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

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.

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 basedon 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

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

REFERENCES:

Fashion Recommendation System
1. Fashion recommended System:

   Authors: Aneesh K, P V Rohith Kumar, Sai Uday Nagula, Archana Nagelli

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.

3. Hidayati, S. C., Hsu, C. C., Chang, Y. T., Hua, K. L., Fu, J., & Cheng, W. H.: What Dress Fits Me Best? Fashion Recommendation on the Clothing Style for Personal Body Shape. In Proceedings of the 26th ACM International Conference on Multimedia (MM '18). Association for Computing Machinery, New York, NY, USA, 2018; pp. 438-446.

4. Wang, H., Wang, N., & Yeung, D. Y.: Collaborative Deep Learning for Recommender Systems. In Proceedings of the 21th CM SIGKDD International Conference on Knowledge Discovery and Data Mining, New York, 2015; pp. 1235- 1244.

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.
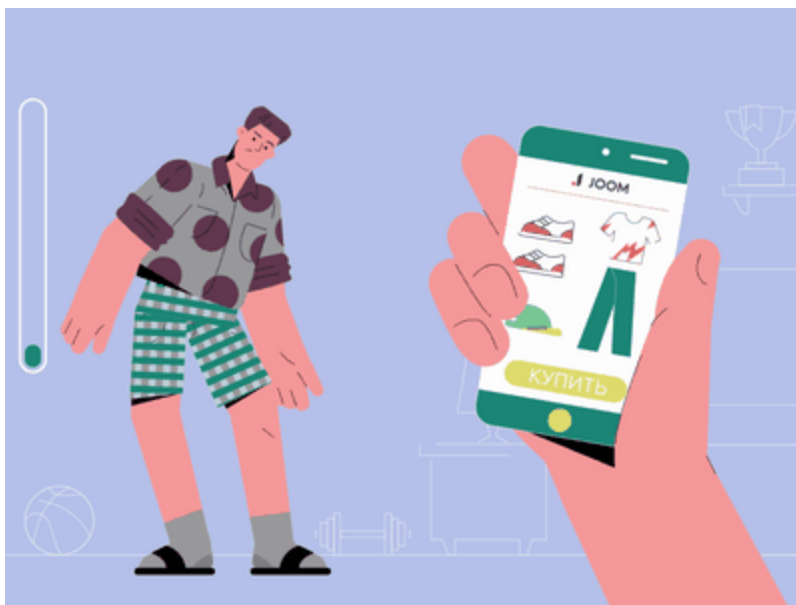
3.IDEATION & PROPOSED SOLUTION

EMPATHY MAP CANVAS:

An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviors 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.

SMART FASHION RECOMMENDER APPLICATION
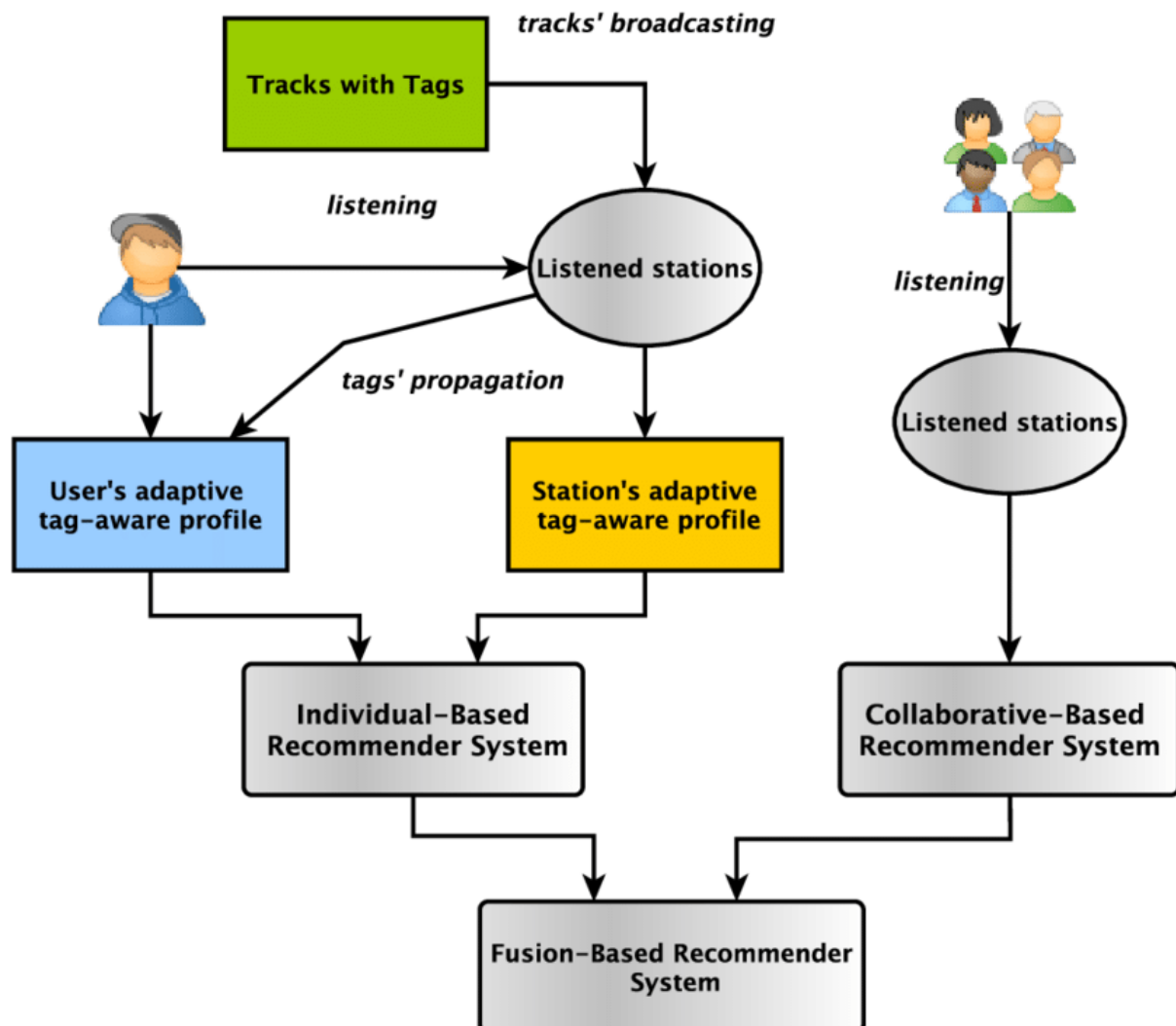
IDEATION & BRAINSTROMING:

