SMART FASHION RECOMMENDER APPLICATION

IBM – DOCUMENTATION

UNDER THE GUIDANCE OF

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ABSTRACT

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

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

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1. INTRODUCTION

1.1 PROJECT OVERVIEW :

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

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.

2. LITERATURE SURVEY

2.1 EXISTING PROBLEM :

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

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

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

A hybrid method combines the content-based and collaborative-based methods to incorporate group decisions but focuses the output based on the attributes of a specific visitor. An example of a hybrid filtering system would be how Spotify curates its personalized 'Discover Weekly' playlists. If you've

ever listened to a personalized Spotify playlist, it’s shocking how accurately they’re able to recommend songs based on what you like. The secret behind how they pull this off is through a compl``ex hybrid filtering system that aggregates data on your listening habits as well as similar users’ listening habits, to create a playlist of unique songs that align with your personal taste.

2.2 REFERENCES:

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Cui,Ying;(2020) Amazon Recommender System. 5. Qingqing Tu,Le Dong -An Intelligent Personalized Fashion Recommendation System -2010 6. batuhan aşiroğlu- smart clothing recommendation system with deep learning 2019 3rd International Symposium on MultidisciplinaryYew Cheong Hou and K. S. M.
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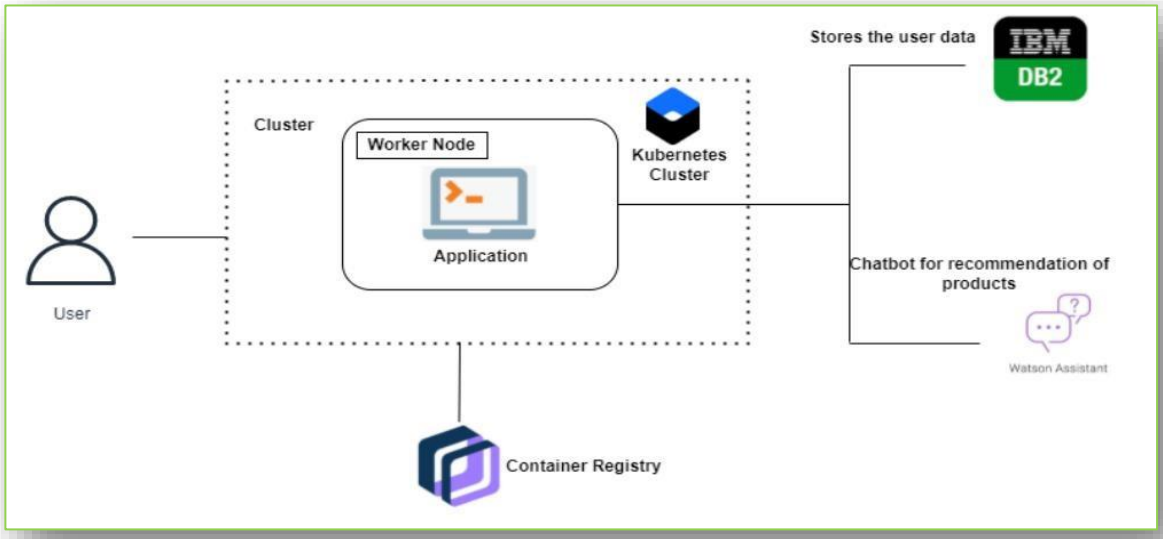
2.3 PROBLEM STATEMENT DEFINITION

The personal information collected by recommenders raises the risk of unwanted exposure of that information. Also, malicious users can bias or sabotage the recommendations that are provided to other users.In recent years, the textile and fashion industries have witnessed an enormous amount of growth in fast fashion. On e-commerce platforms, where numerous choices are available, an efficient recommendation system is required to sort, order, and efficiently convey relevant product content or information to users.



2.3.1 DEFINE THE PROBLEM :

Who can use this application ?	Everyone can access this application who seeking for online shopping infashion category.
What is the issue ?	Chat bot can't find that customerized product relevent in smart fashion recommender application.
Why is it so important that we fix this issue ?	In order to find the original product for making purchasable using chat bot at right time.
When to use ?	While searching the products online application without search method.
Where is the issue occuring ?	Only in certain locations, limited products available, multilple process during chat bot recommendation.

EXAMPLES :

- Lack of proper guidance.
- 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.
- The problem of the work is to design static web applications deployments with customer deployment

3.IDEATION & PROPOSED SOLUTION

We have come up with a new innovative solution through which you can directly do your online shopping based on your choice without any search. It can be done by using the chatbot. In this project you will be working on two modules:

1.Admin 2.User

ADMIN:

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

USER :

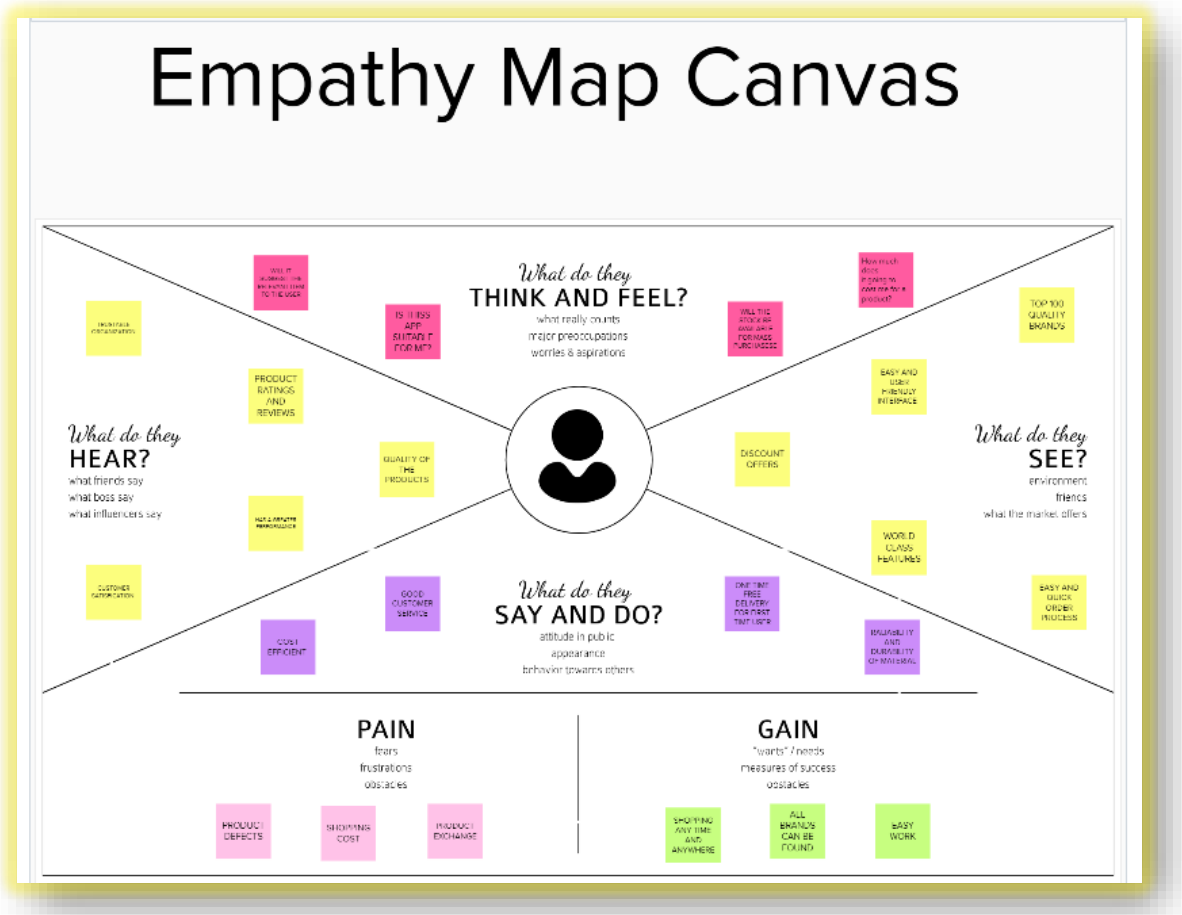
The user will login into the website and go through the products available on the website. Instead of navigating to several screens for booking products online, the user can directly talk to Chatbot regarding the products. Get the recommendations based on information provided by the user.

