo content and user types. Available online: <http://www.aaai.org> (accessed on 1 May 2014).
3. Gao, G.; Liu, L.; Wang, L.; Zhang, Y. Fashion clothes matching scheme based on Siamese Network and AutoEncoder. *Multimed. Syst.* 2019, 25, 593– 602, doi:10.1007/s00530-01900617-9.
4. Liu, Y.; Gao, Y.; Feng, S.; Li, Z. Weather-to-garment: Weather-oriented clothing recommendaton. In *Proceedings of the 2017 IEEE International Conference on Multimedia and Expo. (ICME)*, Hong Kong, China, 31 August 2017; pp. 181– 186, doi:10.1109/ICME.2017.8019476.
5. Chakraborty, S.; Hoque, M.S.; Surid, S.M. A comprehensive review on imagebased style prediction and online fashion recommendaton. *J. Mod. Tech. Eng.* 2020, 5, 212–233.

2.3 PROBLEM STATEMENT DEFINITION

In this project, we propose a model that uses Convolutional Neural Network and the Nearest neighbour backed recommender. As shown in the figure Initially, the neural networks are trained and then an inventory is selected for generating recommendations and a database is created for the items in inventory. The nearest neighbour's algorithm is used to find the most relevant products based on the input image and recommendations are generated. The system comprises of the Client tier, which is the front end or View mode, middle tier which is the system controller and the backend tier which is the model. The client side is where the users/customers log in in the system, browse for the system interface, provide input query image to the system, and get recommendation according to the input query. The middle tier is responsible for communication between the front end and the back end. It receives user requests and sends them to the back end and in turn accepts responses from the back end and sends them to the user.

3. IDEATION & PROPOSED SOLUTION

3.1 EMPATHY MAP CANVAS



3.2 IDEATION & BRAINSTORMING

1

Smart Fashion Recommender Application
solving the users problems in purchase Online shopping

6 minutes

PROBLEM
How might we (your problem statement)?

Key rules of brainstorming
(focus on smooth and productive session)

- Stay in topic.
- Encourage wild ideas.
- Defer judgment.
- Listen to others.
- Go for volume.
- If possible, be visual.

2

Brainstorm
Write down any ideas that come to mind that address your problem statement.

10 minutes

Type your text

Magesh		Nilash	
Trending Designs clothes	Shop with Assistant	Save Time	All size of clothes
Discounts & Offers	Cash on Delivery	24/7 Shopping	Home Delivery

Gurumoorthy		Aadithya	
Easy Price Comparison	Easy to send gifts	Reviews of Products	Shopping via the internet saves time
Online Tracking	Online Tracking	No need to travel	Free shipping

3

Prioritize
Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

Importance

Feasibility

Each of these ideas should get done without any difficulty or cost, which makes them a high priority.

3.3 PROPOSED SOLUTION

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Customers find it difficult to search through multiple websites in need for fashionable clothes and accessories.
2.	Idea / Solution description	The app provides fashions suited according to the taste or necessity requested by the customer.
3.	Novelty / Uniqueness	The customer will talk to Chat Bot regarding the Products. Get the recommendations based on information provided by the user
4.	Social Impact / Customer Satisfaction	User friendly interface. The bot gets inputs from the user regarding their needs and provides them with the required output.
5.	Business Model (Revenue Model)	Based on the customer preference, recommendations are made. This yields good revenue to the investor as the demands of the customer is met.
6.	Scalability of the Solution	Expanding the collaboration among various brands.

3.4 PROBLEM SOLUTION FIT

Project Title: Smart Fashion Recommender Application

Project Design Phase-I - Solution Fit Template

Define CS, fit into CC	1. CUSTOMER SEGMENT(S) <small>Who is your customer? i.e. working parents of 0-5 y.o. kids</small> <div>The Customers are mostly Adults & Teens of age group between 15- 45.</div>	6. CUSTOMER CONSTRAINTS <small>What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices</small> <div>Money and Network Connection</div>	5. AVAILABLE SOLUTIONS <small>Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking</small> <div>When they have problem with choosing the preferred output Pros: Handy, Time constraint Cons: Frequent returns and repayment, Quality.</div>	Explore AS, differentiate
	2. JOBS-TO-BE-DONE / PROBLEMS <small>Which jobs to be done (or problems) do you address for your customers? There could be more than one, explore different sides.</small> <div>People find it hard to dress up according to changing trends.</div>	9. PROBLEM ROOT CAUSE <small>What is the real reason that this problem exists? What is the back story behind the need to do this job? i.e. customers have to do it because of the change in regulations</small> <div>Customers need it due to the daily changing trends towards clothes .</div>	7. BEHAVIOUR <small>What does your customer do to address the problem and get the job done? i.e. Directly related: find the right solar panel installer, calculate usage and benefits, indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)</small> <div>Customers spend time in searching for trendy, comfortable and preferred outfits on them.</div>	
Focus on J&P, tap into BE, understand RC	3. TRIGGERS <small>What triggers customers to act? i.e. seeing their neighbor installing solarpanels, reading about a more efficient solution in the news.</small> <div>Seeing neighbor Dressing Styles</div>	10. YOUR SOLUTION <small>If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behavior.</small> <div>Make a Chatbot Assistant for shopping with customers and send notifications when new collections arrived</div>	8. CHANNELS OF BEHAVIOUR 8.1 ONLINE <small>What kind of actions do customers take online? Extract online channels from #7</small> 8.2 OFFLINE <small>What kind of actions do customers take offline? Extract offline channels from #7and use them for customer development.</small> <div>ONLINE: They look into reviews before ordering for a dress. OFFLINE: Try them on before buying them.</div>	Identify strong TR & EM
	4. EMOTIONS: BEFORE / AFTER <small>How do customers feel when they face a problem or a job and afterwards? i.e. lost, insecure > confident, in control - use it in your communication strategy & design.</small> <div>Feeling insecure, sad and uncomfortable >Confident, Bright</div>			

4. REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENT

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form

FR-2	User Interaction	Interact through the Chat Bot
FR-3	Buying Products	Through the chat Bot Recommendation
FR-4	Track Products	Ask the Chat Bot to Track my Orders
FR-5	Return Products	Through the chat Bot
FR_6	New Collections	Recommended from chat Bot

4.2 NON-FUNCTIONAL REQUIREMENT

Non-functional Requirements:

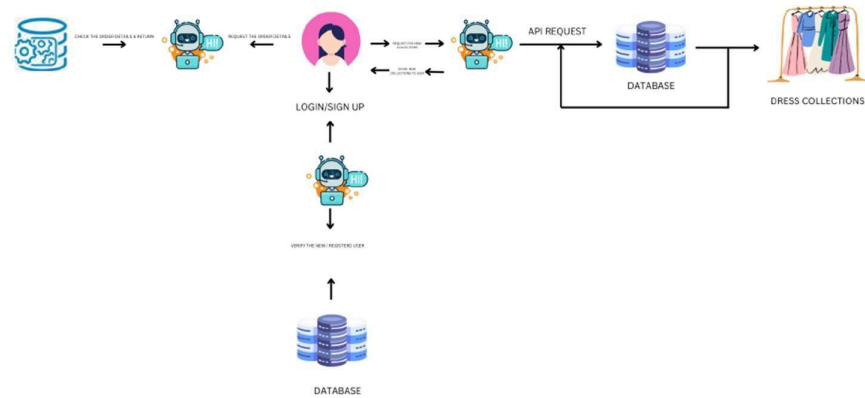
Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Using Android or IOS or windows applications.
NFR-2	Security	The user data is stored securely in IBM cloud.
NFR-3	Reliability	The Quality of the services are trusted.
NFR-4	Performance	Its Provide smooth user experience.
NFR-5	Availability	The services are available for 24/7.
NFR-6	Scalability	Its easy to scalable size of users and products.