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

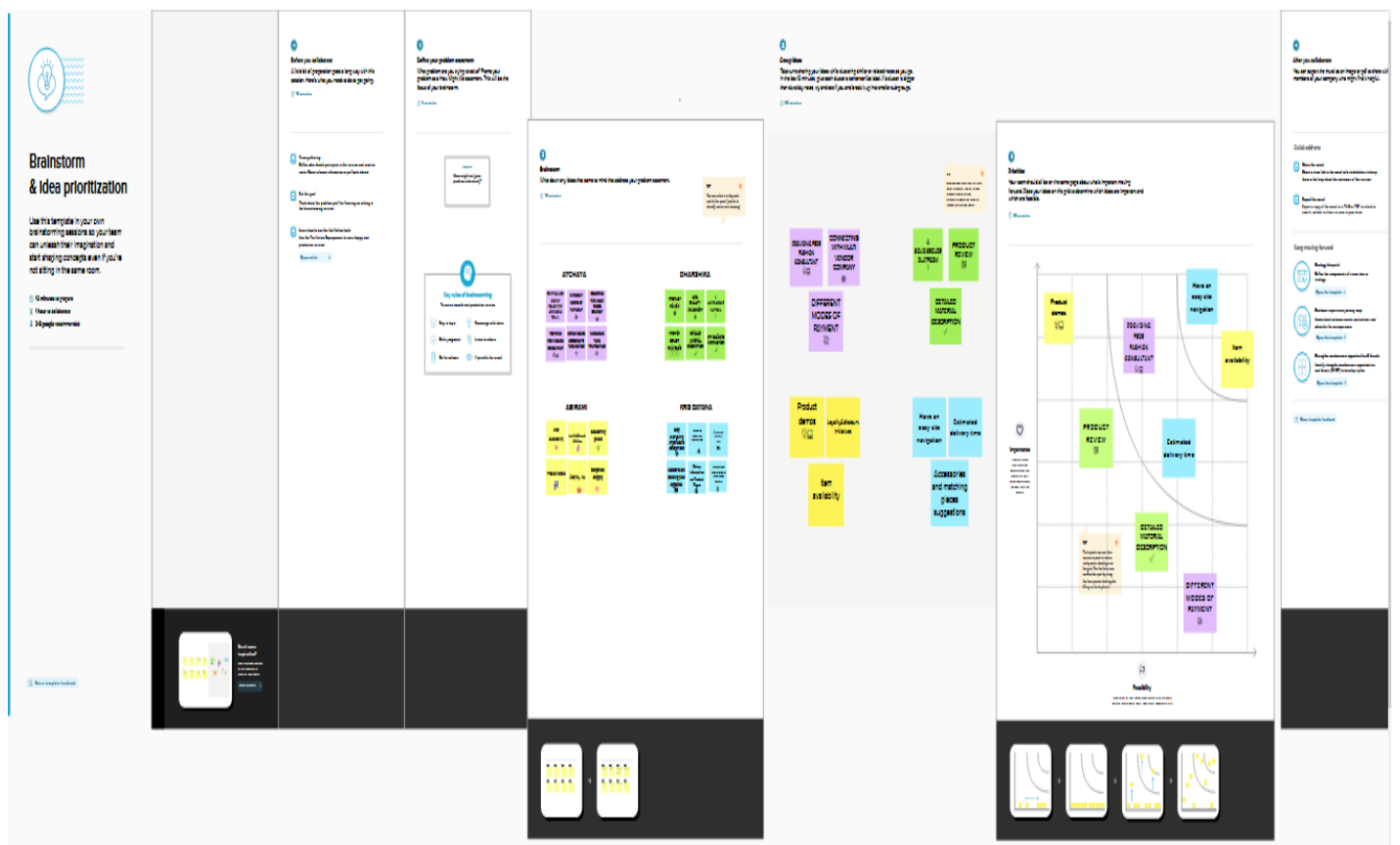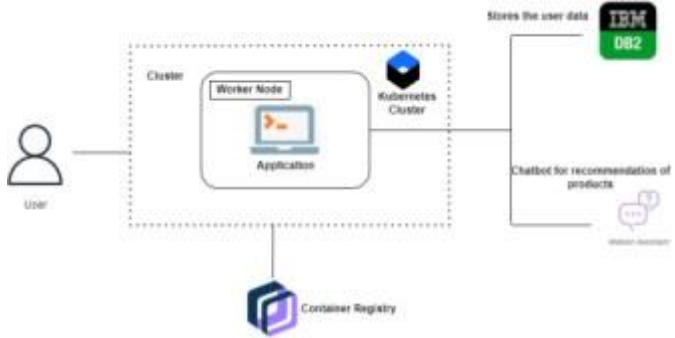| S.NO.	PARAMETER	DESCRIPTION
1.	**Problem statement(problem** **To be solved)**	• In E-commerce websites, users need to search for products and navigate across screens to view the product and order product. • A new innovative solution came up through which can directly make online shopping based on the choice of the user without any search. • It can be done by using the chatbot which can be achieved by a smart fashion recommender application.
2.	**Idea/ solution description**	• The smart fashion recommender application leverages the use of a chatbot 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 chatbot. • The user must receive a notification on order confirmation/failure. • The chatbot must gather feedback from the user at the end of order confirmation
3.	**Novelty/ Uniqueness**	• Chatbot 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 chatbot 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**	• 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. • Directly do online shopping based on customer

		choice without any search.
		• It can also save a lot of time.
5.	**Business model** **(Revenue model)**	• 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**	• 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

Project Title: Smart Fashion Recommended Application   **Project Design Phase-I - Solution Fit Template**   **Team ID: PNT2022TMID45311**

Define CS, fit into CC

1. CUSTOMER SEGMENT(S)   CS

Who is your customer?

Our customer is Who need to buy a products in a online and also without struggles and help with chat bot.

6. CUSTOMER CONSTRAINTS   CC

What constraints prevent your customers from taking action or limit their choices of solutions?

Now a days the customer facing the problem of in person Search the product for bought. So we reduce the problem by introducing the chat bot for Smart Fashion recommended Application

5. AVAILABLE SOLUTIONS   AS

Which solutions are available to the customers when they face the problem or need to get the job done?

In before introducing the online shopping , the customer need to in person go for purchasing product. By our application we reduce the money transaction, Travel and comparison of many products.

Explore AS, differentiate

2. JOBS-TO-BE-DONE / PROBLEMS   J&P

Which jobs-to-be-done (or problems) do you address for your customers?

We need to create a Comparison page for customer bought a best product. The customer Filter the products by communicate with a Chatbot.

9. PROBLEM ROOT CAUSE   RC

What is the real reason that this problem exists? What is the back story behind the need to do this job?

The process of buy a product in a online site , the customer avoid the manny steps to bought the product. It takes time to bought the product. So the customer need knowledge of chatbot.

7. BEHAVIOUR   BE

What does your customer do to address the problem and get the job done?

The customers search the products by the name in search box, It's provides the full details and reviews of old customer.

3. TRIGGERS   TR

What triggers customers to act?

The Advertisement triggers the customer to act. And the Offers of festival season like diwali , Christmas etc,. Simple way of purchasing in online.

4. EMOTIONS: BEFORE / AFTER   EM

How do customers feel when they face a problem or a job and afterwards?

Before the online E'commerce site the customers have more stress for travel and shipping. But after using our application he/she will be and the hole process in his/her house with the network connection.

10. OUR SOLUTION   SL

We fill the website with the online business people connected with the application.
The new people connected with the local business people.

8. CHANNELS of BEHAVIOUR   CH

8.1 ONLINE
What kind of actions do customers take online?

Online money transaction for the purchasing product,comparison of two products with good and bad. Example Amazon,flipkart.

8.2 OFFLINE
What kind of actions do customers take offline?

The customers travel for the every product in person and money transaction is done by physically . The crowd make more time to purchasing process.