FEATURES OF CHATBOT :

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

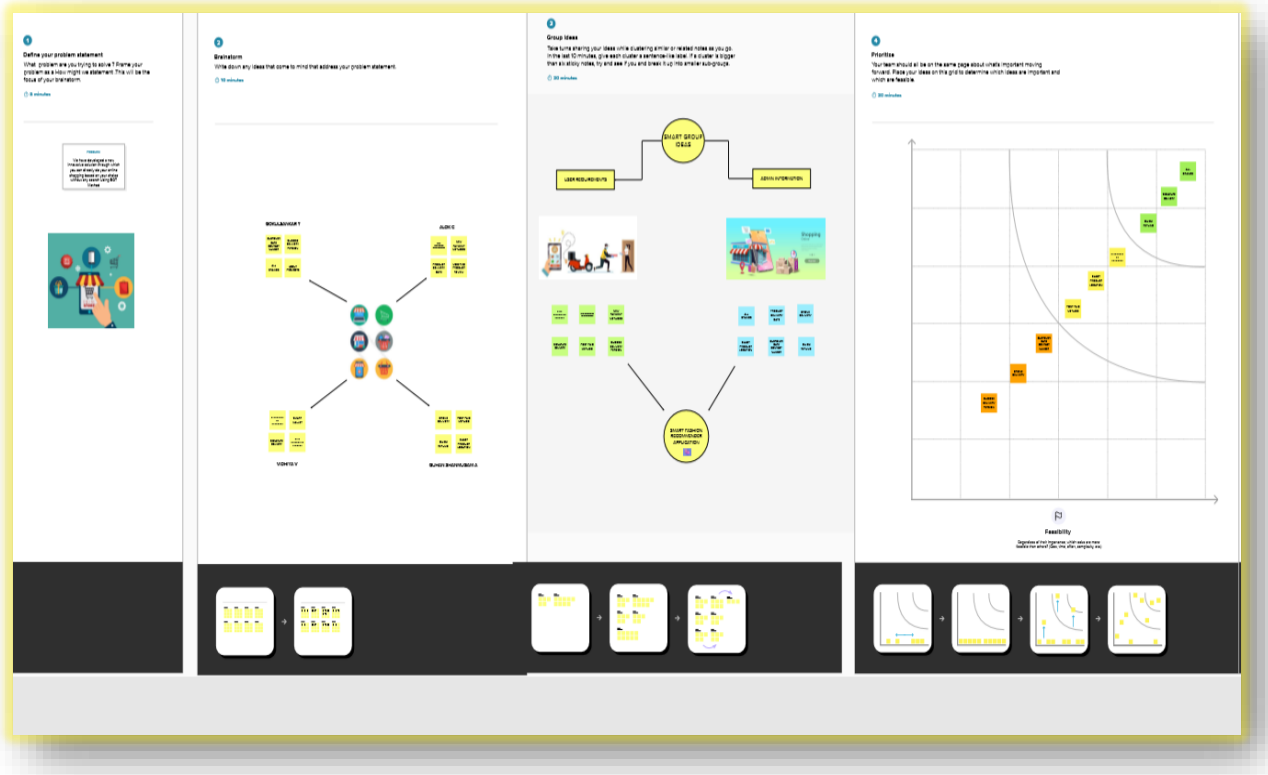
3..1 EMPATHY MAP CANVAS :

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



3.1 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.



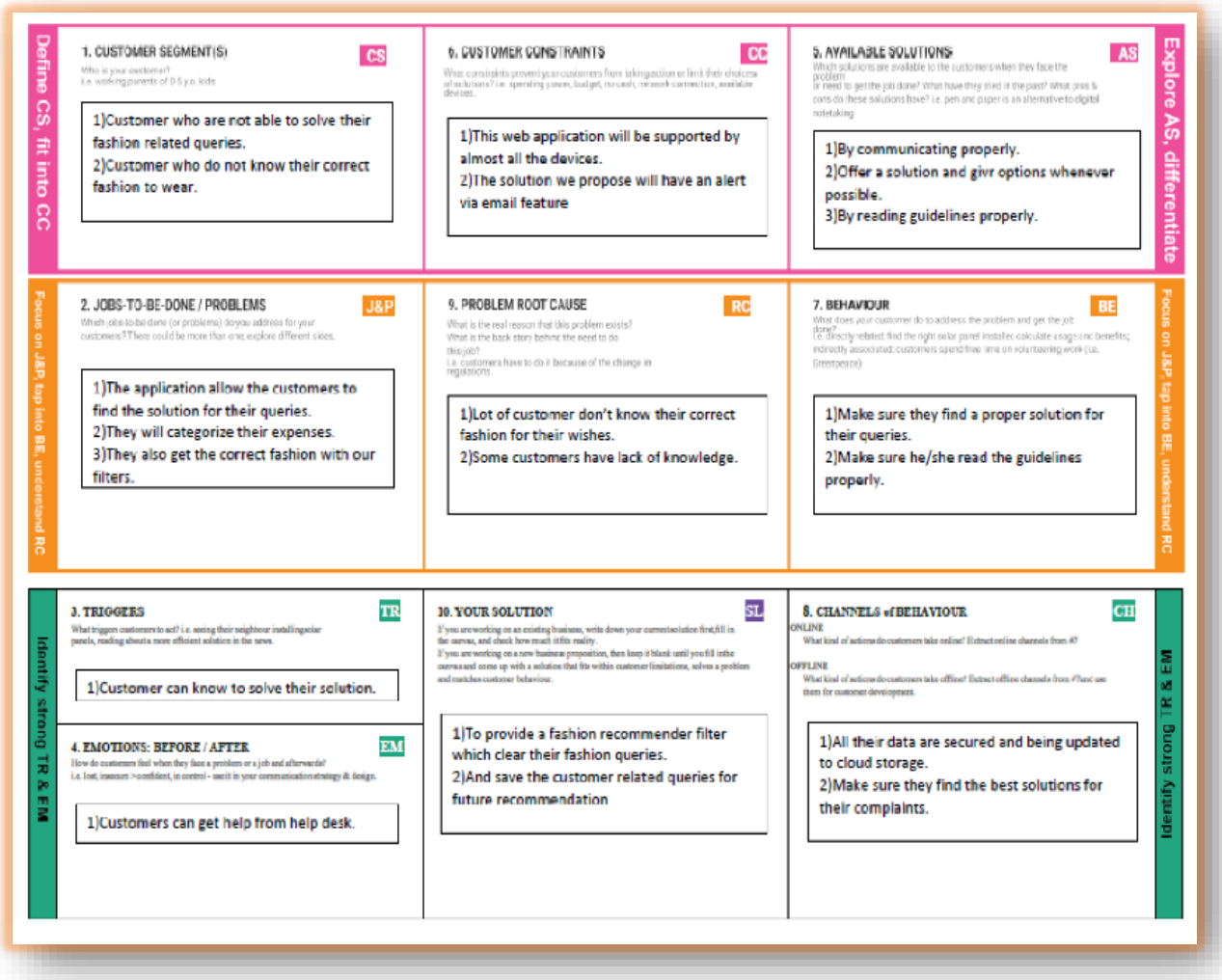
3.3 PROPOSED SOLUTION :

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

S.NO	PARAMETER	DESCRIPTION
1.	PROBLEM STATEMENT	Typically,e-commerce features include
2.	IDEA/ SOLUTION DESCRIPTION	Smart Fashion Recommender Application can tackle with choice overload by suggesting the most interesting products to the users
3.	NOVERTY/ UNIQUENESS	Instead of searching manually a chatbot will help to find the right product effectively, with this feature user can save time and it is a easy process, chat keep send notification about new collections
4.	SOCIAL IMAPACT /CUSTOMER SATISTIFICATION	This chatbot helps the users to find the right products easily, the innovations that all levels of business owners can take advantage of. This application used in all fashion markets
5.	BUSINESS MODEL (REVENUE MODEL)	While getting a big order from a major retailer might sound like a good thing for a fledgling brand, it means the brand has a short time to somehow produce that inventory and hire the necessary employees without any money upfront
6.	SCALABILITY OF THE SOLUTION	• Bot never runs into errors • Optimized stock database • Established marketing strategy • Responsiveness of the application

3.4 PROBLEM SOLUTION FIT :

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



4.REQUIREMENT ANALYSIS

4.1 FUNCTIONAL REQUIREMENT:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	**User Registration / Sign up**	Registration through Form Registration through Gmail Registration through LinkedIN
FR-2	**User Verification**	Confirmation via Email Confirmation via OTP
FR-3	**Sign In / Login**	Login by using Mobile Number or Email
FR-4	**Profile Details**	Update the Information about Customer Example :- • Name • Gender • Age • Mobile number • Address
FR-5	**Chatbot (Watson Assistant)**	Get the Information about • Search Products • View Offers • Discounts • Stock Availability • User Personal Information (FR-4)
FR-6	**Advance Search Capabilities**	Sorting and filtering options
FR-7	**Shopping Cart**	My Cart Button Add-To-Cart-Button Remove-From-Cart-Button
FR-8	**Checking Item Availability**	Item Availability in rural and urban Locations
FR-9	**Checking The Shipping Status / Tracking The Order Product**	Easily Checking Status availability of ordered Items
FR-10	**Logout**	After the Purchase, user can Logout Or close the application When customer needs.