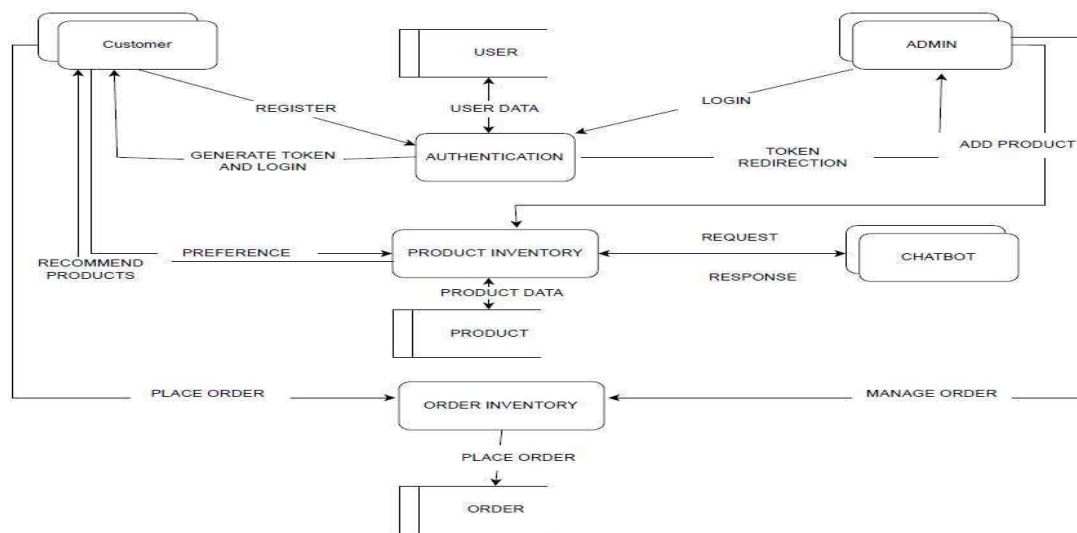
5. PROJECT DESIGN

5.1 DATA FLOW DIAGRAM

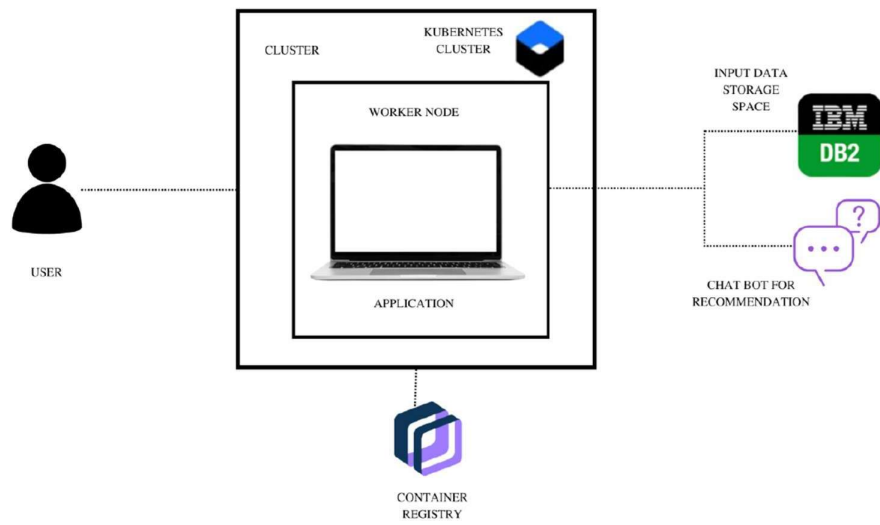
Data Flow Diagrams:

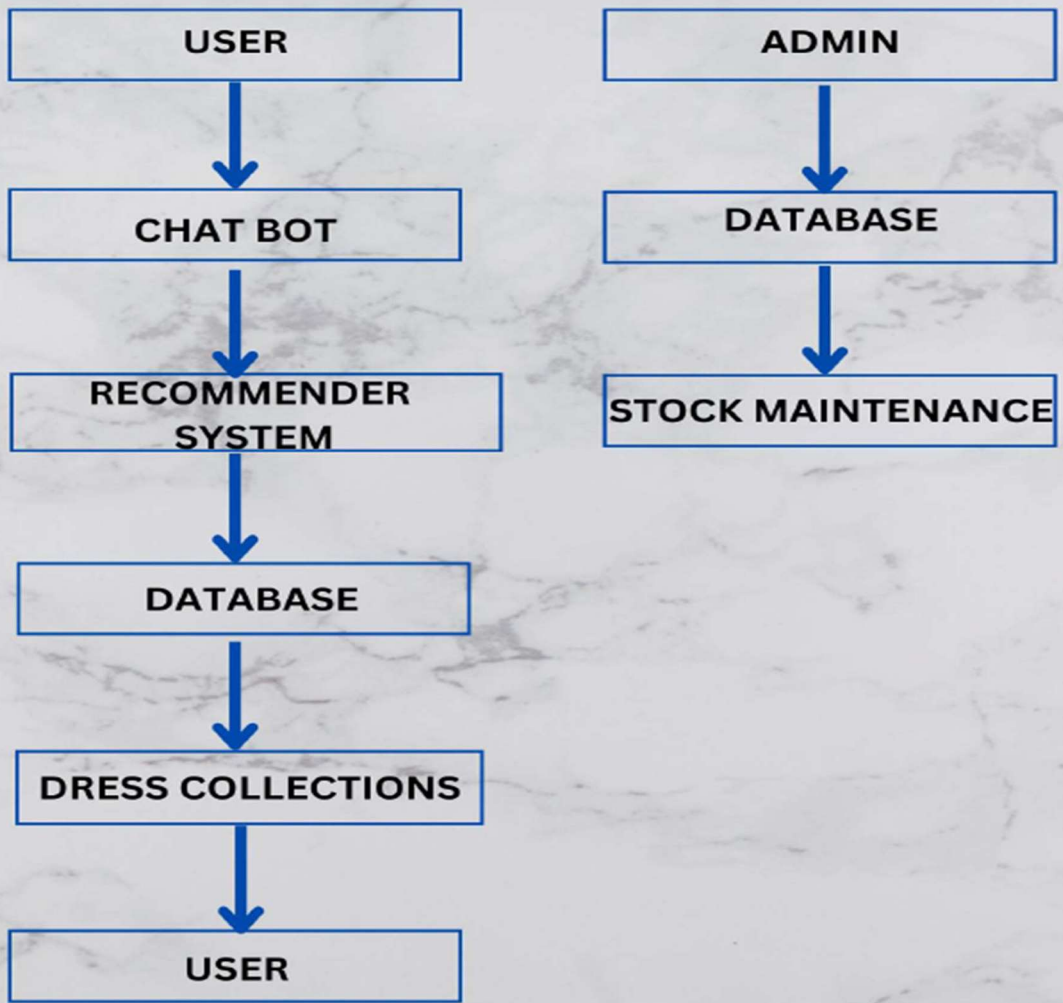


A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



5.2 SOLUTION AND TECHNICAL ARCHITECTURE





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

6. PROJECT PLANING & SCHEDULING

6.1 SPRINT PLANNING & ESTIMATION

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 LineInterface
	Docker CLI Installation	Installing Docker CLI on laptop
	Create an account in send grid	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 IBMCloud	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 Kubernetes cluster

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 priorities 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 Diagramand 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

6.2 SPRINT DELIVERY SCHEDULE

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	User Panel	USN-1	The user will login into the website and go through the products available on the website	20	High	Nilash Magesh Gurumoorthy Aaditiya
Sprint-2	Admin panel	USN-2	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.	20	High	Nilash Magesh Gurumoorthy Aaditiya
Sprint-3	Chat Bot	USN-3	The user can directly talk to Chatbot regarding the products. Get the recommendations based on information provided by the user.	20	High	Nilash Magesh Gurumoorthy Aaditiya
Sprint-4	final delivery	USN-4	Container of applications using docker kubernets and deployment the application. Create the documentation and final submit the application	20	High	Nilash Magesh Gurumoorthy Aaditiya

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date(Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date(Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	05 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

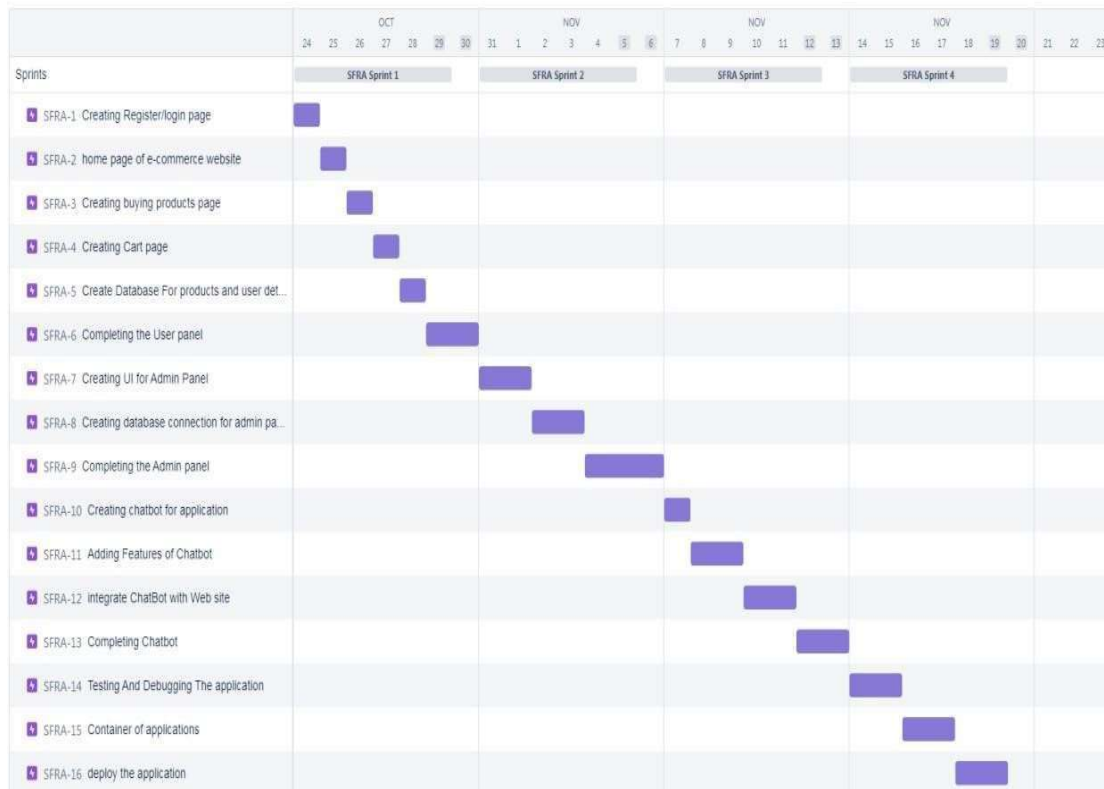
Velocity:

Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

$$AV = \frac{\text{sprint duration}}{\text{velocity}} = \frac{20}{10} = 2$$

6.3 REPORTS FROM JIRA

Burndown Chart:



7.CODING & SOLUTIONING

7.1 FEATURES 1

Home.html

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
<meta charset="UTF-8" />
```

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

```
<link
```

```
href="https://fonts.googleapis.com/css?family=Roboto&display=swap"
```

```
rel="stylesheet"
```

```
/>
```

```
<link
```

```
rel="stylesheet"
```

```
href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/5.13.0/css/all.min.css"
```

```
/>
```



```
<link rel="stylesheet" href="/static/style2.css" />

<title>Fashion</title>

</head>

<body>

  <header>

    <nav>

      <div class="logo">

        <h1>FASHION</h1>

      </div>

      <ul class="list-items">

        <li><a href="#" class="link">HOME</a></li>

        <li><a href="#" class="link">COLLECTION</a></li>

        <li><a href="#" class="link">CONTACT US</a></li>

        <li><a href="#" class="link">ABOUT US</a></li>

      </ul>

      <div class="nav-btns">

        <a href="#" class="btn-nav-i"><i class="fas fa-cart-plus"></i></a>

        <a href="#" class="btn-nav-i"><i class="fas fa-search"></i></a>

      </div>

    </nav>

    <div class="main">

      <div class="main-left">

        <div class="social-media">

          <a href="#" class="s-btn"><i class="fab fa-facebook-f"></i></a>

          <a href="#" class="s-btn"><i class="fab fa-twitter"></i></a>

          <a href="#" class="s-btn"><i class="fab fa-instagram"></i></a>

        </div>

        <div class="banner">

          <div class="f-text">

            <h1>

              FASHION

            <br />

            <span>MADE</span>

          </div>

        </div>

      </div>

    </div>

  </body>

</html>
```

```

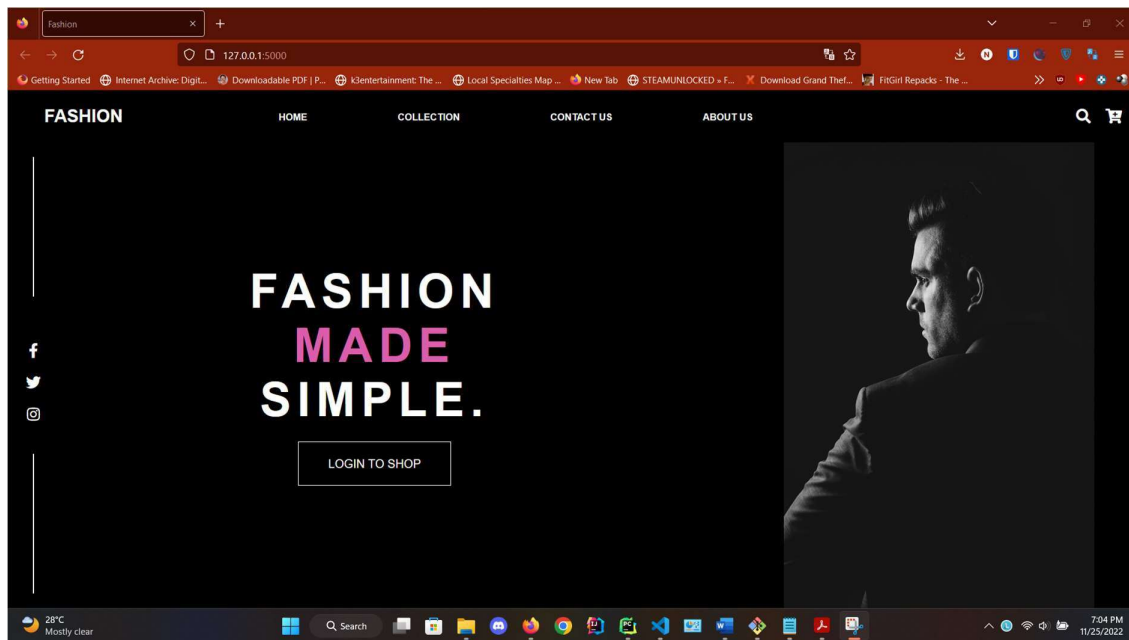
        <br />
        SIMPLE.
    </h1>
</div>

<a href="/login" class="btn" >LOGIN TO SHOP </a>

</div>
</div>

<div class="main-right">
    
</div>
</div>
</header>
</body>
</html>

```



7.2 FEATURES 2

index.html

```

<!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>Complete Responsive Fashion Website Design Tutorial</title>
```

```
<link rel="stylesheet" href="https://unpkg.com/swiper@7/swiper-bundle.min.css" />
```

```
<link rel="stylesheet" href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/5.15.4/css/all.min.css">
```

```
<link rel="stylesheet" href="static/style.css">
```

```
</head>
```

```
<body>
```

```
<header class="header">
```

```
<a href="#" class="logo"> <i class="fas fa-shopping-cart"></i> shopme </a>
```

```
<nav class="navbar">
```

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

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

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

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

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

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

```
</nav>
```

```
<div class="icons">
```

```
<div id="menu-btn" class="fas fa-bars"></div>
```

```
<div id="search-btn" class="fas fa-search"></div>
```

```
<a href="#" class="fas fa-shopping-cart"></a>
```

```
<a href="#" class="fas fa-heart"></a>
```

```
</div>
```

```
<form action="" class="search-form">

  <input type="search" name="" placeholder="search here..." id="search-box">

  <label for="search-box" class="fas fa-search"></label>

</form>
```

```
</header>
```

```
<section class="home" id="home">
```

```
<div class="swiper home-slider">
```

```
<div class="swiper-wrapper">
```

```
<div class="swiper-slide slide" style="background:url(static/banner1.jpg) no-repeat">
```

```
<div class="content">
```

```
<span>upto 50% off</span>
```

```
<h3>women's Fashion</h3>
```

```
<a href="#" class="btn">shop now</a>
```

```
</div>
```

```
</div>
```

```
<div class="swiper-slide slide" style="background:url(static/banner2.jpg) no-repeat">
```

```
<div class="content">
```

```
<span>upto 50% off</span>
```

```
<h3>men's Fashion</h3>
```

```
<a href="#" class="btn">shop now</a>
```

```
</div>
```

```
</div>
```

```
<div class="swiper-slide slide" style="background:url(static/banner3.jpg) no-repeat">
```

```
<div class="content">
```

```
        <span>upto 50% off</span>

        <h3>kid's Fashion</h3>

        <a href="#" class="btn">shop now</a>

    </div>

</div>

</div>

<div class="swiper-button-next"></div>

<div class="swiper-button-prev"></div>

</div>

</section>

<section class="banner-container">

    <div class="banner">

        <div class="content">

            <span>special offer</span>

            <h3>upto 50% off</h3>

            <a href="#" class="btn">shop now</a>

        </div>

    </div>

    <div class="banner">

        <div class="content">

            <span>special offer</span>

            <h3>upto 50% off</h3>

            <a href="#" class="btn">shop now</a>

        </div>

    </div>

</section>
```

</div>

</section>

<section class="products" id="products">

<h1 class="heading"> exclusive products </h1>

<div class="filter-buttons">

<div class="buttons active" data-filter="all">all</div>

<div class="buttons" data-filter="arrivals">new arrivals</div>

<div class="buttons" data-filter="featured">featured</div>

<div class="buttons" data-filter="special">special offer</div>

<div class="buttons" data-filter="seller">best seller</div>

</div>

<div class="box-container">

<div class="box" data-item="featured">

<div class="icons">

</div>

<div class="image">

</div>

<div class="content">

<h3>product name</h3>

<div class="price">

<div class="amount">₹1000.00</div>

<div class="cut">₹800</div>