Identify strong TR & EM

4.REQUIREMENT ANALYSIS

FUNCTIONAL REQUIREMENT:

SMART FASHION RECOMMENDER APPLICATION

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	Login	Registration through Form Registration through Gmail Registration through LinkedIN
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP

NON-FUNCTIONAL REQUIREMENTS:

SMART FASHION RECOMMENDER APPLICATION

Non-functional Requirements:

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

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	It can be user friendly and quick to search product
NFR-2	**Security**	They detect the malware and unwanted accounts
NFR-3	**Reliability**	They have more Security purpose to implemented this website
NFR-4	**Performance**	Fast and high permformance use it, and quickly to Search the product
NFR-5	**Availability**	They have so many product to Store in Database
NFR-6	**Scalability**	It allows you to have mulitple stores and brands all under one platform

5.PROJECT DESIGN

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.
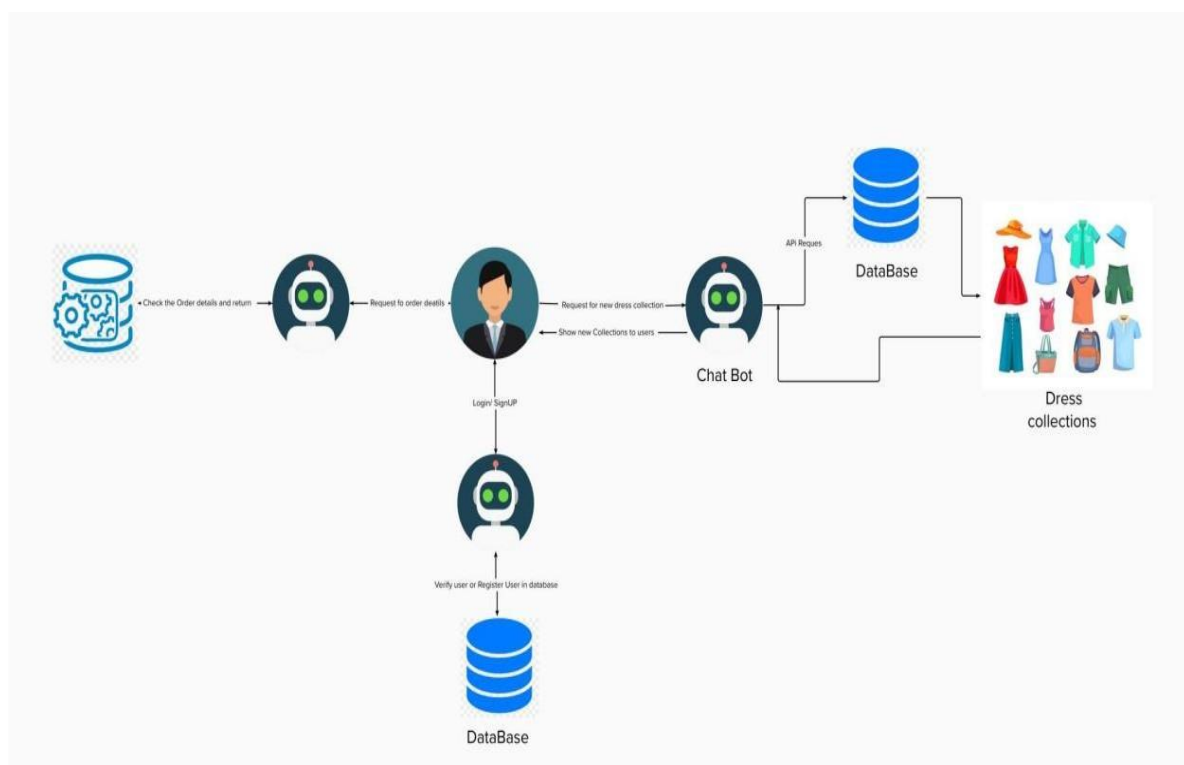
SOLUTION & TECHNICAL ARCHITECTURE:

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 chatbot. 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 chatbots 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 chatbot 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.
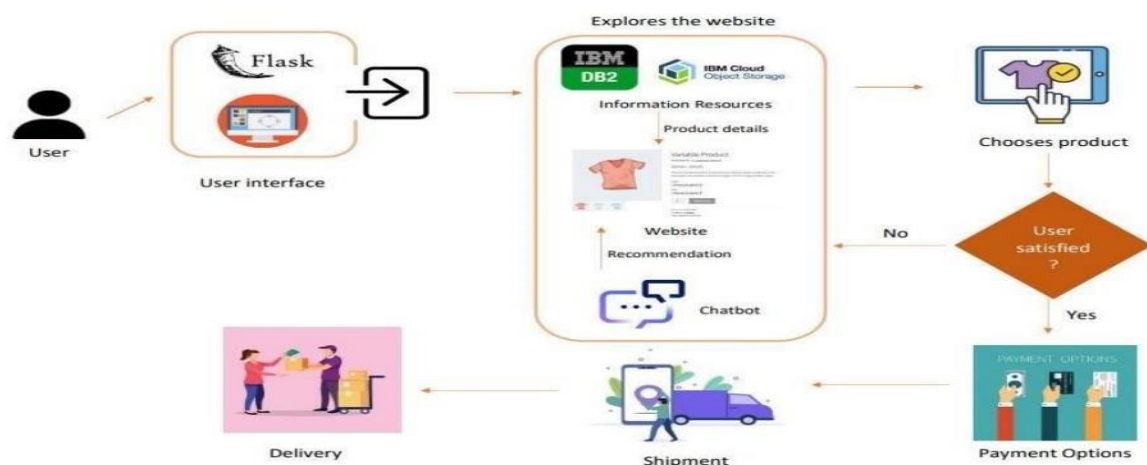
USER STORIES :

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		High	Sprint-1
	Dashboard					
Customer (Web user)						
Customer Care Executive	Service		As a user , I can ask my queries in Watson Chabot at Natural Language	I can communicate at natural Language	High	Sprint-3
Administrator	Survey		I can be verified the account and product	I can check the detail about product and user verified account	High	Sprint-1
	Recognize		I can recognize the history of user .	As a admin I can know the cookies of customer.	Medium	
	Delete		As a admin have a authority of deletion.	I can delete the unusable account for the long period.	High	

6. PROJECT PLANNING & SCHEDULE

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 · 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 Panis & 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

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	Emmanuel.A Rahul.v Bharath Raaj.B Sameer Mohammed.S
Sprint-2	Admin Panel	USN-2	The Role of the admin is to check out the database about the stock and have attract of all the things that the users are purchasing	20	High	Emmanuel.A Rahul.v Bharath Raaj.B Sameer Mohammed.S
Sprint-3	ChatBot	USN-3	The user can directly talk to Chatbot regarding the products. Get the recommendations based on information provided by the user	20	High	Emmanuel.A Rahul.v Bharath Raaj.B Sameer Mohammed.S
Sprint-4	Final delivery	USN-4	Container of applications using docker kubernetes and deployment the application. Create the documentation and final submit the application	20	Medium	Emmanuel.A Rahul.v Bharath Raaj.B Sameer Mohammed.S

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)

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

REPORTS FROM JIRA:

Burndown Chart:

Sprints	OCT 24 25 26 27 28 29 30	NOV 31 1 2 3 4 5 6	NOV 7 8 9 10 11 12 13	NOV 14 15 16 17 18 19 20	21 22 23
	SFRA Sprint 1	SFRA Sprint 2	SFRA Sprint 3	SFRA Sprint 4	
SFRA-1 Creating Register/login page	▮				
SFRA-2 home page of e-commerce website	▮				
SFRA-3 Creating buying products page	▮				
SFRA-4 Creating Cart page	▮				
SFRA-5 Create Database For products and user det...	▮				
SFRA-6 Completing the User panel	▮				
SFRA-7 Creating UI for Admin Panel		▮			
SFRA-8 Creating database connection for admin pa...		▮			
SFRA-9 Completing the Admin panel		▮			
SFRA-10 Creating chatbot for application			▮		
SFRA-11 Adding Features of Chatbot			▮		
SFRA-12 integrate ChatBot with Web site			▮		
SFRA-13 Completing Chatbot			▮		
SFRA-14 Testing And Debugging The application				▮	
SFRA-15 Container of applications				▮	
SFRA-16 deploy the application				▮	

7. CODING & SOLUTIONING

FEATURE-1:

HOME.html:

```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="shortcut icon" href="icons/icon-1.png" type="image/x-icon">
    <!-- Google Font  -->
    <link rel="preconnect" href="https://fonts.googleapis.com">
    <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
    <link href="https://fonts.googleapis.com/css2?family=Roboto:wght@400&display=swap"
rel="stylesheet">
    <!-- Font Awoseme -->
    <script src="https://kit.fontawesome.com/9bbc3d5946.js"
crossorigin="anonymous"></script>
    <!-- Bootstrap -->
    <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.0/dist/css/bootstrap.min.css">
    <!-- Custom Css -->
    <link rel="stylesheet" href="css/style.css">
</head>

<body>

    <header>
        <!-- Nav Menu Section -->
        <section>
            <nav class="navbar navbar-expand-lg fixed-top top-banner">
                <div class="container">
```

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```
<a class="navbar-brand" href="#">
  <img style="width: 300px;" src="icons/logo.png" alt="">
</a>
<button class="navbar-toggler" type="button" data-bs-toggle="collapse"
  data-bs-target="#navbarSupportedContent" aria-
controls="navbarSupportedContent"
  aria-expanded="false" aria-label="Toggle navigation">
  <span class="navbar-toggler-icon"></span>
</button>
<div class="collapse navbar-collapse" id="navbarSupportedContent">
  <ul class="navbar-nav me-auto mb-2 mb-lg-0">
    <!-- Middle Space -->
  </ul>
  <div class="d-flex nav-menu">
    <ul class="navbar-nav me-auto mb-2 mb-lg-0">
      <li class="nav-item">
        <a class="nav-link active" aria-current="page" href="#">Home</a>
      </li>
      <li class="nav-item">
        <a class="nav-link" href="#product">Product</a>
      </li>
      <li class="nav-item">
        <a class="nav-link" href="#about">About Us</a>
      </li>
      <li class="nav-item">
        <a class="nav-link" href="#contact">Contact Us</a>
      </li>
              <li class="nav-item">
        <a class="nav-link" href="./login/login.html">SignUp</a>
      </li>
    </ul>
  </div>
</div>
</div>
```

```
        </nav>
    </section>
    <!-- banner Section Slider -->
    <section class="banner mb-5">
        <div id="carouselExampleSlidesOnly" class="carousel slide" data-bs-ride="carousel">
            <div class="carousel-inner">
                <div class="carousel-item active">
                    <div class="row">
                        <div class="col-md-6">
                            <img class="img-fluid w-75" src="images/banner-shoes.png" alt="">
                        </div>
                        <div class="col-md-6 m-auto">
                            <h1 class="fw-bold display-4"><span style="color:#FA804C">NIKE
                                REACT</span><br> NFINITY RUN 1</h1>
                            <p>Everybody is different, which is why we offer styles for every body.
One of the many
                                reasons you
                                can shop with peace of mind.</p>
                            <a class="btn nike-btn px-3 py-2" href=""><i class="fa-solid fa-cart-
shopping me-2"></i>
                                BUY
                                NOW</a>
                        </div>
                    </div>
                </div>
                <div class="carousel-item">
                    <div class="row">
                        <div class="col-md-6">
                            <img class="img-fluid w-75" src="images/daco.png" alt="">
                        </div>
                        <div class="col-md-6 m-auto">
                            <h1 class="fw-bold display-4"><span style="color:#FA804C">NIKE
                                REACT</span><br> NFINITY RUN 2</h1>
                            <p>Everybody is different, which is why we offer styles for every body.
```

One of the many

    reasons you

    can shop with peace of mind.</p>

    <i class="fa-solid fa-cart-shopping me-2"></i>

    BUY

    NOW

    </div>

    </div>

    </div>

    <div class="carousel-item">

    <div class="row">

    <div class="col-md-6 ">

    <img class="img-fluid w-75" src="images/packo.png" alt="">

    </div>

    <div class="col-md-6 m-auto">

    <h1 class="fw-bold display-4">NIKE

    REACT
 NFINITY RUN 3</h1>

    <p>Everybody is different, which is why we offer styles for every body.

One of the many

    reasons you

    can shop with peace of mind.</p>

    <i class="fa-solid fa-cart-shopping me-2"></i>

    BUY

    NOW

    </div>

    </div>

    </div>

    </div>

    </div>

    </section>

    </header>

    <main>

24

```html
<!-- CASUAL SHOES -->
<section id="product" class="container mb-5">
  <div class="casual-shoes">
    <h1 class="fw-bold py-3">CASUAL SHOES</h1>
    <div class="row">
      <div class="col-md-6 col-lg-4 col-sm-12 mb-sm-3">
        <div class="card">
          <div class="card-body">
            <img class="img-fluid" src="images/packo.png" alt="">
            <h5 class="card-title fw-bold mt-4">Nike Shoe</h5>
            <p class="card-text">With supporting text below as a natural lead-in to additional
              content.</p>
            <div class="d-flex justify-content-between">
              <h3 class="fw-bold" style="color:#FA804C">₹1200</h3>
              <button class="btn nike-btn px-3 py-2"><i
                  class="fa-solid fa-cart-shopping me-2"></i> BUY NOW</button>
            </div>
          </div>
        </div>
      </div>
      <div class="col-md-6 col-lg-4 col-sm-12 mb-sm-3">
        <div class="card">
          <div class="card-body">
            <img class="img-fluid" src="images/daco.png" alt="">
            <h5 class="card-title fw-bold mt-4">Sneakers Skate Shoe </h5>
            <p class="card-text">With supporting text below as a natural lead-in to additional
              content.</p>
            <div class="d-flex justify-content-between">
              <h3 class="fw-bold" style="color:#FA804C">₹2500</h3>
              <button class="btn nike-btn px-3 py-2"><i
                  class="fa-solid fa-cart-shopping me-2"></i> BUY NOW</button>
            </div>
```

```
                </div>
              </div>
            </div>
            <div class="col-md-6 col-lg-4 col-sm-12 mb-sm-3">
              <div class="card">
                <div class="card-body">
                  <img class="img-fluid" src="images/pngegg 1.png" alt="">
                  <h5 class="card-title fw-bold mt-4">Sneakers Basketball shoe</h5>
                  <p class="card-text">With supporting text below as a natural lead-in to
additional