4.2 NON-FUNCTIONAL REQUIREMENTS:

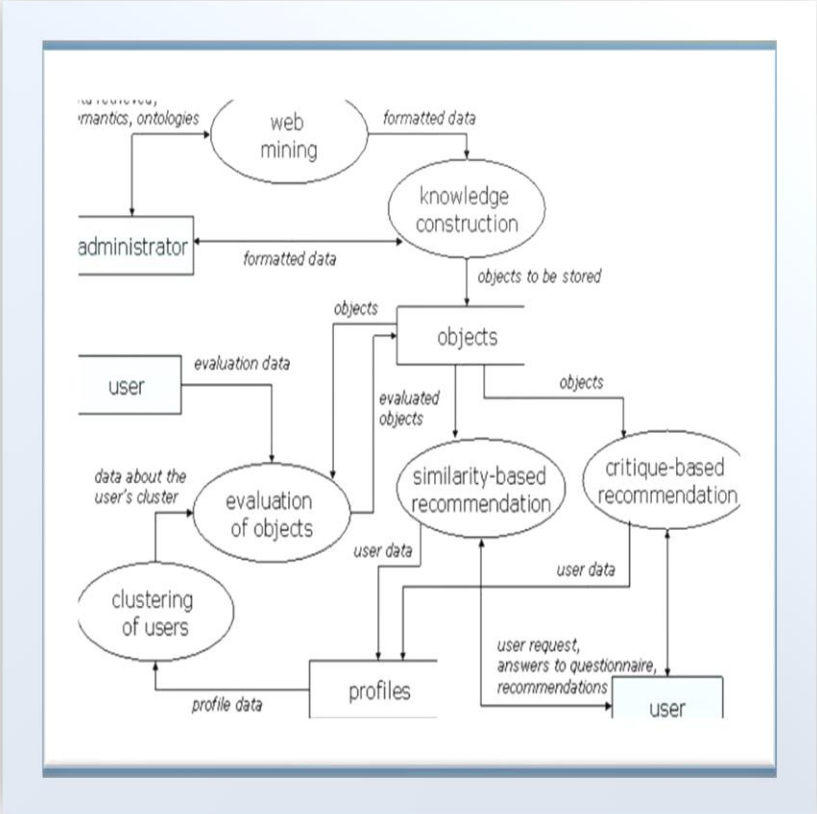
Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	The application will be designed for making Good Human – Computer Interaction in such a way, • Any user can easily navigate • User Can easily View and understandable • Comfort while making Place order • Comfort with tracking facilities • Easy and Compact design These all are about to achieve a defined goal Effectively, Efficiently and Satisfactorily.
NFR-2	**Security**	The application will be Using of "Secure Socket Layer" (SSL) Certificate will provide a More security of the Project and This process will happen while Python Flask to Cloud Connect. This makes user private Information like Baking, Shipping/Home address, email, Phone number etc., will be kept as more secure.
NFR-3	**Reliability**	Ability of software to perform critical tasks like Collection and Securing customer Data, Providing Gateway Payment to function correctly in a given Environment, for a Particular amount of time.
NFR-4	**Performance**	It Focus on the loading application as quickly as possible irrespective of the number of user traffic.
NFR-5	**Availability**	The Application will be Available to all users at any given point of time. User can access the chatbot for raising any queries.
NFR-6	**Scalability**	Chatbot can be very useful during festival season to know about offers and discounts. It will be helpful whenever we make online shopping.

5.PROJECT DESIGN

5.1 DATA FLOW DIAGRAMS :

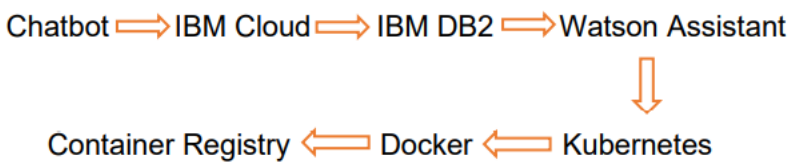
A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



USER FLOW :

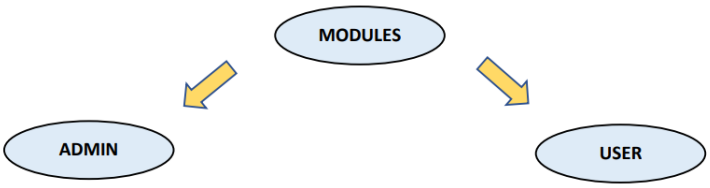
User ⟹ Sign up / Login ⟹ Chatbot ⟹ Purchasing Product

WORK FLOW :


Chatbot
IBM Cloud
IBM DB2
Watson Assistant
Kubernetes
Docker
Container Registry

5.2 SOLUTION & TECHNICAL ARCHITECTURE :

Solution 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 :

The user will log in to the website and browse the things that are offered there. The consumer can speak directly to the IBM Watson about the products rather than going through multiple screens to make a purchase online. Obtain suggestions based on the data the user has provided.

USER :

The administrator's job is to look over the stock database and keep tabs on anything that people are buying. The admin can manage the data maintenance and queries from customer and review these process and response it.

DATABASE :

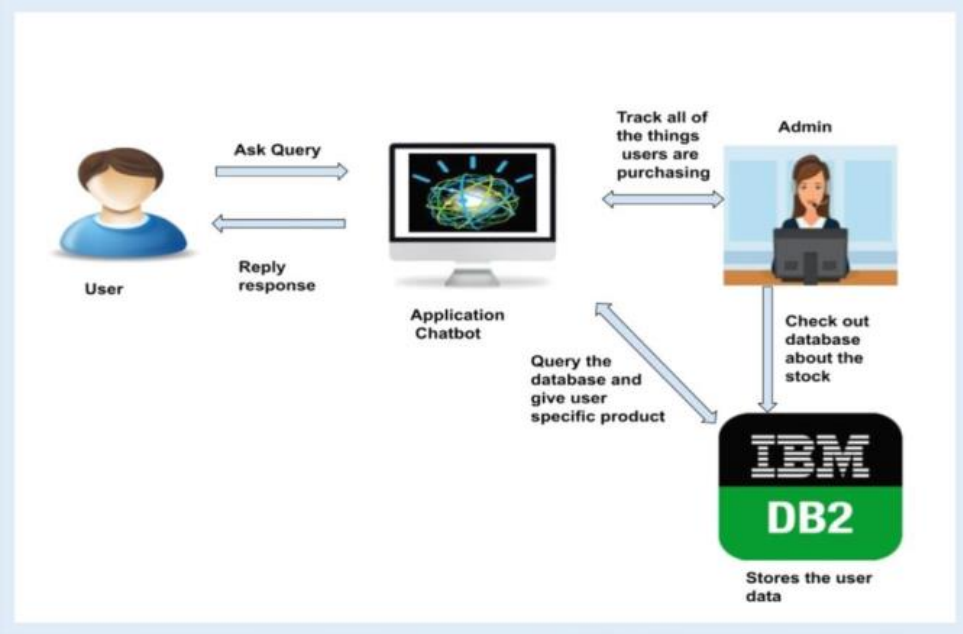
In the IBM DB2 database, chatbot will keep track of customer information and orders. Whenever Customer access Our Chatbot , IBM database automatically saves their performance like Viewing Dress collection and placing Orders.

EXISTING PROBLEM WITH SOLUTION:

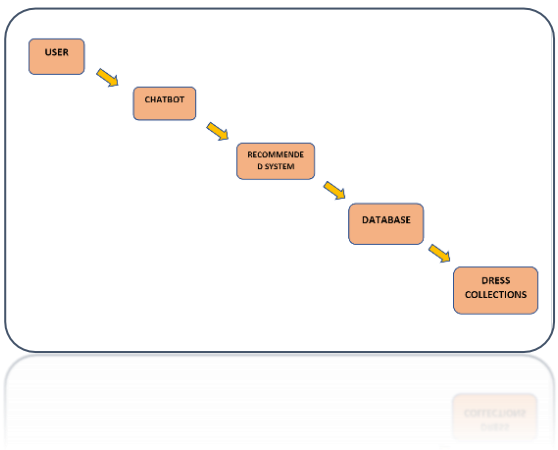
Instead of searching for products in the search bar and navigating to individual products to find required preferences, this project leverages the use of chatbots to gather all required preferences and recommend products to the user. The solution is

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.