```

        <div class="offer">20% off</div>
    </div>

    <div class="stars">
        <i class="fas fa-star"></i>
        <i class="fas fa-star"></i>
        <i class="fas fa-star"></i>
        <i class="fas fa-star"></i>
        <i class="far fa-star"></i>
        <span>(50)</span>
    </div>
</div>
</div>

<div class="box" data-item="special">
    <div class="icons">
        <a href="#" class="fas fa-shopping-cart"></a>
        <a href="#" class="fas fa-heart"></a>
        <a href="#" class="fas fa-search"></a>
        <a href="#" class="fas fa-eye"></a>
    </div>

    <div class="image">
        
    </div>

    <div class="content">
        <h3>product name</h3>

        <div class="price">
            <div class="amount">₹1000.00</div>
            <div class="cut">₹800</div>
            <div class="offer">20% off</div>
        </div>

        <div class="stars">
            <i class="fas fa-star"></i>
            <i class="fas fa-star"></i>
            <i class="fas fa-star"></i>

```

```
        <i class="fas fa-star"></i>

        <i class="far fa-star"></i>

        <span>(50)</span>

    </div>

</div>

</div>

<div class="box" data-item="seller">

    <div class="icons">

        <a href="#" class="fas fa-shopping-cart"></a>

        <a href="#" class="fas fa-heart"></a>

        <a href="#" class="fas fa-search"></a>

        <a href="#" class="fas fa-eye"></a>

    </div>

    <div class="image">

    </div>

    <div class="content">

        <h3>product name</h3>

        <div class="price">

            <div class="amount">₹1000.00</div>

            <div class="cut">₹800</div>

            <div class="offer">20% off</div>

        </div>

        <div class="stars">

            <i class="fas fa-star"></i>

            <i class="fas fa-star"></i>

            <i class="fas fa-star"></i>

            <i class="fas fa-star"></i>

            <i class="far fa-star"></i>

            <span>(50)</span>

        </div>

    </div>

</div>
```



```
<div class="box" data-item="arrivals">

  <div class="icons">

    <a href="#" class="fas fa-shopping-cart"></a>

    <a href="#" class="fas fa-heart"></a>

    <a href="#" class="fas fa-search"></a>

    <a href="#" class="fas fa-eye"></a>

  </div>

  <div class="image">

  </div>

  <div class="content">

    <h3>product name</h3>

    <div class="price">

      <div class="amount">₹1000.00</div>

      <div class="cut">₹800</div>

      <div class="offer">20% off</div>

    </div>

    <div class="stars">

      <i class="fas fa-star"></i>

      <i class="fas fa-star"></i>

      <i class="fas fa-star"></i>

      <i class="fas fa-star"></i>

      <i class="far fa-star"></i>

      <span>(50)</span>

    </div>

  </div>

</div>
```

```
<div class="box" data-item="featured">

  <div class="icons">

    <a href="#" class="fas fa-shopping-cart"></a>

    <a href="#" class="fas fa-heart"></a>

    <a href="#" class="fas fa-search"></a>

  </div>

</div>
```

```
<a href="#" class="fas fa-eye"></a>

</div>

<div class="image">

</div>

<div class="content">

  <h3>product name</h3>

  <div class="price">

    <div class="amount">₹1000.00</div>

    <div class="cut">₹800</div>

    <div class="offer">20% off</div>

  </div>

  <div class="stars">

    <i class="fas fa-star"></i>

    <i class="fas fa-star"></i>

    <i class="fas fa-star"></i>

    <i class="fas fa-star"></i>

    <i class="far fa-star"></i>

    <span>(50)</span>

  </div>

</div>

</div>

<div class="box" data-item="arrivals">

  <div class="icons">

    <a href="#" class="fas fa-shopping-cart"></a>

    <a href="#" class="fas fa-heart"></a>

    <a href="#" class="fas fa-search"></a>

    <a href="#" class="fas fa-eye"></a>

  </div>

  <div class="image">

  </div>

  <div class="content">
```

```
<h3>product name</h3>

<div class="price">

  <div class="amount">₹1000.00</div>

  <div class="cut">₹800</div>

  <div class="offer">20% off</div>

</div>

<div class="stars">

  <i class="fas fa-star"></i>

  <i class="fas fa-star"></i>

  <i class="fas fa-star"></i>

  <i class="fas fa-star"></i>

  <i class="far fa-star"></i>

  <span>(50)</span>

</div>

</div>

</div>
```

```
<div class="box" data-item="special">

  <div class="icons">

    <a href="#" class="fas fa-shopping-cart"></a>

    <a href="#" class="fas fa-heart"></a>

    <a href="#" class="fas fa-search"></a>

    <a href="#" class="fas fa-eye"></a>

  </div>

  <div class="image">

  </div>

  <div class="content">

    <h3>product name</h3>

    <div class="price">

      <div class="amount">₹1000.00</div>

      <div class="cut">₹800</div>

      <div class="offer">20% off</div>

    </div>

  </div>

</div>
```

```
<div class="stars">

  <i class="fas fa-star"></i>

  <i class="fas fa-star"></i>

  <i class="fas fa-star"></i>

  <i class="fas fa-star"></i>

  <i class="far fa-star"></i>

  <span>(50)</span>

</div>

</div>

</div>
```

```
<div class="box" data-item="seller">

  <div class="icons">

    <a href="#" class="fas fa-shopping-cart"></a>

    <a href="#" class="fas fa-heart"></a>

    <a href="#" class="fas fa-search"></a>

    <a href="#" class="fas fa-eye"></a>

  </div>

  <div class="image">

  </div>

  <div class="content">

    <h3>product name</h3>

    <div class="price">

      <div class="amount">₹1000.00</div>

      <div class="cut">₹800</div>

      <div class="offer">20% off</div>

    </div>

    <div class="stars">

      <i class="fas fa-star"></i>

      <i class="fas fa-star"></i>

      <i class="fas fa-star"></i>

      <i class="fas fa-star"></i>

      <i class="far fa-star"></i>

    </div>

  </div>

</div>
```

```
        <span>(50)</span>
    </div>
</div>
</div>
```

```
<div class="box" data-item="seller">
    <div class="icons">
        <a href="#" class="fas fa-shopping-cart"></a>
        <a href="#" class="fas fa-heart"></a>
        <a href="#" class="fas fa-search"></a>
        <a href="#" class="fas fa-eye"></a>
    </div>
    <div class="image">
        
    </div>
    <div class="content">
        <h3>product name</h3>
        <div class="price">
            <div class="amount">₹1000.00</div>
            <div class="cut">₹800</div>
            <div class="offer">20% off</div>
        </div>
        <div class="stars">
            <i class="fas fa-star"></i>
            <i class="fas fa-star"></i>
            <i class="fas fa-star"></i>
            <i class="fas fa-star"></i>
            <i class="far fa-star"></i>
            <span>(50)</span>
        </div>
    </div>
</div>
```

```
<div class="box" data-item="featured">
```

```
<div class="icons">

  <a href="#" class="fas fa-shopping-cart"></a>

  <a href="#" class="fas fa-heart"></a>

  <a href="#" class="fas fa-search"></a>

  <a href="#" class="fas fa-eye"></a>

</div>

<div class="image">

</div>

<div class="content">

  <h3>product name</h3>

  <div class="price">

    <div class="amount">₹1000.00</div>

    <div class="cut">₹800</div>

    <div class="offer">20% off</div>

  </div>

  <div class="stars">

    <i class="fas fa-star"></i>

    <i class="fas fa-star"></i>

    <i class="fas fa-star"></i>

    <i class="fas fa-star"></i>

    <i class="far fa-star"></i>

    <span>(50)</span>

  </div>

</div>

</div>
```

```
<div class="box" data-item="special">

  <div class="icons">

    <a href="#" class="fas fa-shopping-cart"></a>

    <a href="#" class="fas fa-heart"></a>

    <a href="#" class="fas fa-search"></a>

    <a href="#" class="fas fa-eye"></a>

  </div>
```

```
<div class="image">
  
</div>

<div class="content">
  <h3>product name</h3>

  <div class="price">
    <div class="amount">₹1000.00</div>
    <div class="cut">₹800</div>
    <div class="offer">20% off</div>
  </div>