                    content.</p>
                  <div class="d-flex justify-content-between">
                    <h3 class="fw-bold" style="color:#FA804C">₹5000</h3>
                    <button class="btn nike-btn px-3 py-2"><i
                        class="fa-solid fa-cart-shopping me-2"></i> BUY NOW</button>
                  </div>
                </div>
              </div>
            </div>
          </div>
        </div>
      </section>
      <!-- Formal shoes -->
      <section class="container mb-5">
        <div class="formal-shoes">
          <h1 class="fw-bold py-3">FORMAL SHOES</h1>
          <div class="row">
            <div class="col-md-6 col-lg-4 col-sm-12 mb-sm-3">
              <div class="card">
                <div class="card-body">
                  <img class="img-fluid" src="images/formal1.png" alt="">
                  <h5 class="card-title fw-bold mt-4">Prestige High-Cut Leather</h5>
                  <p class="card-text">With supporting text below as a natural lead-in to
additional
```

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```
        content.</p>
        <div class="d-flex justify-content-between">
          <h3 class="fw-bold" style="color:#FA804C">₹5400</h3>
          <button class="btn nike-btn px-3 py-2"><i
              class="fa-solid fa-cart-shopping me-2"></i> BUY NOW</button>
        </div>
      </div>
    </div>
  </div>
  <div class="col-md-6 col-lg-4 col-sm-12 mb-sm-3">
    <div class="card">
      <div class="card-body">
        <img class="img-fluid" src="images/formal2.png" alt="">
        <h5 class="card-title fw-bold mt-4">Slip-On Formal Shoe</h5>
        <p class="card-text">With supporting text below as a natural lead-in to
additional
          content.</p>
        <div class="d-flex justify-content-between">
          <h3 class="fw-bold" style="color:#FA804C">₹2500</h3>
          <button class="btn nike-btn px-3 py-2"><i
              class="fa-solid fa-cart-shopping me-2"></i> BUY NOW</button>
        </div>
      </div>
    </div>
  </div>
  <div class="col-md-6 col-lg-4 col-sm-12 mb-sm-3">
    <div class="card">
      <div class="card-body">
        <img class="img-fluid" src="images/formal3.png" alt="">
        <h5 class="card-title fw-bold mt-4">Slip-On Formal Shoe</h5>
        <p class="card-text">With supporting text below as a natural lead-in to
additional
          content.</p>
        <div class="d-flex justify-content-between">
```

```html
                <h3 class="fw-bold" style="color:#FA804C">₹5600</h3>
                <button class="btn nike-btn px-3 py-2"><i
                    class="fa-solid fa-cart-shopping me-2"></i> BUY NOW</button>
              </div>
            </div>
          </div>
        </div>
      </section>
      <!-- Support Section  -->
      <section id="about" class="container mb-5 supporting">
        <div class="row d-sm-flex lex-column-reverse">
          <div class="col-lg-5 col-md-6 col-sm-12 d-sm-flex flex-sm-column-reverse">
            <div class="container">
              <div class="row g-2">
                <div class="col-12 d-flex align-items-center"
                    style="box-shadow: 0px 0px 30px lightgrey; padding: 10px; border-radius:
10px; cursor: pointer;">
                  <img class="img-fluid w-25 me-3" src="icons/icon-1.png" alt="">
                  <div class="flex-column">
                    <h5 class="fw-bold">Find the Perfect Fit</h5>
                    <p><small>Everybody is different, which is why we offer styles for
every
                      body</small></p>
                  </div>
                </div>
                <div class="col-12 d-flex align-items-center"
                    style="box-shadow: 0px 0px 30px lightgrey; padding: 10px; border-radius:
10px; cursor: pointer;">
                  <img class="img-fluid w-25 me-3" src="icons/free.png" alt="">
                  <div class="flex-column">
                    <h5 class="fw-bold">Free Exchanges</h5>
                    <p><small>One of the many reasons you can shop with peace of
```

```
mind.</small></p>
                    </div>
                </div>
                <div class="col-12 d-flex align-items-center"
                    style="box-shadow: 0px 0px 30px lightgrey; padding: 10px; border-radius:
10px; cursor: pointer;">
                    <img class="img-fluid w-25 me-3" src="icons/support.png" alt="">
                    <div class="flex-column">
                        <h5 class="fw-bold">Contact Our Seller</h5>
                        <p><small>They are here to help you. That's literally what we pay them
for.</small>
                        </p>
                    </div>
                </div>
            </div>
        </div>
        <div class="col-lg-7 col-md-6 col-sm-12">
            <img class="img-fluid" src="icons/xmld.png" alt="">
        </div>
    </div>
</section>
</main>
<footer id="contact" class="d-flex flex-wrap justify-content-between align-items-center py-
3 my-4 border-top container">
    <div class="col-md-4 d-flex align-items-center">
        <a href="/" class="mb-3 me-2 mb-md-0 text-muted text-decoration-none lh-1">
            <svg class="bi" width="30" height="24">
    <use xlink:href="#bootstrap"></use>
            </svg>
        </a>
        <span class="mb-3 mb-md-0 text-muted">© 2022 Nike Fashion, Inc</span>
    </div>
```

```html
        <ul class="nav col-md-4 justify-content-end list-unstyled d-flex font">
          <li class="ms-3"><a class="text-muted" href="#"><i class="fa-brands fa-twitter"></i></a></li>
          <li class="ms-3"><a class="text-muted" href="#"><i class="fa-brands fa-facebook"></i></a></li>
          <li class="ms-3"><a class="text-muted" href="#"><i class="fa-brands fa-github"></i></a></li>
        </ul>
      </footer>
      <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.0/dist/js/bootstrap.bundle.min.js"></script>

      <script>
        window.watsonAssistantChatOptions = {
          integrationID: "2c8d938e-636b-4313-b203-ae0907c6efdb", // The ID of this integration.
          region: "au-syd", // The region your integration is hosted in.
          serviceInstanceID: "10264626-86c6-45db-a781-d6a9f1beb7da", // The ID of your
service instance.
          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>

</body>

</html>
```

FEATURE 2:

FINALHOME.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="shortcut icon" href="icons/icon-1.png" type="image/x-icon">
    <!-- Google Font  -->
    <link rel="preconnect" href="https://fonts.googleapis.com">
    <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin>
    <link href="https://fonts.googleapis.com/css2?family=Roboto:wght@400&display=swap"
rel="stylesheet">
    <!-- Font Awoseme -->
    <script src="https://kit.fontawesome.com/9bbc3d5946.js" crossorigin="anonymous"></script>
    <!-- Bootstrap -->
    <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@5.2.0/dist/css/bootstrap.min.css">
```

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```css
<!-- Custom Css -->
<style>
body{
    font-family: 'Roboto', sans-serif;
    background-color: #faf9f9;
}
.menu img{
    width: 35%;
}
.nav-menu li{
    margin-left: 15px;
}
.top-banner{
    background-color: #FFF9F4;
}
.banner{
    background-color: #FFF9F4;
    padding: 50px;
    margin-top: -65px;
    padding-top: 200px;
}
.casual-shoes img{
    background-color: #F1F1F1;
    border-radius: 20px;
}
.card{
    border: none;
    box-shadow: 9px 12px 20px lightgrey;
    border-radius: 15px;
}
.supporting{
    margin-top: 85px;
}
.nike-btn{
```

```
        background-image: linear-gradient(180deg, #3D4FF3 0%, #3543BC 100%);

        color: white;

    }

    .nike-btn:hover{

        color: white;

    }

    .font li{

        font-size: 30px;

        margin-right: 25px;

    }

    </style>

    </head>


    <body>


        <header>

            <!-- Nav Menu Section -->

            <section>

                <nav class="navbar navbar-expand-lg fixed-top top-banner">

                    <div class="container">

                        <a class="navbar-brand" href="#">

                            <img style="width: 300px;" src="icons/logo.png" alt="">

                        </a>

                        <button class="navbar-toggler" type="button" data-bs-toggle="collapse"

                            data-bs-target="#navbarSupportedContent" aria-controls="navbarSupportedContent"

                            aria-expanded="false" aria-label="Toggle navigation">

                            <span class="navbar-toggler-icon"></span>

                        </button>

                        <div class="collapse navbar-collapse" id="navbarSupportedContent">

                            <ul class="navbar-nav me-auto mb-2 mb-lg-0">

                                <!-- Middle Space -->

                            </ul>

                            <div class="d-flex nav-menu">

                                <ul class="navbar-nav me-auto mb-2 mb-lg-0">
```