EXAMPLE - SOLUTION ARCHITECTURE DIAGRAM :



ADMIN 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	I can register &access the dashboard with Gmail login	Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password	I can login into the application with Gmail login	High	Sprint-1
	Dashboard	USN-5	As a user ,I can log access the dashboard of the application by logging into the application	I can access the dashboard by logging into the application	High	Sprint-1
Customer (Web user)	Registration	USN-1	As a user ,I can register for the web page by entering the 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 web-pages	I can register & access the dashboard with Gmail login	High	Sprint-1
		USN-3	As a user, I can registered for the web-page through Email	I can register & access the dashboard with Gmail Login	Low	Sprint-2
		USN-4	As a user, I can register for the web-page through Email	I can register & access the dashboard with Gmail Login	Medium	Sprint-1

	login	USN-5	As a user, I can log into the web-page by entering my username/email & password	I can login into the application with Gmail Login	High	Sprint-1
	Dashboard	USN-5	As a user, I can log access the dashboard by logging into the web-page	I can access the dashboard by logging into the web-page	High	Sprint-1
Customer Care Executive	Login	USN-1	As a customer care executive, I can log into the application by entering my executive email id & password	I can log into the application with Gmail login	High	Sprint-1
	Dashboard	USN-1	As a customer care executive, I can access the dashboard of the application by logging into the application	I can access the dashboard by logging into the application	High	Sprint-1
	Service	USN-1	As a customer Care Executive, I can access the customer care service page of the application by logging and accessing the page	I can access the service page by logging & accessing the page	High	Sprint-1
Administrator	Login	USN-1	As a administrator, I can log into the application by entering my administrator email id & password	I can log into the application with Gmail application	High	Sprint-1
	Dashboard	USN-1	As a Administrator, I can access the dashboard of the application by logging into the application	I can access the dashboard by logging into the application.	High	Sprint-1

6. PROJECT PLANNING & SCHEDULE

6.1 SPRINT PLANNING & ESTIMATION :

TITLE	DESCRIPTION	DATE
Literature Survey & Information Gathering	Literature survey on the selected project & gathering information by referring the, technical papers, research publications etc.	15 SEPTEMBER 2022
Prepare Empathy Map	Prepare Empathy Map Canvas to capture the user Pains & Gains, Prepare list of problem statements	15 SEPTEMBER 2022
Ideation	List the by organizing the brainstorming session and prioritize the top 3 ideas based on the feasibility & importance.	15 SEPTEMBER 2022
Proposed Solution	Prepare the proposed solution document, which includes the novelty, feasibility of idea, business model, social impact, scalability of solution, etc.	24 SEPTEMBER 2022
Problem Solution Fit	Prepare problem - solution fit document.	1 OCTOBER 2022
Solution Architecture	Prepare solution architecture document.	7 OCTOBER 2022
Customer Journey	Prepare the customer journey maps to understand the user interactions & experiences with the application (entry to exit).	17 OCTOBER 2022
Functional Requirement	Prepare the functional requirement document.	17 OCTOBER 2022
Data Flow Diagrams	Draw the data flow diagrams and submit for review.	17 OCTOBER 2022

Technology Architecture	Prepare the Technology architecture diagram.	17 OCTOBER 2022
Prepare Milestone & Activity List	Prepare the milestones & activity list of the project.	28 OCTOBER 2022
Project Development - Delivery of Sprint-1, 2, 3 & 4	Develop & submit the developed code by testing it.	IN PROGRESS..

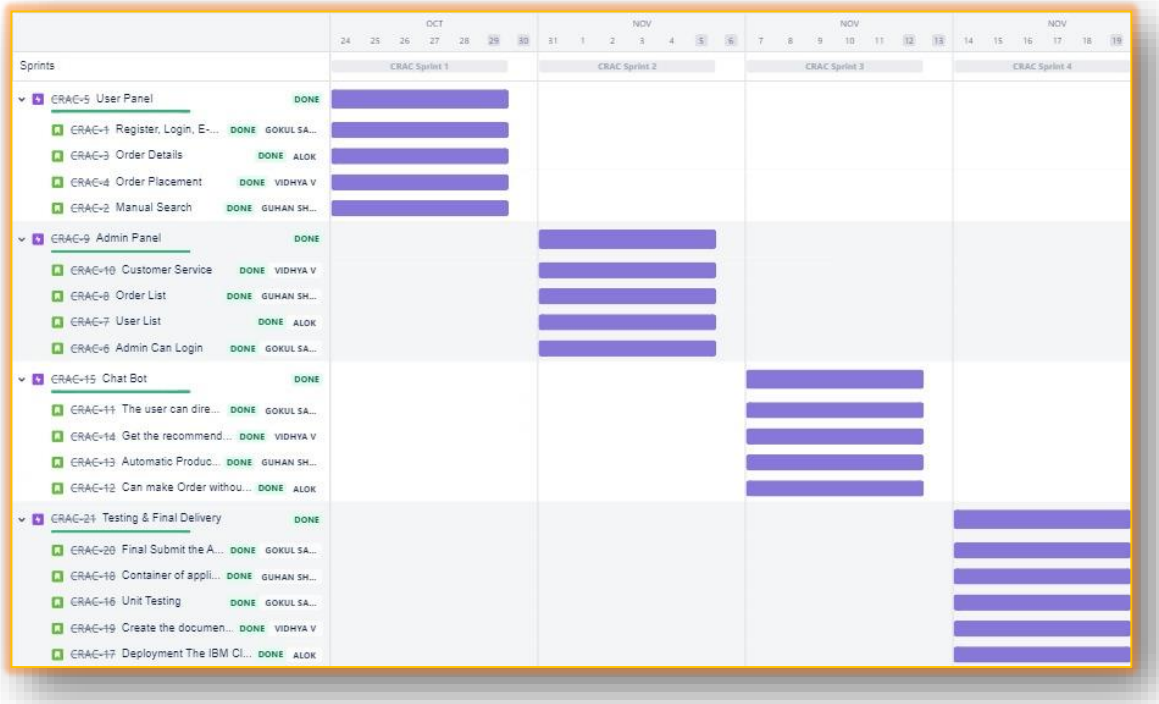
VELOCITY :

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

6.2 SPRINT DELIVERY SCHEDULE:

Sprint	Total StoryPoints	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

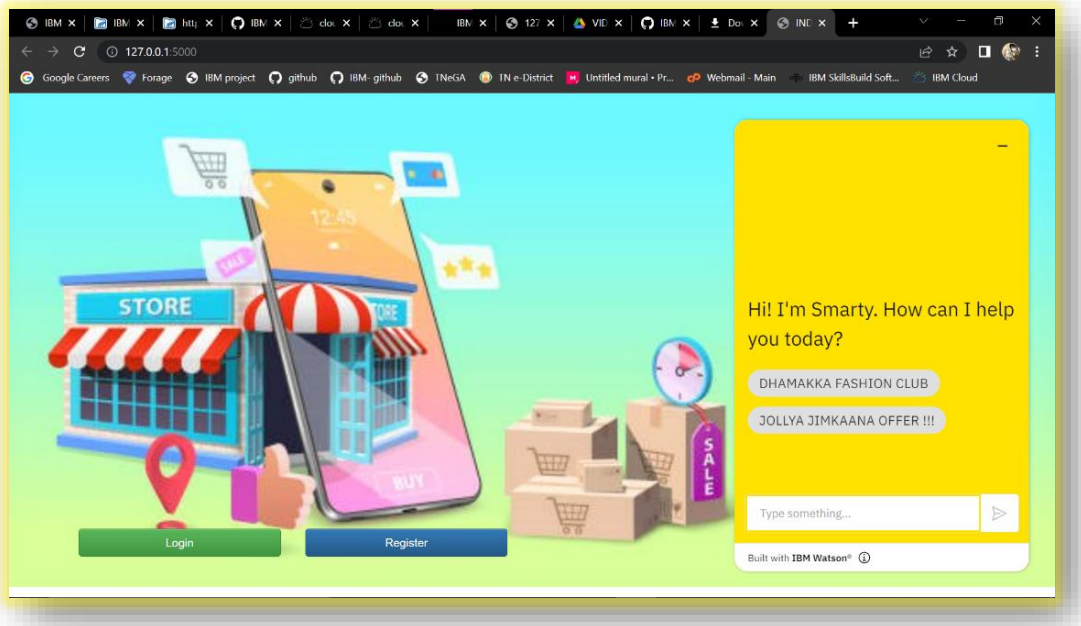
6.3 REPORTS FROM JIRA:

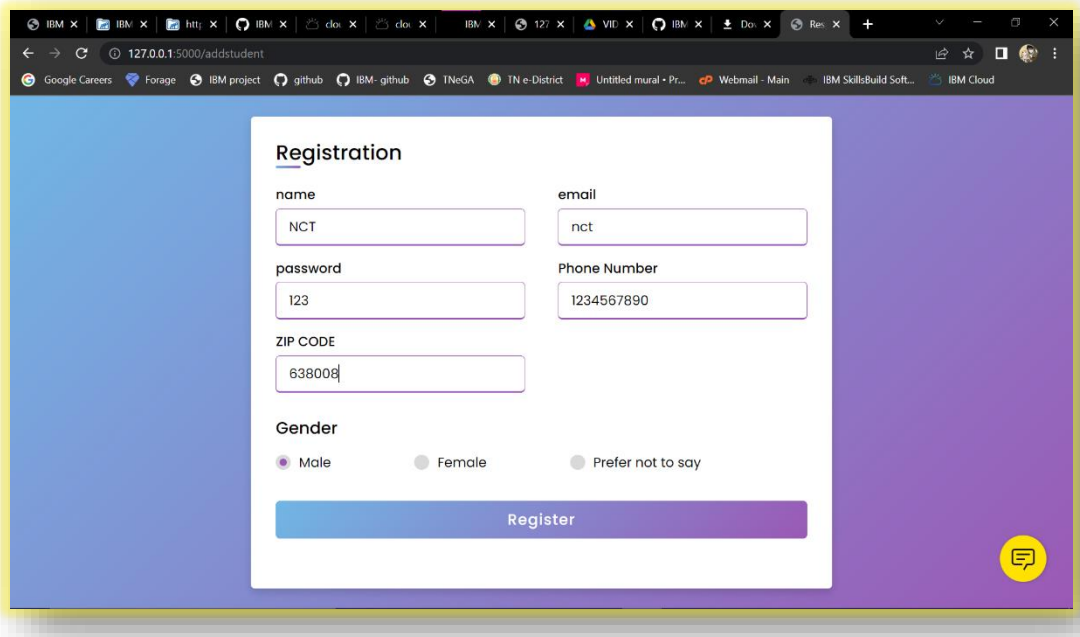


APPENDIX
7. CODING & SOLUTIONING

7.1 FEATURES :

- **HOME PAGE**
- **INDEX PAGE**
- **REGISTER PAGE**
- **LOGIN PAGE**





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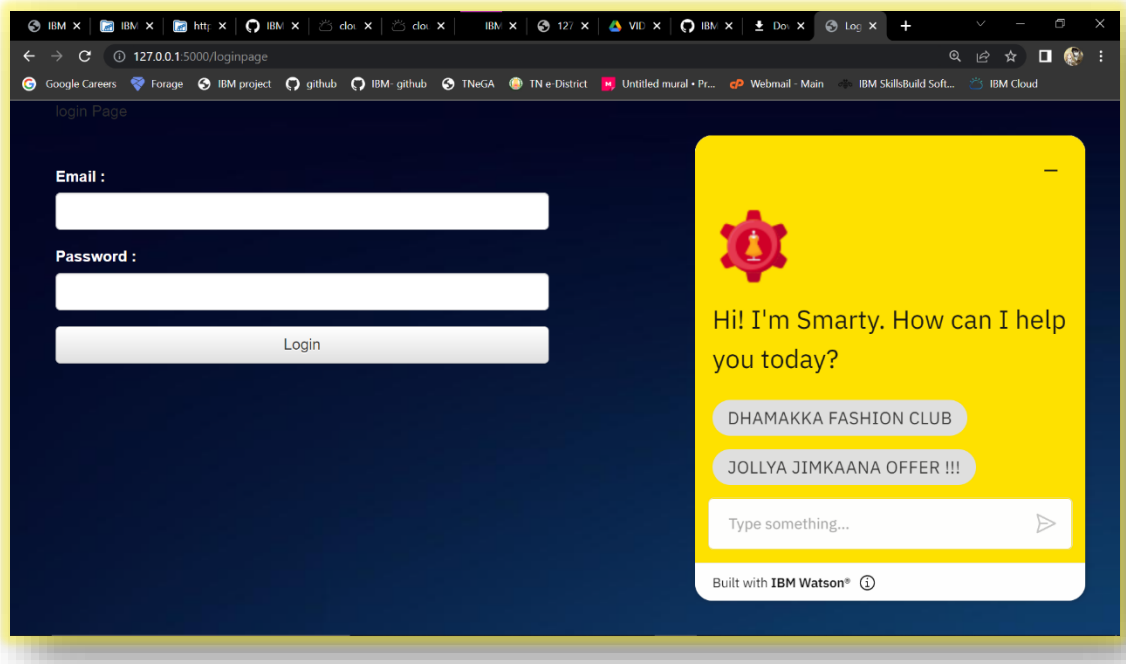
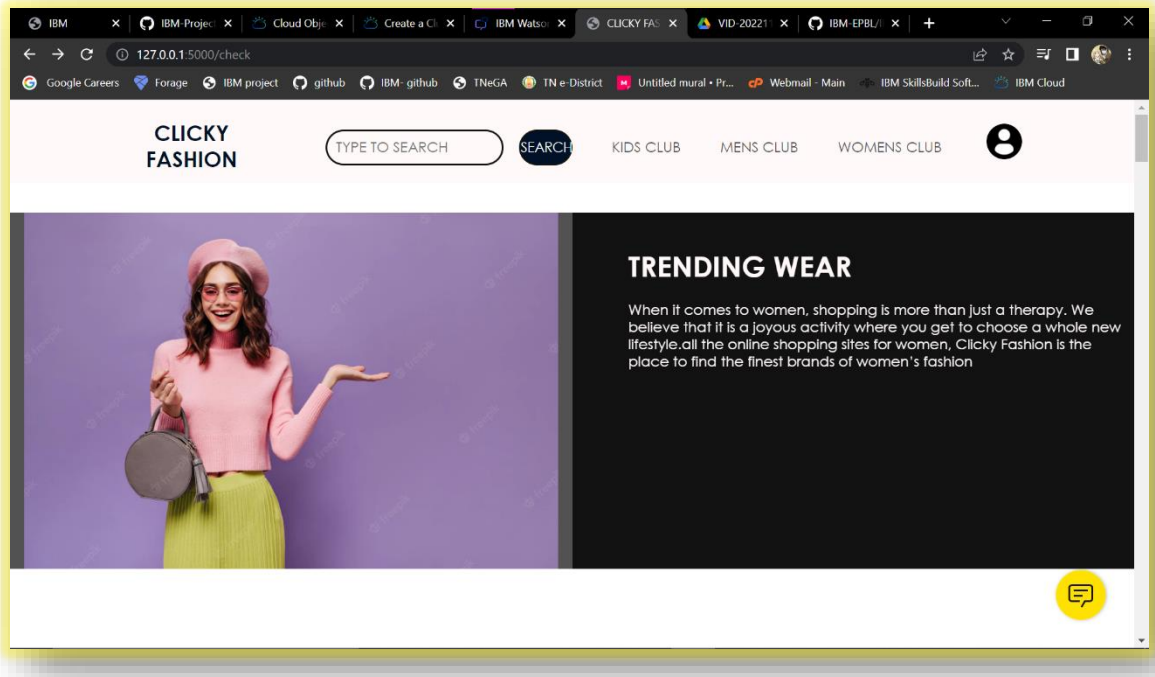




1) app.py [Flask Code] :

```
from turtle import st

from flask import Flask, render_template, request, redirect, url_for, session

from markupsafe import escape

import os

from sendgrid import SendGridAPIClient

from sendgrid.helpers.mail import Mail

import ibm_db

conn = ibm_db.connect("DATABASE=bludb;HOSTNAME=824dfd4d-99de-440d-9991-
629c01b3832d.bs2io90l08kqb1od8lcg.databases.appdomain.cloud;PORT=30119;SECURITY=SSL;SSLServerCer
tificate=DigiCertGlobalRootCA.crt;UID=xhx40038;PWD=BDz5ow7439yj5PEd",",")

print ("Database connection established", conn)

app = Flask(__name__)

@app.route('/')

def home():

  return render_template('index.html')

@app.route('/addstudent')

def new_student():

   message =
Mail(from_email="nithishjaganathanpersonal@gmail.com",to_emails="nithishjaganathan@gmail.com",subject="
Account Registered Successfully",html_content="<p>Your account has been created using you provided email
address.</p>")

   try:

    sg = SendGridAPIClient("SG.Xng1uu2bQKSzCgu8j_Hj8Q.UFutNdzc2iwdrMfcbbdP4nmBa-r3NEex-
KWLdtMUbTo")

    response = sg.send(message)

   except Exception as e:

    print(e)

   return render_template('add_student.html')

@app.route('/loginpage')

def loginpage():

 return render_template('loginpage.html')
```

```
@app.route('/hpage')
def hpage():
  return render_template('hpage.html')
@app.route('/result')
def result():
  return render_template('result.html')
@app.route('/addrec',methods = ['POST', 'GET'])
def addrec():
  if request.method == 'POST':
    name = request.form['name']
    email = request.form['email']
    password = request.form['password']
    sql = "SELECT * FROM userdata WHERE name=? "
    stmt = ibm_db.prepare(conn, sql)
    ibm_db.bind_param(stmt,1,name)
    ibm_db.execute(stmt)
    account = ibm_db.fetch_assoc(stmt)
    if account:
      return render_template('loginpage.html', msg="please login using your details")
    else:
      insert_sql = "INSERT INTO userdata VALUES (?,?,?)"
      prep_stmt = ibm_db.prepare(conn, insert_sql)
      ibm_db.bind_param(prep_stmt, 1, name)
      ibm_db.bind_param(prep_stmt, 2, email)
      ibm_db.bind_param(prep_stmt, 3, password)
      ibm_db.execute(prep_stmt)
  return render_template('index.html', msg="Registered successfully")
@app.route('/check',methods = ['POST', 'GET'])
def check():
   if request.method == 'POST':
    email = request.form['email']
```

```
password = request.form['password']
  sql = "SELECT * FROM userdata WHERE email=? and password= ?"
  stmt = ibm_db.prepare(conn, sql)
  ibm_db.bind_param(stmt,1,email)
  ibm_db.bind_param(stmt,2,password)
  ibm_db.execute(stmt)
  account = ibm_db.fetch_assoc(stmt)
  if account:
    return render_template('result.html', msg="SUCCESSFULLY LOGIN")
  else:
    return render_template('loginpage.html', msg="Please check your credentials!")
```