  <div class="stars">
    <i class="fas fa-star"></i>
    <i class="fas fa-star"></i>
    <i class="fas fa-star"></i>
    <i class="fas fa-star"></i>
    <i class="far fa-star"></i>
    <span>(50)</span>
  </div>
</div>
```

```
<div class="box" data-item="seller">
  <div class="icons">
    <a href="#" class="fas fa-shopping-cart"></a>
    <a href="#" class="fas fa-heart"></a>
    <a href="#" class="fas fa-search"></a>
    <a href="#" class="fas fa-eye"></a>
  </div>

  <div class="image">
    
  </div>

  <div class="content">
    <h3>product name</h3>
    <div class="price">
```

```
        <div class="amount">₹1000.00</div>

        <div class="cut">₹800</div>

        <div class="offer">20% off</div>

    </div>

    <div class="stars">

        <i class="fas fa-star"></i>

        <i class="fas fa-star"></i>

        <i class="fas fa-star"></i>

        <i class="fas fa-star"></i>

        <i class="fas fa-star"></i>

        <span>(50)</span>

    </div>

</div>

</div>

</div>

</section>

<section class="deal">

    <div class="image">

    </div>

    <div class="content">

        <span>new season trending!</span>

        <h3>best summer collection</h3>

        <p>sale get up to 50% off</p>

        <a href="#" class="btn">shop now</a>

    </div>

</section>
```



```
<section class="featured" id="featured">
```

```
<h1 class="heading"> <span>featured</span> products </h1>
```

```
<div class="swiper featured-slider">
```

```
<div class="swiper-wrapper">
```

```
<div class="swiper-slide slide">
```

```
<div class="icons">
```

```
<a href="#" class="fas fa-shopping-cart"></a>
```

```
<a href="#" class="fas fa-heart"></a>
```

```
<a href="#" class="fas fa-search"></a>
```

```
<a href="#" class="fas fa-eye"></a>
```

```
</div>
```

```
<div class="image">
```

```

```

```
</div>
```

```
<div class="content">
```

```
<h3>product name</h3>
```

```
<div class="price">
```

```
<div class="amount">₹1000.00</div>
```

```
<div class="cut">₹800</div>
```

```
<div class="offer">20% off</div>
```

```
</div>
```

```
<div class="stars">
```

```
<i class="fas fa-star"></i>
```

```
<i class="fas fa-star"></i>
```

```
<i class="fas fa-star"></i>
```

```
<i class="fas fa-star"></i>
```

```
<i class="far fa-star"></i>
```

```
<span>(50)</span>
```

```
</div>
```

</div>

</div>

<div class="swiper-slide slide">

<div class="icons">

</div>

<div class="image">

</div>

<div class="content">

<h3>product name</h3>

<div class="price">

<div class="amount">₹1000.00</div>

<div class="cut">₹800</div>

<div class="offer">20% off</div>

</div>

<div class="stars">

<i class="fas fa-star"></i>

<i class="fas fa-star"></i>

<i class="fas fa-star"></i>

<i class="fas fa-star"></i>

<i class="far fa-star"></i>

(50)

</div>

</div>

</div>

<div class="swiper-slide slide">

<div class="icons">


```
<a href="#" class="fas fa-heart"></a>
<a href="#" class="fas fa-search"></a>
<a href="#" class="fas fa-eye"></a>
</div>
<div class="image">
  
</div>
<div class="content">
  <h3>product name</h3>
  <div class="price">
    <div class="amount">₹1000.00</div>
    <div class="cut">₹800</div>
    <div class="offer">20% off</div>
  </div>
  <div class="stars">
    <i class="fas fa-star"></i>
    <i class="fas fa-star"></i>
    <i class="fas fa-star"></i>
    <i class="fas fa-star"></i>
    <i class="far fa-star"></i>
    <span>(50)</span>
  </div>
</div>
</div>
<div class="swiper-slide slide">
  <div class="icons">
    <a href="#" class="fas fa-shopping-cart"></a>
    <a href="#" class="fas fa-heart"></a>
    <a href="#" class="fas fa-search"></a>
    <a href="#" class="fas fa-eye"></a>
  </div>
  <div class="image">
    
  </div>
</div>
```

```
</div>

<div class="content">

  <h3>product name</h3>

  <div class="price">

    <div class="amount">₹1000.00</div>

    <div class="cut">₹800</div>

    <div class="offer">20% off</div>

  </div>

  <div class="stars">

    <i class="fas fa-star"></i>

    <i class="fas fa-star"></i>

    <i class="fas fa-star"></i>

    <i class="fas fa-star"></i>

    <i class="far fa-star"></i>

    <span>(50)</span>

  </div>

</div>

</div>

<div class="swiper-slide slide">

  <div class="icons">

    <a href="#" class="fas fa-shopping-cart"></a>

    <a href="#" class="fas fa-heart"></a>

    <a href="#" class="fas fa-search"></a>

    <a href="#" class="fas fa-eye"></a>

  </div>

  <div class="image">

  </div>

  <div class="content">

    <h3>product name</h3>

    <div class="price">

      <div class="amount">₹1000.00</div>

      <div class="cut">₹800</div>
```

```

        <div class="offer">20% off</div>
    </div>

    <div class="stars">
        <i class="fas fa-star"></i>
        <i class="fas fa-star"></i>
        <i class="fas fa-star"></i>
        <i class="fas fa-star"></i>
        <i class="far fa-star"></i>

        <span>(50)</span>
    </div>
</div>
</div>

<div class="swiper-slide slide">
    <div class="icons">
        <a href="#" class="fas fa-shopping-cart"></a>
        <a href="#" class="fas fa-heart"></a>
        <a href="#" class="fas fa-search"></a>
        <a href="#" class="fas fa-eye"></a>
    </div>

    <div class="image">
        
    </div>

    <div class="content">
        <h3>product name</h3>

        <div class="price">
            <div class="amount">₹1000.00</div>

            <div class="cut">₹800</div>

            <div class="offer">20% off</div>
        </div>

        <div class="stars">
            <i class="fas fa-star"></i>
            <i class="fas fa-star"></i>
            <i class="fas fa-star"></i>

```

```
<i class="fas fa-star"></i>

<i class="far fa-star"></i>

<span>(50)</span>

</div>

</div>

</div>

</div>

<div class="swiper-button-next"></div>

<div class="swiper-button-prev"></div>

</div>

</section>

<section class="review" id="review">

<h1 class="heading"> client's <span>review</span> </h1>

<div class="swiper review-slide">

<div class="swiper-wrapper">

<div class="swiper-slide slide">

<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Consequuntur veniam deserunt
praesentium natus quibusdam ea nam commodi.</p>

<div class="user">



<div class="info">

<h3>john deo</h3>

<span>happy client</span>

</div>

</div>

</div>
```

</div>

<div class="swiper-slide slide">

<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Consequuntur veniam deserunt praesentium natus quibusdam ea nam commodi.</p>

<div class="user">

<div class="info">

<h3>john deo</h3>

happy client

</div>

</div>

</div>

<div class="swiper-slide slide">

<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Consequuntur veniam deserunt praesentium natus quibusdam ea nam commodi.</p>

<div class="user">

<div class="info">

<h3>john deo</h3>

happy client

</div>

</div>

</div>

<div class="swiper-slide slide">

<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Consequuntur veniam deserunt praesentium natus quibusdam ea nam commodi.</p>

<div class="user">

<div class="info">

<h3>john deo</h3>

happy client

</div>

</div>

</div>

<div class="swiper-slide slide">

<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Consequuntur veniam deserunt praesentium natus quibusdam ea nam commodi.</p>

<div class="user">

<div class="info">

<h3>john deo</h3>

happy client

</div>

</div>

</div>

<div class="swiper-slide slide">

<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Consequuntur veniam deserunt praesentium natus quibusdam ea nam commodi.</p>

<div class="user">

<div class="info">

<h3>john deo</h3>

happy client

</div>

</div>

</div>

</div>

</div>

</section>

<section class="contact" id="contact">