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```html
            <li class="nav-item">
              <a class="nav-link active" aria-current="page" href="#">Home</a>
            </li>
            <li class="nav-item">
              <a class="nav-link" href="#product">Product</a>
            </li>
            <li class="nav-item">
              <a class="nav-link" href="#about">About Us</a>
            </li>
            <li class="nav-item">
              <a class="nav-link" href="#contact">Contact Us</a>
            </li>
              <li class="nav-item">
              <a class="nav-link" href="./login/login.html">SignUp</a>
            </li>
          </ul>
        </div>
      </div>
    </div>
  </nav>
</section>
<!-- banner Section Slider -->
<section class="banner mb-5">
  <div id="carouselExampleSlidesOnly" class="carousel slide" data-bs-ride="carousel">
    <div class="carousel-inner">
      <div class="carousel-item active">
        <div class="row">
          <div class="col-md-6">
            <img class="img-fluid w-75" src="images/banner-shoes.png" alt="">
          </div>
          <div class="col-md-6 m-auto">
            <h1 class="fw-bold display-4"><span style="color:#FA804C">NIKE
                REACT</span><br> NFINITY RUN 1</h1>
            <p>Everybody is different, which is why we offer styles for every body. One of
```

the many

      reasons you

      can shop with peace of mind.</p>

      <i class="fa-solid fa-cart-shopping me-2"></i>

      BUY

      NOW

    </div>

  </div>

</div>

<div class="carousel-item">

  <div class="row">

    <div class="col-md-6">

      <img class="img-fluid w-75" src="images/daco.png" alt="">

    </div>

    <div class="col-md-6 m-auto">

      <h1 class="fw-bold display-4">NIKE

        REACT
 NFINITY RUN 2</h1>

      <p>Everybody is different, which is why we offer styles for every body. One of

the many

      reasons you

      can shop with peace of mind.</p>

      <i class="fa-solid fa-cart-shopping me-2"></i>

      BUY

      NOW

    </div>

  </div>

</div>

<div class="carousel-item">

  <div class="row">

    <div class="col-md-6 ">

      <img class="img-fluid w-75" src="images/packo.png" alt="">

    </div>

```
                    <div class="col-md-6 m-auto">
                       <h1 class="fw-bold display-4"><span style="color:#FA804C">NIKE
                          REACT</span><br> NFINITY RUN 3</h1>
                       <p>Everybody is different, which is why we offer styles for every body. One of
the many

                          reasons you
                          can shop with peace of mind.</p>
                       <a class="btn nike-btn px-3 py-2" href=""><i class="fa-solid fa-cart-shopping me-
2"></i>

                          BUY
                          NOW</a>
                    </div>
                 </div>
              </div>
           </div>
        </section>
     </header>
     <main>
        <!-- CASUAL SHOES -->
        <section id="product" class="container mb-5">
           <div class="casual-shoes">
              <h1 class="fw-bold py-3">CASUAL SHOES</h1>
              <div class="row">
                 <div class="col-md-6 col-lg-4 col-sm-12 mb-sm-3">
                    <div class="card">
                       <div class="card-body">
                          <img class="img-fluid" src="images/packo.png" alt="">
                          <h5 class="card-title fw-bold mt-4">Nike Shoe</h5>
                          <p class="card-text">With supporting text below as a natural lead-in to additional
                             content.</p>
                          <div class="d-flex justify-content-between">
                             <h3 class="fw-bold" style="color:#FA804C">₹1200</h3>
                             <button class="btn nike-btn px-3 py-2"><i
```

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```
                        class="fa-solid fa-cart-shopping me-2"></i> BUY NOW</button>
                </div>
            </div>
        </div>
    </div>
    <div class="col-md-6 col-lg-4 col-sm-12 mb-sm-3">
        <div class="card">
            <div class="card-body">
                <img class="img-fluid" src="images/daco.png" alt="">
                <h5 class="card-title fw-bold mt-4">Sneakers Skate Shoe </h5>
                <p class="card-text">With supporting text below as a natural lead-in to additional
                    content.</p>
                <div class="d-flex justify-content-between">
                    <h3 class="fw-bold" style="color:#FA804C">₹2500</h3>
                    <button class="btn nike-btn px-3 py-2"><i
                        class="fa-solid fa-cart-shopping me-2"></i> BUY NOW</button>
                </div>
            </div>
        </div>
    </div>
    <div class="col-md-6 col-lg-4 col-sm-12 mb-sm-3">
        <div class="card">
            <div class="card-body">
                <img class="img-fluid" src="images/pngegg 1.png" alt="">
                <h5 class="card-title fw-bold mt-4">Sneakers Basketball shoe</h5>
                <p class="card-text">With supporting text below as a natural lead-in to additional
                    content.</p>
                <div class="d-flex justify-content-between">
                    <h3 class="fw-bold" style="color:#FA804C">₹5000</h3>
                    <button class="btn nike-btn px-3 py-2"><i
                        class="fa-solid fa-cart-shopping me-2"></i> BUY NOW</button>
                </div>
            </div>
        </div>
    </div>
```

```
        </div>
      </div>
    </div>
  </section>
  <!-- Formal shoes -->
  <section class="container mb-5">
    <div class="formal-shoes">
      <h1 class="fw-bold py-3">FORMAL SHOES</h1>
      <div class="row">
        <div class="col-md-6 col-lg-4 col-sm-12 mb-sm-3">
          <div class="card">
            <div class="card-body">
              <img class="img-fluid" src="images/formal1.png" alt="">
              <h5 class="card-title fw-bold mt-4">Prestige High-Cut Leather</h5>
              <p class="card-text">With supporting text below as a natural lead-in to additional
                content.</p>
              <div class="d-flex justify-content-between">
                <h3 class="fw-bold" style="color:#FA804C">₹5400</h3>
                <button class="btn nike-btn px-3 py-2"><i
                    class="fa-solid fa-cart-shopping me-2"></i> BUY NOW</button>
              </div>
            </div>
          </div>
        </div>
        <div class="col-md-6 col-lg-4 col-sm-12 mb-sm-3">
          <div class="card">
            <div class="card-body">
              <img class="img-fluid" src="images/formal2.png" alt="">
              <h5 class="card-title fw-bold mt-4">Slip-On Formal Shoe</h5>
              <p class="card-text">With supporting text below as a natural lead-in to additional
                content.</p>
              <div class="d-flex justify-content-between">
                <h3 class="fw-bold" style="color:#FA804C">₹2500</h3>
                <button class="btn nike-btn px-3 py-2"><i
```