2) add_students.html :

```
<!DOCTYPE html>
<!-- Designined by CodingLab - youtube.com/codinglabyt -->
<html lang="en" dir="ltr">
  <head>
    <meta charset="UTF-8">
    <title> Responsive Registration Form | CodingLab </title>
     <meta name="viewport" content="width=device-width, initial-scale=1.0">
     <style >
      @import
url('https://fonts.googleapis.com/css2?family=Poppins:wght@200;300;400;500;600;700&display=swap');
*{
  margin: 0;
  padding: 0;
  box-sizing: border-box;
  font-family: 'Poppins',sans-serif;
}
body{
  height: 100vh;
  display: flex;
  justify-content: center;
  align-items: center;
  padding: 10px;
  background: linear-gradient(135deg, #71b7e6, #9b59b6);
}
.container{
  max-width: 700px;
  width: 100%;
  background-color: #fff;
```

```
  padding: 25px 30px;
  border-radius: 5px;
  box-shadow: 0 5px 10px rgba(0,0,0,0.15);
}
.container .title{
  font-size: 25px;
  font-weight: 500;
  position: relative;
}
.container .title::before{
  content: "";
  position: absolute;
  left: 0;
  bottom: 0;
  height: 3px;
  width: 30px;
  border-radius: 5px;
  background: linear-gradient(135deg, #71b7e6, #9b59b6);
}
.content form .user-details{
  display: flex;
  flex-wrap: wrap;
  justify-content: space-between;
  margin: 20px 0 12px 0;
}
form .user-details .input-box{
  margin-bottom: 15px;
  width: calc(100% / 2 - 20px);
}
form .input-box span.details{
  display: block;
  font-weight: 500;
  margin-bottom: 5px;
}
.user-details .input-box input{
  height: 45px;
  width: 100%;
  outline: none;
  font-size: 16px;
  border-radius: 5px;
  padding-left: 15px;
  border: 1px solid #ccc;
  border-bottom-width: 2px;
  transition: all 0.3s ease;
}
.user-details .input-box input:focus,
.user-details .input-box input:valid{
  border-color: #9b59b6;
}
 form .gender-details .gender-title{
  font-size: 20px;
  font-weight: 500;
```

```
}
form .category{
  display: flex;
  width: 80%;
  margin: 14px 0 ;
  justify-content: space-between;
}
form .category label{
  display: flex;
  align-items: center;
  cursor: pointer;
}
form .category label .dot{
 height: 18px;
 width: 18px;
 border-radius: 50%;
 margin-right: 10px;
 background: #d9d9d9;
 border: 5px solid transparent;
 transition: all 0.3s ease;
}
#dot-1:checked ~ .category label .one,
#dot-2:checked ~ .category label .two,
#dot-3:checked ~ .category label .three{
  background: #9b59b6;
  border-color: #d9d9d9;
}
form input[type="radio"]{
  display: none;
}
form .button{
  height: 45px;
  margin: 35px 0
}
form .button input{
  height: 100%;
  width: 100%;
  border-radius: 5px;
  border: none;
  color: #fff;
  font-size: 18px;
  font-weight: 500;
  letter-spacing: 1px;
  cursor: pointer;
  transition: all 0.3s ease;
  background: linear-gradient(135deg, #71b7e6, #9b59b6);
}
form .button input:hover{
 /* transform: scale(0.99); */
 background: linear-gradient(-135deg, #71b7e6, #9b59b6);
 }
@media(max-width: 584px){
```

```
 .container{
  max-width: 100%;
}
form .user-details .input-box{
   margin-bottom: 15px;
   width: 100%;
  }
  form .category{
   width: 100%;
  }
  .content form .user-details{
   max-height: 300px;
   overflow-y: scroll;
  }
  .user-details::-webkit-scrollbar{
   width: 5px;
  }
  }
  @media(max-width: 459px){
  .container .content .category{
   flex-direction: column;
  }
}

    </style>
  </head>
 <body background= "{{url_for('static', filename='bg.png')}}"  >
  <div class="container">
   <div class="title">Registration</div>

   <div class="content">
    <form name="Register" action="/addrec" method="post" onsubmit="return formValidation()">
     <div class="user-details">
      <div class="input-box">
       <span class="details">name</span>
       <input type="text" name="name" placeholder="Enter your name" required>
      </div>
      <div class="input-box">
       <span class="details">email</span>
       <input type="text" name="email" placeholder="Enter your Email" required>
      </div>
      <div class="input-box">
       <span class="details">password</span>
       <input type="text" name="password" placeholder="Enter your Password" required>
      </div>
      <div class="input-box">
       <span class="details">Phone Number</span>
       <input type="text" placeholder="Enter your number" required>
      </div>

      <div class="input-box">
       <span class="details">ZIP CODE</span>
```

```
            <input type="text" placeholder="Enter your Zip Code" required>
          </div>
        </div>
        <div class="gender-details">
          <input type="radio" name="gender" id="dot-1">
          <input type="radio" name="gender" id="dot-2">
          <input type="radio" name="gender" id="dot-3">
          <span class="gender-title">Gender</span>
          <div class="category">
            <label for="dot-1">
            <span class="dot one"></span>
            <span class="gender">Male</span>
          </label>
          <label for="dot-2">
            <span class="dot two"></span>
            <span class="gender">Female</span>
          </label>
          <label for="dot-3">
            <span class="dot three"></span>
            <span class="gender">Prefer not to say</span>
            </label>
          </div>
        </div>
        <div class="button">
          <input type="submit" value="Register">

      </form>
    </div>
  </div>
  <script>
    window.watsonAssistantChatOptions = {
      integrationID: "8bb71afc-ab4a-42ca-8a66-0dbac526a87e", // The ID of this integration.
      region: "eu-gb", // The region your integration is hosted in.
      serviceInstanceID: "f7f4f79d-19a1-4841-82b5-74a6c6e33887", // 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>
```

3)loginpage.html :

```
from turtle import st

from flask import Flask, render_template, request, redirect, url_for, session

from markupsafe import escape

import os

from sendgrid import SendGridAPIClient

from sendgrid.helpers.mail import Mail

import ibm_db

conn = ibm_db.connect("DATABASE=bludb;HOSTNAME=824dfd4d-99de-440d-9991-
629c01b3832d.bs2io90l08kqb1od8lcg.databases.appdomain.cloud;PORT=30119;SECURITY=SSL;SSLServerCer
tificate=DigiCertGlobalRootCA.crt;UID=xhx40038;PWD=BDz5ow7439yj5PEd",",")

print ("Database connection established", conn)

app = Flask(__name__)

@app.route('/')

def home():

  return render_template('index.html')

@app.route('/addstudent')

def new_student():

   message =
Mail(from_email="nithishjaganathanpersonal@gmail.com",to_emails="nithishjaganathan@gmail.com",subject="
Account Registered Successfully",html_content="<p>Your account has been created using you provided email
address.</p>")

   try:

    sg = SendGridAPIClient("SG.Xng1uu2bQKSzCgu8j_Hj8Q.UFutNdzc2iwdrMfcbbdP4nmBa-r3NEex-
KWLdtMUbTo")

    response = sg.send(message)

   except Exception as e:

    print(e)

   return render_template('add_student.html')

@app.route('/loginpage')

def loginpage():

 return render_template('loginpage.html')
```

```
@app.route('/hpage')
def hpage():
  return render_template('hpage.html')
@app.route('/result')
def result():
  return render_template('result.html')
@app.route('/addrec',methods = ['POST', 'GET'])
def addrec():
  if request.method == 'POST':
    name = request.form['name']
    email = request.form['email']
    password = request.form['password']
    sql = "SELECT * FROM userdata WHERE name=? "
    stmt = ibm_db.prepare(conn, sql)
    ibm_db.bind_param(stmt,1,name)
    ibm_db.execute(stmt)
    account = ibm_db.fetch_assoc(stmt)
    if account:
      return render_template('loginpage.html', msg="please login using your details")
    else:
      insert_sql = "INSERT INTO userdata VALUES (?,?,?)"
      prep_stmt = ibm_db.prepare(conn, insert_sql)
      ibm_db.bind_param(prep_stmt, 1, name)
      ibm_db.bind_param(prep_stmt, 2, email)
      ibm_db.bind_param(prep_stmt, 3, password)
      ibm_db.execute(prep_stmt)
  return render_template('index.html', msg="Registered successfully")
@app.route('/check',methods = ['POST', 'GET'])
def check():
   if request.method == 'POST':
    email = request.form['email']
```

```
    password = request.form['password']
    sql = "SELECT * FROM userdata WHERE email=? and password= ?"
    stmt = ibm_db.prepare(conn, sql)
    ibm_db.bind_param(stmt,1,email)
    ibm_db.bind_param(stmt,2,password)
    ibm_db.execute(stmt)
    account = ibm_db.fetch_assoc(stmt)
    if account:
      return render_template('result.html', msg="SUCCESSFULLY LOGIN")
    else:
      return render_template('loginpage.html', msg="Please check your credentials!")
```