```
<h1 class="heading"> <span>contact</span> us </h1>
```

```
<div class="icons-container">
```

```
<div class="icons">
```

```
<i class="fas fa-map-marker-alt"></i>
```

```
<h3>address</h3>
```

```
<p>jogeshwari, mumbai, india - 400104</p>
```

```
</div>
```

```
<div class="icons">
```

```
<i class="fas fa-envelope"></i>
```

```
<h3>email</h3>
```

```
<p>shaikhanas@gmail.com</p>
```

```
<p>anasbhai@gmail.com</p>
```

```
</div>
```

```
<div class="icons">
```

```
<i class="fas fa-phone"></i>
```

```
<h3>phone</h3>
```

```
<p>+123-456-7890</p>
```

```
<p>+111-222-3333</p>
```

```
</div>
```

```
</div>
```

```
<div class="row">
```

```
<form action="">
```

```
<h3>get in touch</h3>
```

```
<div class="inputBox">
```

```
<input type="text" placeholder="your name">
```

```
<input type="email" placeholder="your email">
```

</div>

<div class="inputBox">

<input type="number" placeholder="your number">

<input type="text" placeholder="your subject">

</div>

<textarea placeholder="your message" cols="30" rows="10"></textarea>

<input type="submit" value="send message" class="btn">

</form>

<iframe class="map"

src="https://www.google.com/maps/embed?pb=!1m18!1m12!1m3!1d125323.4738855648!2d76.89719435430861!3d11.011701573390447!2m3!1f0!2f0!3f0!3m2!1i1024!2i768!4f13.1!3m3!1m2!1s0x3ba859af2f971cb5%3A0x2fc1c81e183ed282!2sCoimbatore%2C%20Tamil%20Nadu!5e0!3m2!1sen!2sin!4v1668834937237!5m2!1sen!2sin" allowfullscreen="" loading="lazy"></iframe>

</div>

</section>

<section class="blogs" id="blogs">

<h1 class="heading"> our blogs</h1>

<div class="swiper blogs-slider">

<div class="swiper-wrapper">

<div class="swiper-slide slide">

<div class="image">

</div>

<div class="content">

<h3>blog title goes here</h3>

<p>Lorem ipsum dolor sit amet consectetur adipisicing elit. Dolore.</p>

read more

<div class="icons">

```
<a href="#"> <i class="fas fa-calendar"></i> 21st may, 2022 </a>

<a href="#"> <i class="fas fa-user"></i> by admin </a>

</div>

</div>

</div>

<div class="swiper-slide slide">

  <div class="image">

  </div>

  <div class="content">

    <h3>blog title goes here</h3>

    <p>Lorem ipsum dolor sit amet consectetur adipisicing elit. Dolore.</p>

    <a href="#" class="btn">read more</a>

    <div class="icons">

      <a href="#"> <i class="fas fa-calendar"></i> 21st may, 2022 </a>

      <a href="#"> <i class="fas fa-user"></i> by admin </a>

    </div>

  </div>

</div>

</div>

<div class="swiper-slide slide">

  <div class="image">

  </div>

  <div class="content">

    <h3>blog title goes here</h3>

    <p>Lorem ipsum dolor sit amet consectetur adipisicing elit. Dolore.</p>

    <a href="#" class="btn">read more</a>

    <div class="icons">

      <a href="#"> <i class="fas fa-calendar"></i> 21st may, 2022 </a>

      <a href="#"> <i class="fas fa-user"></i> by admin </a>

    </div>

  </div>

</div>
```

</div>

<div class="swiper-slide slide">

<div class="image">

</div>

<div class="content">

<h3>blog title goes here</h3>

<p>Lorem ipsum dolor sit amet consectetur adipisicing elit. Dolore.</p>

read more

<div class="icons">

<i class="fas fa-calendar"></i> 21st may, 2022

<i class="fas fa-user"></i> by admin

</div>

</div>

</div>

<div class="swiper-slide slide">

<div class="image">

</div>

<div class="content">

<h3>blog title goes here</h3>

<p>Lorem ipsum dolor sit amet consectetur adipisicing elit. Dolore.</p>

read more

<div class="icons">

<i class="fas fa-calendar"></i> 21st may, 2022

<i class="fas fa-user"></i> by admin

</div>

</div>

</div>

</div>

<div class="swiper-button-next"></div>

<div class="swiper-button-prev"></div>

</div>

</section>

<section class="footer">

<div class="box-container">

<div class="box">

<h3>about us</h3>

<p>Lorem ipsum dolor sit amet consectetur adipisicing elit. Laborum, nesciunt!</p>

</div>

<div class="box">

<h3>category</h3>

 <i class="fas fa-arrow-right"></i> men

 <i class="fas fa-arrow-right"></i> women

 <i class="fas fa-arrow-right"></i> kids

 <i class="fas fa-arrow-right"></i> best seller

 <i class="fas fa-arrow-right"></i> new arrivals

</div>

<div class="box">

<h3>quick links</h3>

 <i class="fas fa-arrow-right"></i> home

 <i class="fas fa-arrow-right"></i> products

 <i class="fas fa-arrow-right"></i> featured

 <i class="fas fa-arrow-right"></i> review

 <i class="fas fa-arrow-right"></i> contact

 <i class="fas fa-arrow-right"></i> blogs

</div>

<div class="box">

<h3>extra links</h3>

 <i class="fas fa-arrow-right"></i> my order

 <i class="fas fa-arrow-right"></i> my account

 <i class="fas fa-arrow-right"></i> my listing

 <i class="fas fa-arrow-right"></i> sell now

 <i class="fas fa-arrow-right"></i> new offers

</div>

</div>

<div class="share">

</div>

<div class="credit"> © copyright @ 2022 by mr. bakh designer </div>

</section>

<script>

```
window.watsonAssistantChatOptions = {  
  integrationID: "614a4315-ff80-4187-8fe4-2fd9b506b723",  
  region: "au-syd",  
  serviceInstanceID: "9670dcf8-789f-4609-8d7a-6e25c412a9ec",  
  onLoad: function(instance) { instance.render(); }  
};  
setTimeout(function(){  
  const t=document.createElement('script');
```

```
t.src="https://web-chat.global.assistant.watson.appdomain.cloud/versions/" +
(window.watsonAssistantChatOptions.clientVersion || 'latest') +
```

```
"/WatsonAssistantChatEntry.js";
```

```
document.head.appendChild(t);
```

```
});
```

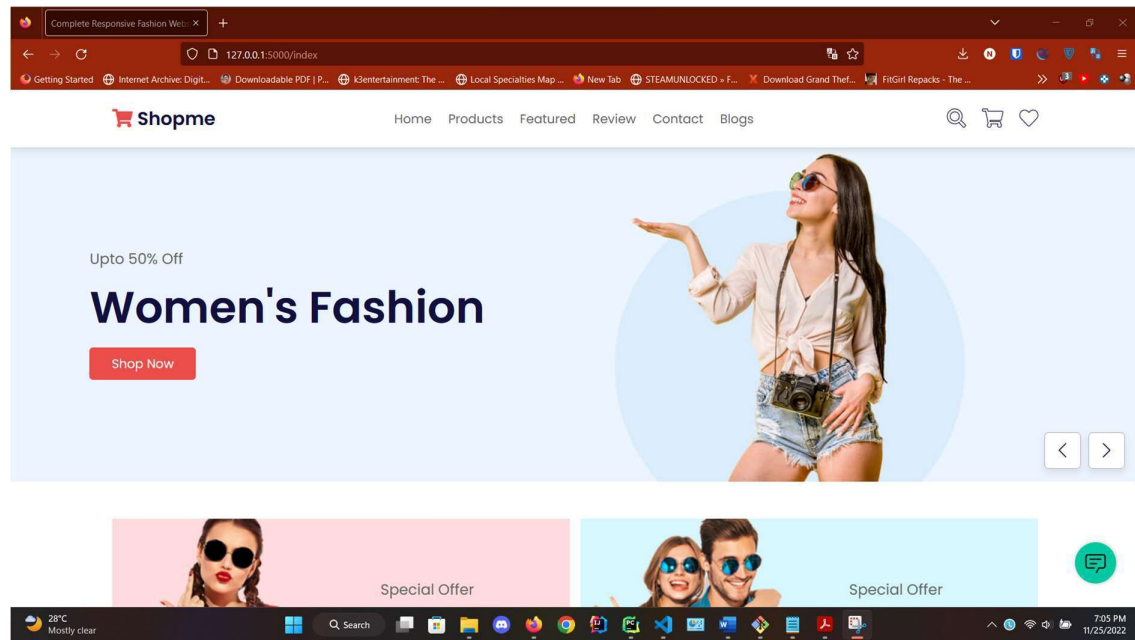
```
</script>
```

```
<script src="https://unpkg.com/swiper@7/swiper-bundle.min.js"></script>
```

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

```
</body>
```

```
</html>
```



7.3 DATABASE SCHEMA

```
jupyter ASS Last Checkpoint: a few seconds ago. (unsaved changes)
File Edit View Insert Cell Kernel Widgets Help Trusted Python 3