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```
                              class="fa-solid fa-cart-shopping me-2"></i> BUY NOW</button>
                    </div>
                  </div>
                </div>
              </div>
              <div class="col-md-6 col-lg-4 col-sm-12 mb-sm-3">
                <div class="card">
                  <div class="card-body">
                    <img class="img-fluid" src="images/formal3.png" alt="">
                    <h5 class="card-title fw-bold mt-4">Slip-On Formal Shoe</h5>
                    <p class="card-text">With supporting text below as a natural lead-in to additional
                        content.</p>
                    <div class="d-flex justify-content-between">
                      <h3 class="fw-bold" style="color:#FA804C">₹5600</h3>
                      <button class="btn nike-btn px-3 py-2"><i
                            class="fa-solid fa-cart-shopping me-2"></i> BUY NOW</button>
                    </div>
                  </div>
                </div>
              </div>
            </div>
          </div>
        </section>
        <!-- Support Section  -->
        <section id="about" class="container mb-5 supporting">
          <div class="row d-sm-flex lex-column-reverse">
            <div class="col-lg-5 col-md-6 col-sm-12 d-sm-flex flex-sm-column-reverse">
              <div class="container">
                <div class="row g-2">
                  <div class="col-12 d-flex align-items-center"
                      style="box-shadow: 0px 0px 30px lightgrey; padding: 10px; border-radius: 10px;
cursor: pointer;">
                      <img class="img-fluid w-25 me-3" src="icons/icon-1.png" alt="">
                      <div class="flex-column">
```

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```
                    <h5 class="fw-bold">Find the Perfect Fit</h5>
                    <p><small>Everybody is different, which is why we offer styles for every
                        body</small></p>
                 </div>
              </div>
              <div class="col-12 d-flex align-items-center"
                 style="box-shadow: 0px 0px 30px lightgrey; padding: 10px; border-radius: 10px;
cursor: pointer;">
                 <img class="img-fluid w-25 me-3" src="icons/free.png" alt="">
                 <div class="flex-column">
                    <h5 class="fw-bold">Free Exchanges</h5>
                    <p><small>One of the many reasons you can shop with peace of
mind.</small></p>
                 </div>
              </div>
              <div class="col-12 d-flex align-items-center"
                 style="box-shadow: 0px 0px 30px lightgrey; padding: 10px; border-radius: 10px;
cursor: pointer;">
                 <img class="img-fluid w-25 me-3" src="icons/support.png" alt="">
                 <div class="flex-column">
                    <h5 class="fw-bold">Contact Our Seller</h5>
                    <p><small>They are here to help you. That's literally what we pay them
for.</small>
                    </p>
                 </div>
              </div>
           </div>
         </div>
       </div>
       <div class="col-lg-7 col-md-6 col-sm-12">
         <img class="img-fluid" src="icons/xmld.png" alt="">
       </div>
     </div>
   </section>
```
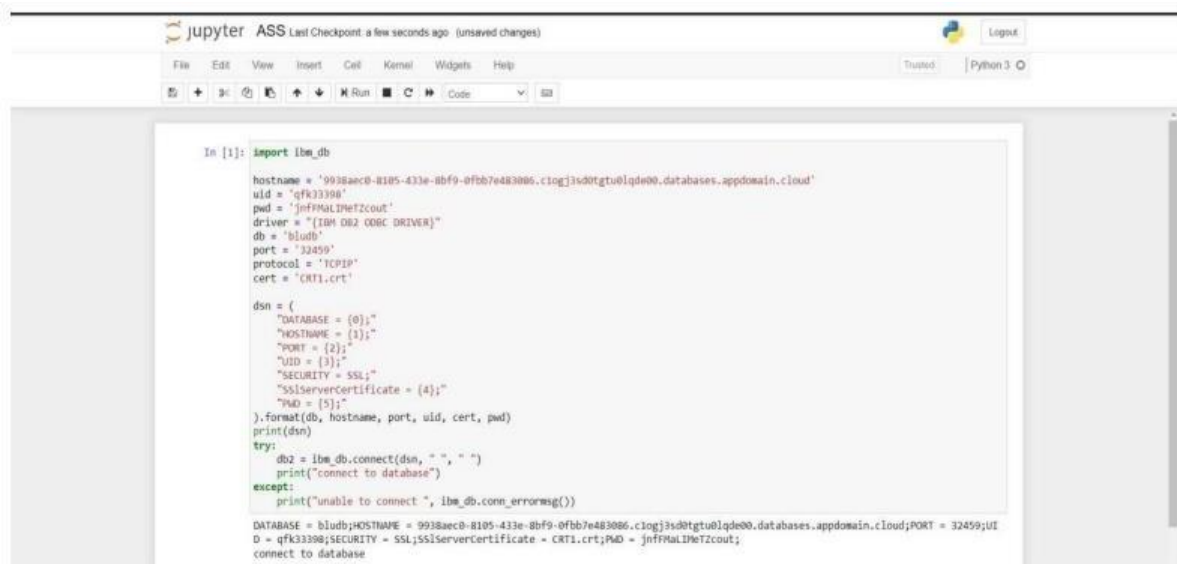
```
      </main>
      <footer id="contact" class="d-flex flex-wrap justify-content-between align-items-center py-3 my-4
border-top container">
        <div class="col-md-4 d-flex align-items-center">
          <a href="/" class="mb-3 me-2 mb-md-0 text-muted text-decoration-none lh-1">
            <svg class="bi" width="30" height="24">
  <use xlink:href="#bootstrap"></use>
            </svg>
          </a>
          <span class="mb-3 mb-md-0 text-muted">© 2022 Nike Fashion, Inc</span>
        </div>


        <ul class="nav col-md-4 justify-content-end list-unstyled d-flex font">
          <li class="ms-3"><a class="text-muted" href="#"><i class="fa-brands fa-
twitter"></i></a></li>
          <li class="ms-3"><a class="text-muted" href="#"><i class="fa-brands fa-
facebook"></i></a></li>
          <li class="ms-3"><a class="text-muted" href="#"><i class="fa-brands fa-
github"></i></a></li>
        </ul>
      </footer>
      <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.2.0/dist/js/bootstrap.bundle.min.js"></script>

      <script>
        window.watsonAssistantChatOptions = {
          integrationID: "2c8d938e-636b-4313-b203-ae0907c6efdb", // The ID of this integration.
          region: "au-syd", // The region your integration is hosted in.
          serviceInstanceID: "10264626-86c6-45db-a781-d6a9f1beb7da", // The ID of your service
instance.
          onLoad: function(instance) { instance.render(); }
        };
        setTimeout(function(){
          const t=document.createElement('script');
          t.src="https://web-chat.global.assistant.watson.appdomain.cloud/versions/" +
```
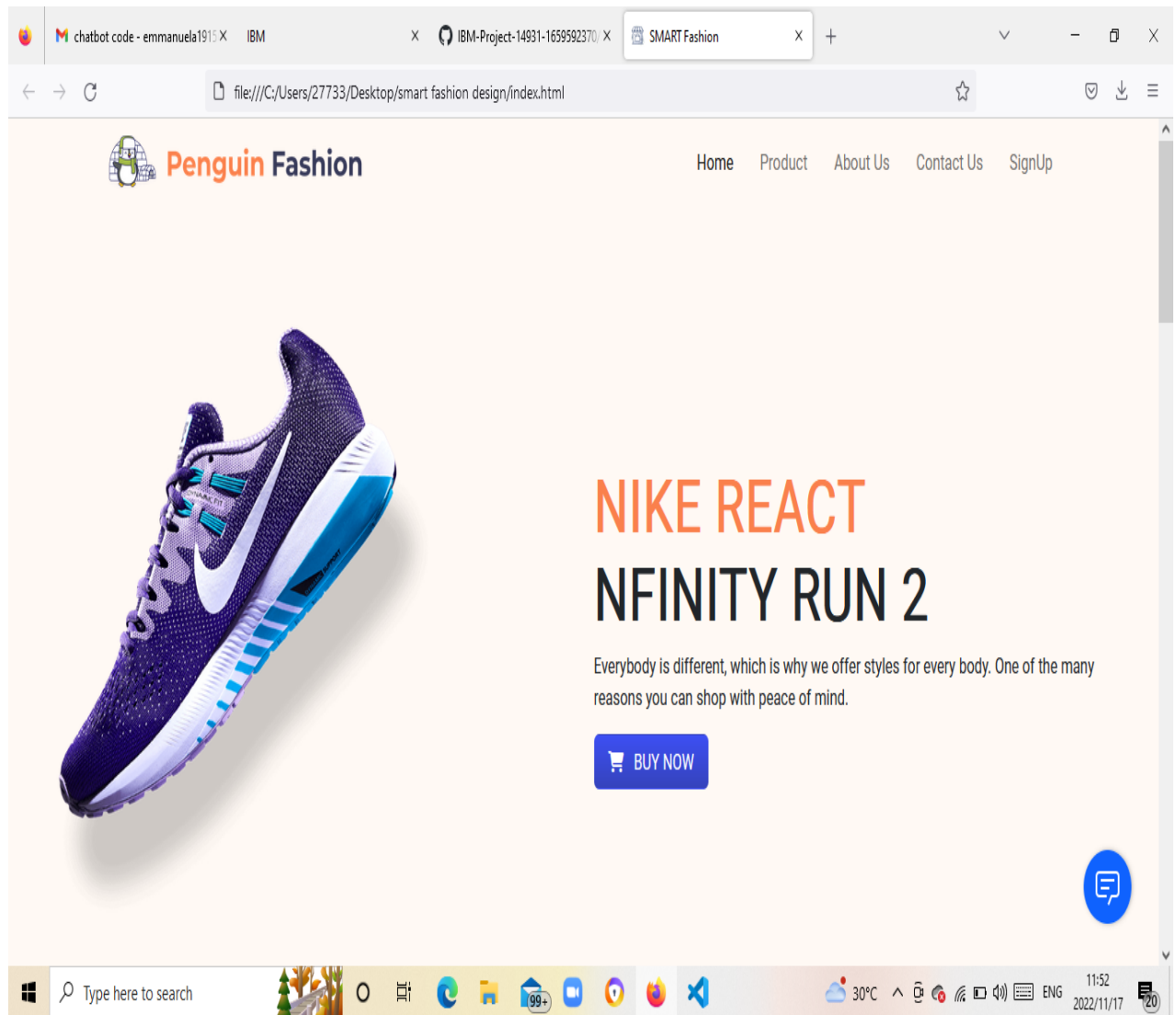
```
(window.watsonAssistantChatOptions.clientVersion || 'latest') + "/WatsonAssistantChatEntry.js";
    document.head.appendChild(t);
  });
</script>


</body>


</html>
```