4)results.html :

```
<html>
    <head>
        <meta name="viewpoint" content="width=device-width, initial-scale=1.0">
        <title>CLICKY FASHION</title>
        <link rel="stylesheet" href="https://storagedemo-madzh.s3.jp-tok.cloud-object-
storage.appdomain.cloud/MadmukFinalhomecss.css">
    </head>
    <body>
            <nav>
                <a class="logo" href="MadFinalhome.html"><h2>CLICKY FASHION</h2></a>
                <ul>
                    <li><input class="srch" type="search" name="" placeholder="TYPE TO SEARCH">
                    <a href="#"><button class="btn">SEARCH</button></a></li>
                    <li><a href="https://ibm-sfra.s3.ap.cloud-object-storage.appdomain.cloud/kids.html">KIDS
CLUB</a></li>
                    <li><a href="https://ibm-sfra.s3.ap.cloud-object-storage.appdomain.cloud/men.html">MENS
CLUB</a></li>
```

```
            <li><a href="https://ibm-sfra.s3.ap.cloud-object-storage.appdomain.cloud/women.html">WOMENS CLUB</a></li>

        </ul>

        <img src="https://storagedemo-madzh.s3.jp-tok.cloud-object-storage.appdomain.cloud/images/profile.jpeg" class="user-pic" onclick="toggleMenu()">

        <div class="sub-menu-wrap" id="subMenu">

          <div class="sub-menu">

            <div class="user-info">

              <img src="https://ibm-sfra.s3.ap.cloud-object-storage.appdomain.cloud/Fashion-shop-logo-design-on-transparent-background-PNG.png">

              <h2>GOKULSANKAR T</h2>

            </div>

            <hr>

            <a href="https://ibm-sfra.s3.ap.cloud-object-storage.appdomain.cloud/profile.html" class="sub-menu-link">

              <img src="https://storagedemo-madzh.s3.jp-tok.cloud-object-storage.appdomain.cloud/images/profile.jpeg">

              <p>EDIT PROFILE</p>

            </a>

            <a href="https://ibm-sfra.s3.ap.cloud-object-storage.appdomain.cloud/profile.html" class="sub-menu-link">

              <img src="https://storagedemo-madzh.s3.jp-tok.cloud-object-storage.appdomain.cloud/images/settings.jpeg">

              <p>SETTING & PRIVACY</p>

            </a>

            <a href="https://ibm-sfra.s3.ap.cloud-object-storage.appdomain.cloud/smarty.html" class="sub-menu-link">

              <img src="https://ibm-sfra.s3.ap.cloud-object-storage.appdomain.cloud/Picture-7.png">

              <p>SMARTY ASSISTANT</p>

            </a>

            <a href="https://ibm-sfra.s3.ap.cloud-object-storage.appdomain.cloud/smarty.html" class="sub-menu-link">

              <img src="https://storagedemo-madzh.s3.jp-tok.cloud-object-storage.appdomain.cloud/images/help.jpeg">

              <p>HELP</p>
```

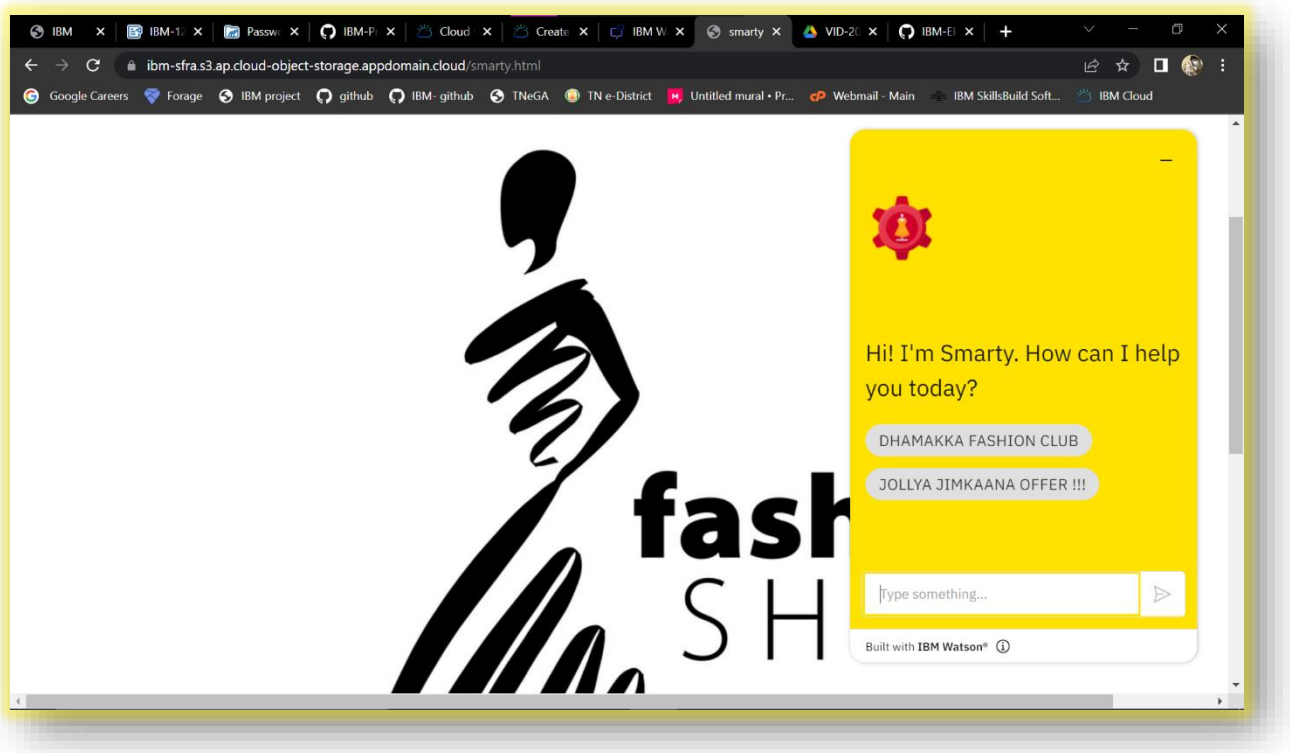
```
                </a>
                <a href="/loginpage" class="sub-menu-link">
                   <img src="https://cdn-icons-png.flaticon.com/512/56/56805.png">
                   <p>LOGOUT</p>
                </a>
              </div>
            </div>
          </nav>
      <div class="Banner">
        <div class="Bannerimg1"> <img img class="image" src="https://img.freepik.com/free-photo/joyful-parisian-woman-beret-sunglasses-points-place-text-purple-wall_197531-24604.jpg?w=2000"></div>
          <div class="Adcontent">
            <h1><br>TRENDING WEAR</br></h1>
            <br>When it comes to women, shopping is more than just a therapy. We believe that it is a joyous activity where you get to choose a whole new lifestyle.all the online shopping sites for women, Clicky Fashion is the place to find the finest brands of women's fashion </br>
          </div>
      </div>
      <div class="rowstart">
          <div class="columnst"> <div class="depimg"><img class="image" src="https://cdn0.weddingwire.in/article/2617/original/1280/jpg/107162-wedding-dresses-for-girls-6.jpeg"> </div> <div class="Bottom">WEDDING & FESTIVE<br><br>Rs.5000</div> </div>
          <div class="columnst"> <div class="depimg"><img class="image" src="https://previews.123rf.com/images/vadymvdrobot/vadymvdrobot1801/vadymvdrobot180102335/94122785-full-length-image-of-smiling-asian-woman-in-business-clothes-and-eyeglasses-holding-smartphone-while.jpg"> </div> <div class="Bottom">KURTA'S COLLECTION<br><br>Rs.7000</div> </div>
          <div class="columnst"> <div class="depimg"><img class="image" src="https://i.pinimg.com/474x/29/00/fa/2900fa4d1599631766420338e531b2b2.jpg"> </div> <div class="Bottom">VACAY MOOD<br><br>Rs.4000</div> </div>
          <div class="columnst"> <div class="depimg"><img class="image" src="https://img.faballey.com/images/Product/DRS02948Z/1.jpg"> </div> <div class="Bottom">PARTY ALL NIGHT<br><br>Rs.2500</div>  </div>
      </div>
      <div class="Banner">
          <div class="Bannerimg2"> <img img class="image"  src="https://bluejay.com.my/wp-content/uploads/2021/12/Kids-clothes-Hong-Kong-seed.jpg"></div>
```

```
 <div class="Adcontent2">

        <h1><br>FORTUNE KIDS MALL</br></h1>

        <br>Clicky Fashion's Cool and Classic collections. It is all fun and frolic when it comes to online shopping for kids at Myntra. We bring you an exhaustive lineup of children’s dresses, accessories and footwear for all occasions. We understand the amount of care which goes into raising a child. </br>

      </div>

    </div>

    <div class="row">

      <div class="column"> <div class="depimg"><img class="image" src="https://cdn.shopify.com/s/files/1/0266/6276/4597/files/floral_ethnic_wear_for_kids_by_utsa.jpg?v=1597833877"> </div> <div class="Bottom">ETHNIC WEAR<br><br>Rs.3000</div>  </div>

      <div class="column"> <div class="depimg"><img class="image" src="https://i.pinimg.com/736x/8a/f8/59/8af859d60ef9667726b206e1be2378e4.jpg"> </div> <div class="Bottom">WINTER WEAR<br><br>Rs.4500</div>  </div>

      <div class="column"> <div class="depimg"><img class="image" src="https://i.pinimg.com/474x/9a/c2/85/9ac28569bd3bade0aa23bd74aaa8c0a9.jpg"> </div> <div class="Bottom">DRESSES & JUMPSUITS<br><br>Rs.7500</div>  </div>

      <div class="column"> <div class="depimg"><img class="image" src="https://i.pinimg.com/564x/1b/c1/d5/1bc1d56f08959760738a0386f231d3fc.jpg"> </div> <div class="Bottom">TOPS & TEES<br><br>Rs.6500</div>  </div>

    </div>

    <div class="Banner">

      <div class="Bannerimg1"> <img img class="image" src="https://images.hindustantimes.com/rf/image_size_630x354/HT/p2/2018/01/30/Pictures/_21667342-05ba-11e8-90ea-37dc70df54a3.jpg"></div>

      <div class="Adcontent">

        <h1><br>A SUPERIOR MENS FASHION</br></h1>

        <br>CLICKY FASHION is one of the best sites when it comes to online shopping for men. The finest of material, superior design and unbeatable style go into the making of our men’s shopping collection. Our range of online shopping men’s wear, accessories, footwear and personal care products are second to none.</br>

      </div>

    </div>

    <div class="row">

      <div class="column"> <div class="depimg"><img class="image" src="https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcRPYVjlrL-LxLn_nhnDfHJx09_dUQsTRgkM69nENo7WKE6EKe555GjYDI7leLNGsKyGvR8&usqp=CAU"> </div> <div class="Bottom">T-SHIRTS & POLOS<br><br>Rs.7000</div> </div>
```

```
        <div class="column"> <div class="depimg"><img class="image" src="https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcTIFeIqHpb2srr3FnKvSDnAUdz225j0v_Ijo-
KuIZzvS2O5LHuyxBNYzfy8HgQ_Hi6WbDQ&usqp=CAU"> </div> <div class="Bottom">CASUAL
SHIRTS<br><br>Rs.4000</div>  </div>

        <div class="column"> <div class="depimg"><img class="image"
src="https://assets.myntassets.com/dpr_1.5,q_60,w_400,c_limit,fl_progressive/assets/images/10498568/2020/6/10/
f1bc48ac-9997-4be1-8ce3-81cc6d5e61061591736177979-HRX-by-Hrithik-Roshan-Men-Grey-Solid-Regular-Fit-
Training-Jo-1.jpg"> </div> <div class="Bottom">SPORTS WEAR<br><br>Rs.5000</div>  </div>

        <div class="column"> <div class="depimg"><img class="image"
src="https://images.express.com/is/image/expressfashion/0037_04105431_0512?cache=on&wid=361&fmt=jpeg&
qlt=75,1&resmode=sharp2&op_usm=1,1,5,0&defaultImage=Photo-Coming-Soon"> </div> <div
class="Bottom">SWEATSHIRTS & JACKETS<br><br>Rs.6000</div>  </div>

    </div>

    <div class="Banner">

        <div class="Bannerimg2"> <img class="image" src="https://lh3.googleusercontent.com/KDJ_WZU_7c-
GHi14G03oqXb6ZSgTiDJr8L7Rid5jA9pRPAdUOgfQQYAPDLGN9Sn3eJC6B1F4qchid_0mHWn_jficXrs=w400
-rw"></div>

        <div class="Adcontent2">

          <h1><br>ACCESSORIES</br></h1>

          <br>THE ANOTHER THING WHICH MAKES A PERSON FASHIONABLE IS
ACCESSORIES</br>

        </div>

    </div>

    <div class="rowend">

      <div class="columnend"> <div class="depimg"><img class="image"
src="https://5.imimg.com/data5/FJ/AH/MY-42396081/combo-sets-28american-diamond-jewellery-29-
500x500.jpg"> </div> <div class="Bottom">JEWELLERY<br><br>Rs.10,000</div>  </div>

      <div class="columnend"> <div class="depimg"><img class="image" src="https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcTaoxLoX2lgaVWFtaGkCvyrozucBLTpaV4LJd9xx2sRoqoums9kp9soRV
XOKw6_rkVxsZk&usqp=CAU"> </div> <div class="Bottom">SUNGLASSES<br><br>Rs.4500</div>  </div>

        <div class="columnend"> <div class="depimg"><img class="image" src="https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcRJKjvaIU1qatbXinxMNRfWE338fXEl7t69TQ&usqp=CAU"> </div>
<div class="Bottom">WATCHES<br><br>Rs.9500</div>  </div>

        <div class="columnend"> <div class="depimg"><img class="image" src="https://encrypted-
tbn0.gstatic.com/images?q=tbn:ANd9GcQSWDKgpQeZ-3VNR7-
9SfaVGVvqOawrkZiLdNfSpjNNQJNI6hl8cJg0Qs_DZfpJtizUst0&usqp=CAU"> </div> <div
class="Bottom">HANDBAGS & CLUTCHES<br><br>Rs4000</div>  </div>

    </div>

  <script>
```

```
        let subMenu = document.getElementById("subMenu");
        function toggleMenu(){
            subMenu.classList.toggle("open-menu");
        }
    </script>
    <script>
     window.watsonAssistantChatOptions = {
      integrationID: "8bb71afc-ab4a-42ca-8a66-0dbac526a87e", // The ID of this integration.
      region: "eu-gb", // The region your integration is hosted in.
      serviceInstanceID: "f7f4f79d-19a1-4841-82b5-74a6c6e33887", // 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>
     <footer>
      <div class="footer"> <h1 align="center">BE TRENDY BE FASHION </h1></div>
      <span style='font-size:100px;'><center>&#128512;</center></span>
     </footer>
</html>
```