In [1]: import ibm_db

hostname = '9938aec0-8105-433e-8bf9-0fb7e483086.clogj3sdtgtu0lqde00.databases.appdomain.cloud'
uid = 'qfk33396'
pwd = 'jeffMal2het2cout'
driver = '{IBM DB2 ODBC DRIVER}'
db = 'bludb'
port = '32459'
protocol = 'TCP/IP'
cert = 'CRT1.crt'

dsn = {
    "DATABASE = {0};"
    "HOSTNAME = {1};"
    "PORT = {2};"
    "UID = {3};"
    "SECURITY = SSL;"
    "SSLServerCertificate = {4};"
    "Pwd = {5};"
}.format(db, hostname, port, uid, cert, pwd)

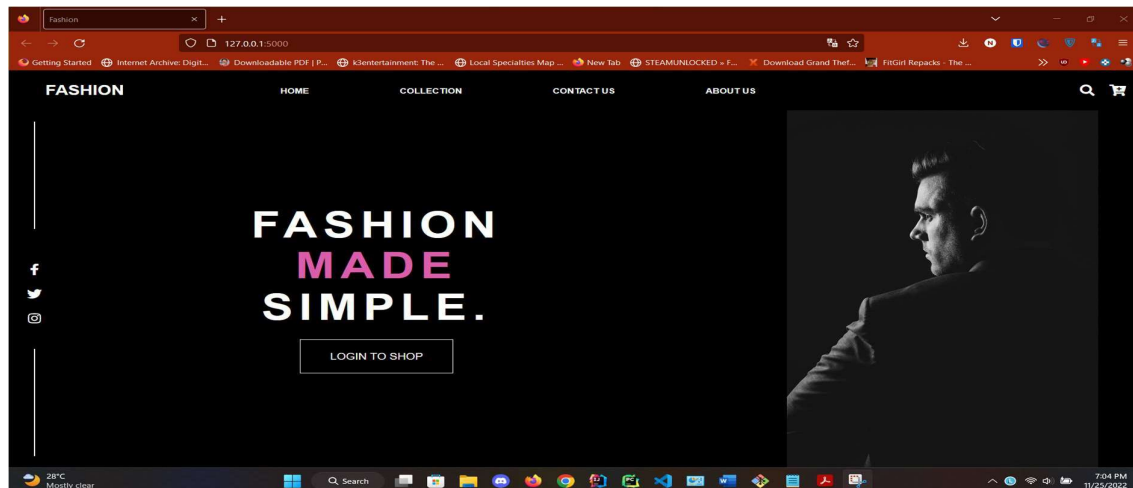
print(dsn)
try:
    db2 = ibm_db.connect(dsn, "", "")
    print("connect to database")
except:
    print("unable to connect ", ibm_db.conn_errormsg())