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DATABASE SCHEMA:


```python
In [1]: import ibm_db

        hostname = '9938aec0-8105-433e-8bf9-0fbb7e483086.c1ogj3sd0tgtu0lqde00.databases.appdomain.cloud'
        uid = 'qfk33398'
        pwd = 'jnfFMaLIMeTZcout'
        driver = "{IBM DB2 ODBC DRIVER}"
        db = 'bludb'
        port = '32459'
        protocol = 'TCPIP'
        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-8bf9-0fbb7e483086.c1ogj3sd0tgtu0lqde00.databases.appdomain.cloud;PORT = 32459;UI
        D = qfk33398;SECURITY = SSL;SSlServerCertificate = CRT1.crt;PWD = jnfFMaLIMeTZcout;
        connect to database
```

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8. TESTING

8.1 TEST CASES:

9. RESULTS

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 [61], can be as represented as follows:

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

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:

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

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:

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

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:

$$F1\ score = 2 \times \frac{Precision * Recall}{Precision + Recall} \tag{4}$$

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, which can be as represented as follows:

10.   ADVANTAGES & DISADVANTAGES

ADVANTAGES:

- Smart fashion recommender application is the user friendly.

- With the help of chatbot user cand find the products very easily.

- This application used to discover the product based on the user's choice , very easily and quickly.

- It have ability to reduce transaction costs for consumers,and increase revenue for retailers.

DISADVANTAGES:

- It need 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

In the future, to implement this recommendation system to be extended to include male and non-binary fashion items including apparel, footwear, accessories etc. This work can further be enhanced to predict fashion items based on the skin colour and weather conditions.

Future research should concentrate on including time series analysis and accurate categorization of product images based on the variation in colour, trend and clothing style in order to develop an effective recommendation system. The proposed model will followbrand-specific personalization campaigns and hence it will ensure highly curated and tailored. offerings for users. Hence, this research will be highly beneficial for researchers interested in using augmented and virtual reality features to develop recommendation systems.

13. APPENDIX

SOURCE CODE:

SIGNIN :

```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>Login</title>
    <link rel="stylesheet" href="style1.css">

</head>
<body>
    <div class="center-box" id="login-div">
        <h2>Login</h2>
        <input type="email" class="text-field" id="login-email" name="login-email"
placeholder="Email"/>
        <input type="password" class="text-field" id="login-password" name="login-password"
placeholder="Password"/>
        <button class="btn-style" id="login-btn"> <a href="index.html">LOGIN</a> </button><br>
        <button id="reg-btn" class="an-btn"> Don't have an account? REGISTER</button>
    </div>

    <div class="center-box" id="register-div">
        <h2>Register</h2>
        <input type="email" class="text-field" id="register-email" name="register-email"
placeholder="Email"/>
        <input type="password" class="text-field" id="register-password" name="register-password"
placeholder="Password"/>
        <button id="register-btn" class="btn-style">Register</button><br>
```

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```
    <button id="log-btn" class="an-btn"> Have an account ? LOGIN</button>
  </div>

  <div id="result-box">
    <h2 id="result"></h2>

  </div>

  <script src="form.js"></script>
</body>
</html>
```
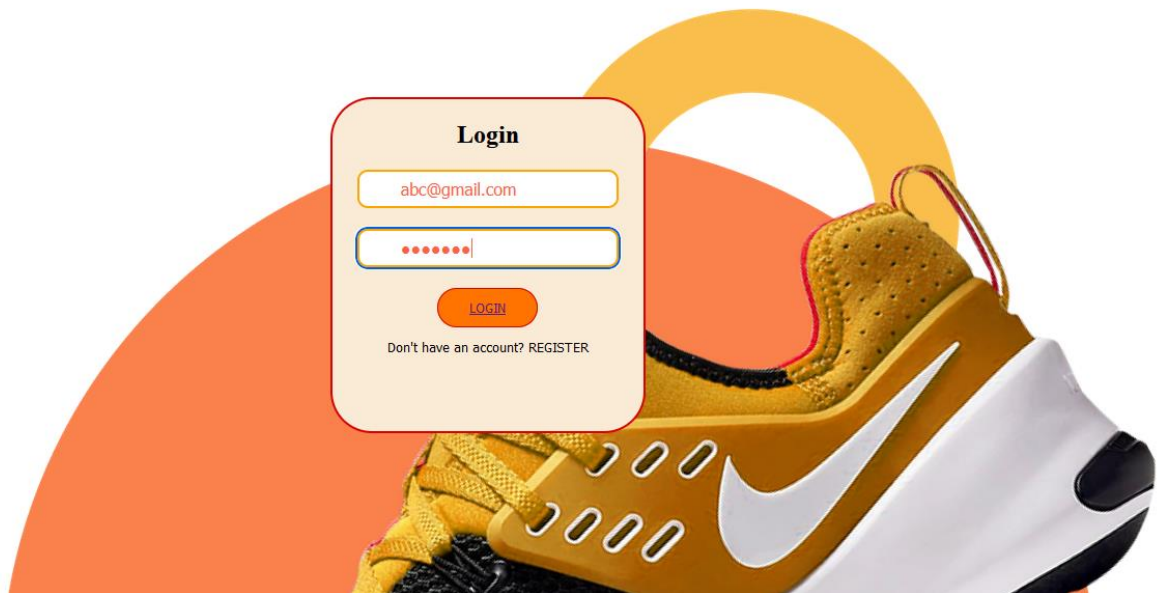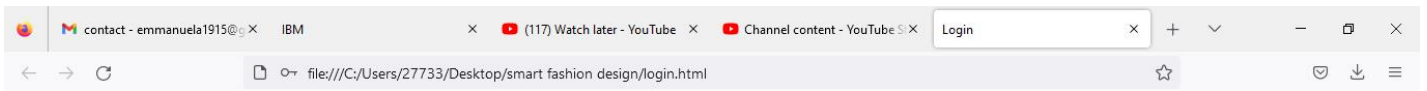
GITHUB & PROJECT DEMO LINK

GITHUB LINK:

https://github.com/IBM-EPBL/IBM-Project-33148-1660215066

VIDEO LINK:

https://youtu.be/OoQkKLz7JIQ