DATABASE = bludb;HOSTNAME = 9938aec0-8105-433e-8bf9-0fb7e483086.clogj3sdtgtu0lqde00.databases.appdomain.cloud;PORT = 32459;UID = qfk33396;SECURITY = SSL;SSLServerCertificate = CRT1.crt;PWD = jeffMal2het2cout;
connect to database
```

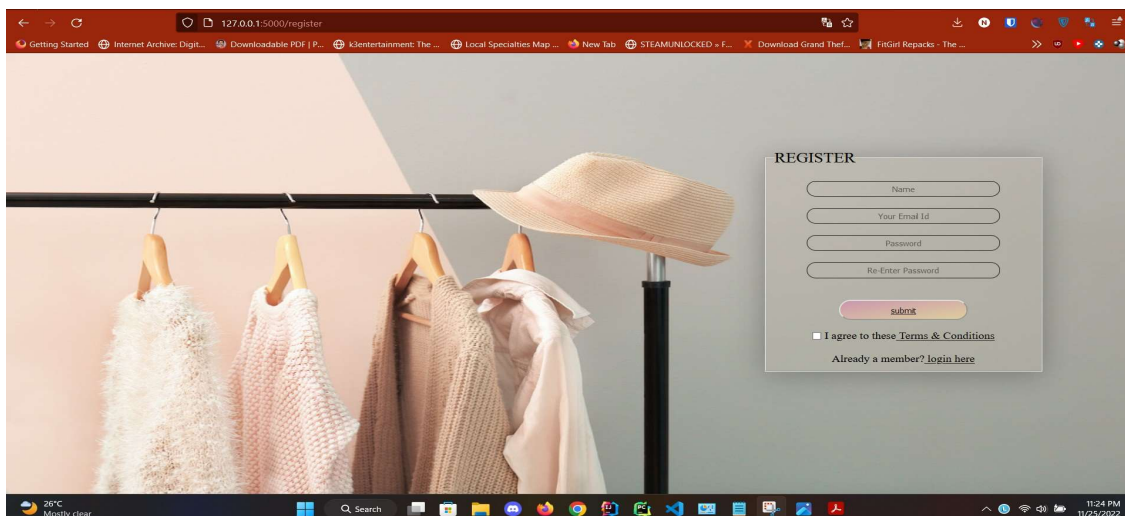
8.TESTING

8.1 TEST CASES

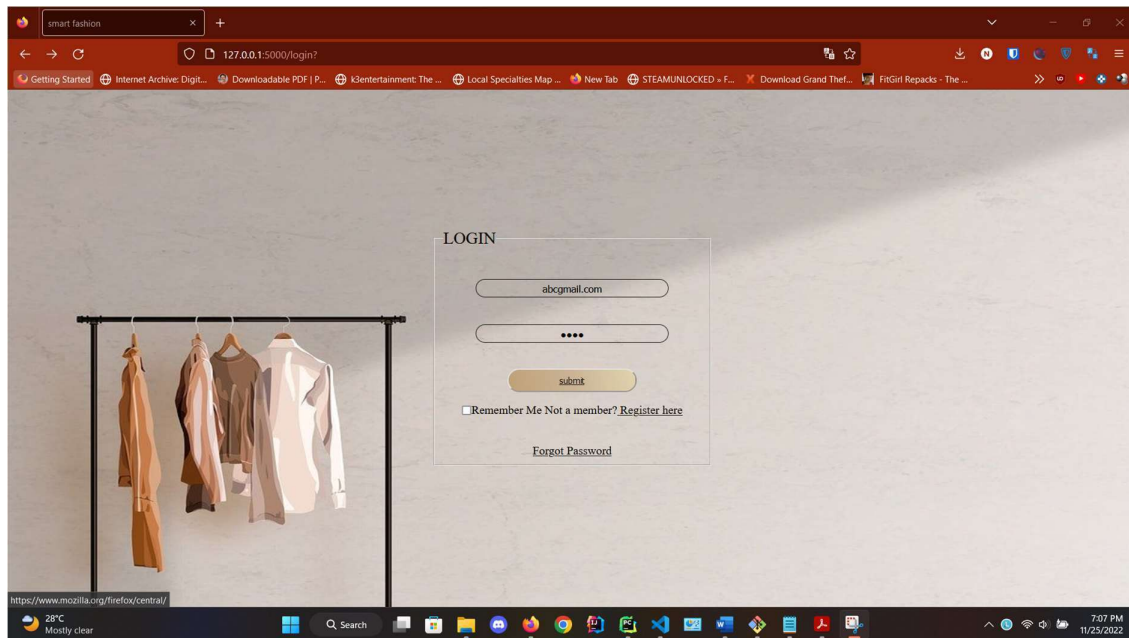
HOME PAGE



REGISTER PAGE

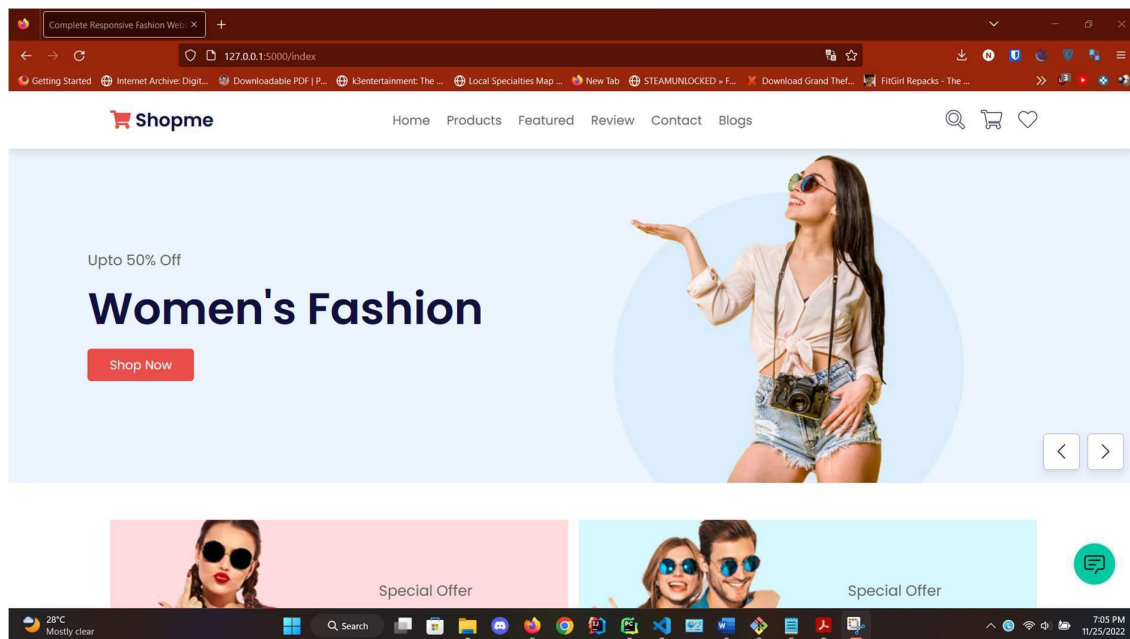


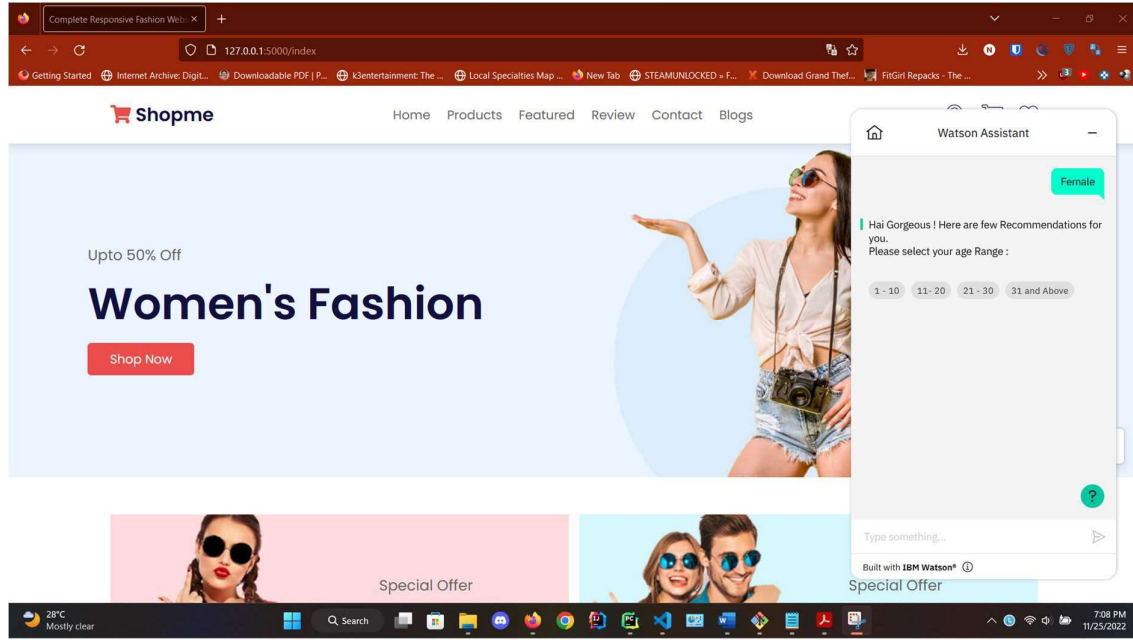
LOGIN PAGE



8.2 USER ACCEPTANCE TESTING

TEST CASES





9. RESULTS

9.1 PERFORMANCE METRICS

The performance of a recommendation algorithm is evaluated by using some specific metrics that indicate the accuracy of the system. The type of metric used depends on the type of filtering technique. Root Mean Square Error (RMSE), Receiver Operating Characteristics (ROC), Area Under Cover (AUC), Precision, Recall and F1 score is generally used to evaluate the performance or accuracy of the recommendation algorithms.

Root-mean square error (RMSE). RMSE is widely used in evaluating and comparing the performance of a recommendation system model compared to other models. A lower RMSE value indicates higher performance by the recommendation model. RMSE, as mentioned by, can be as represented as follows:

$$RMSE = \sqrt{\frac{1}{N_p} \sum_{u,i} (p_{ui} - r_{ui})^2} \quad (1)$$

where, N_p is the total number of predictions, p_{ui} is the predicted rating that a user u will select an item i and r_{ui} is the real rating.

Precision. Precision can be defined as the fraction of correct recommendations or predictions (known as True Positive) to the total number of recommendations provided, which can be as represented as follows:

$$\text{Precision} = \frac{\text{True Positive (TP)}}{\text{True Positive (TP)} + \text{False Positive (FP)}} \quad (2)$$

It is also defined as the ratio of the number of relevant recommended items to the number of recommended items expressed as percentages.

Recall. Recall can be defined as the fraction of correct recommendations or predictions (known as True Positive) to the total number of correct relevant recommendations provided, which can be as represented as follows:

$$\text{Recall} = \frac{\text{True Positive (TP)}}{\text{True Positive (TP)} + \text{False Negative (FN)}} \quad (3)$$

It is also defined as the ratio of the number of relevant recommended items to the total number of relevant items expressed as percentages.

F1 Score. F1 score is an indicator of the accuracy of the model and ranges from 0 to 1, where a value close to 1 represents higher recommendation or prediction accuracy. It represents precision and recall as a single metric and can be as represented as follows:

$$\text{F1 score} = 2 \times \frac{\text{Precision} * \text{Recall}}{\text{Precision} + \text{Recall}} \quad (4)$$

Coverage. Coverage is used to measure the percentage of items which are recommended by the algorithm among all of the items.

Accuracy. Accuracy can be defined as the ratio of the number of total correct recommendations to the total recommendations provided.

10. ADVANTAGES & DISADVANTAGES

ADVANTAGES

- Smart fashion recommender application is the user friendly.
- With the help of chatbot user can find the products very easily.
- This application used to discover the product based on the user's choice, very easily and quickly.
- It has the ability to reduce transaction costs for consumers, and increase revenue for retailers.

DISADVANTAGES

- It needs active internet connection.
- Privacy concerns.
- Too many choices.
- Cold-start problem.

11. 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.

12. FUTURE SCOPE

Online selling and purchasing offer innumerable benefits to both sellers and buyers, and these advantages are also the reasons for the rising scope of eCommerce. Well, to put it bluntly, the scope of e-business in the near future looks to be ever-increasing and growing, because the trend has really caught on here. E-commerce giant Amazon is keen to conquer the Indian market and has already invested a great deal, especially with its 49% stake in the Future Group.

Indian online retail giant Flipkart has already opened a few offline stores and plans more stores in smaller cities. They plan to combine online and offline stores to maximize their selling potential. Google and Tata Trust have launched a joint program 'Saathi' to increase internet and mobile penetration among rural women. The Government of India is also making a huge push for Ecommerce by providing numerous sops to startups, cyberparks, and so on through its Digital India program. As of now, there are close to 20,000 E-commerce companies in India, with many more expected to join the bandwagon every month.

13. APPENDIX

SOURCE CODE: login.html

```
<!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>smart fashion</title>

  <link rel="stylesheet" href="{url_for('static',filename='login.css')}}">

</head>
<body>
```

```

<div class="container">
    <div class="second">

        <form>
            <fieldset>
                <legend>LOGIN</legend><br><br>
                <input type="email" class="input-box" placeholder="Your Email Id" required><br><br><br>
                <input type="Password" class="input-box" placeholder="Password" required>
                <button type="submit" class="submit-btn" ><a href="/index">submit</a></button><br>
                <input type="checkbox"><span>Remember Me</span>

            </fieldset>
        </form>

        Not a member?<a href="/register"> Register here</a><br><br><br>
        <a href="">Forgot Password</a>

    </fieldset>
</div>
</div>
</div>
</div>
</div>
</div>

```

```

</body>

```

```

</html>

```

INTEGRATING APPLICATION WITH CHATBOT USING WATSON ASSISTANT :

```

<script>
    window.watsonAssistantChatOptions = {
        integrationID: "614a4315-ff80-4187-8fe4-2fd9b506b723",
        region: "au-syd",
        serviceInstanceID: "9670dcf8-789f-4609-8d7a-6e25c412a9ec",
        onLoad: function(instance) { instance.render(); }
    };
    setTimeout(function(){
        const t=document.createElement('script');
        t.src="https://web-chat.global.assistant.watson.appdomain.cloud/versions/" +
        (window.watsonAssistantChatOptions.clientVersion || 'latest') +
        "/WatsonAssistantChatEntry.js";
        document.head.appendChild(t);
    }, 1000);

```

});
</script>

GITHUB & PROJECT DEMO LINK

GITHUB LINK : <https://github.com/IBM-EPBL/IBM-Project-25096-1659953665>

VIDEO LINK:

<https://drive.google.com/file/d/1OtorzC1zsd8DZSFVdFol51VnkS0rOng3/view?usp=sharing>