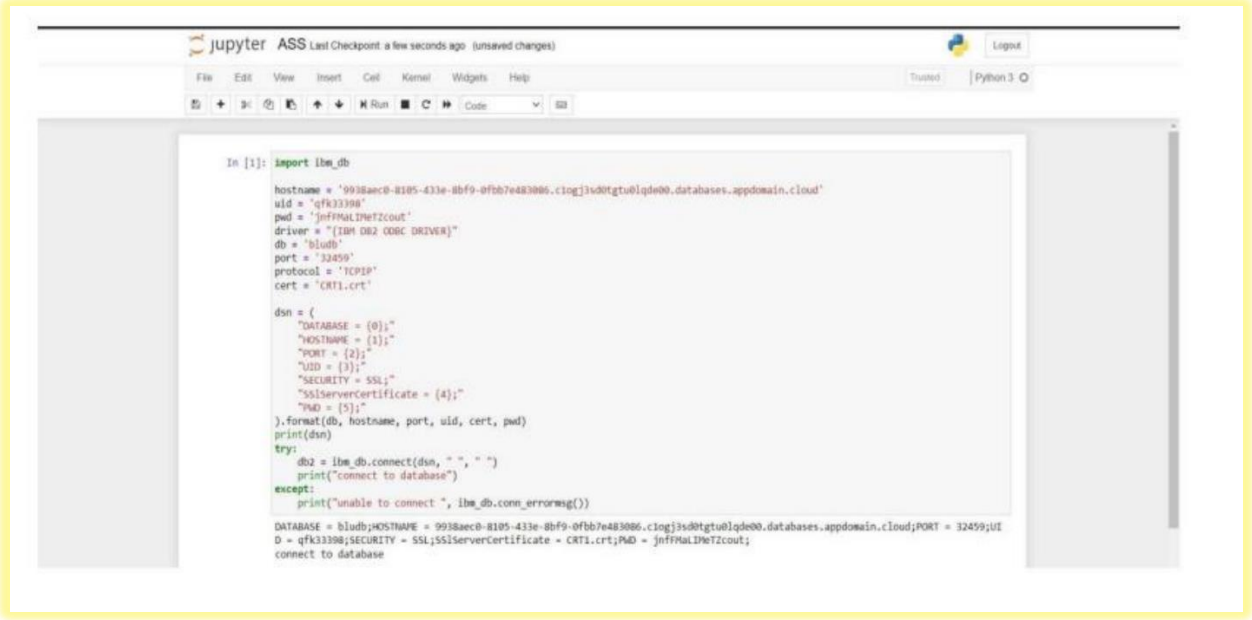
7.2 CHATBOT (SOURCE CODE) : [SMARTY ASSISTANT]




```
<script>
  window.watsonAssistantChatOptions = {
    integrationID: "8bb71afc-ab4a-42ca-8a66-0dbac526a87e", // The ID of this integration.
    region: "eu-gb", // The region your integration is hosted in.
    serviceInstanceID: "f7f4f79d-19a1-4841-82b5-74a6c6e33887", // The ID of your service instance.
    onLoad: function(instance) { instance.render(); }
  };
```

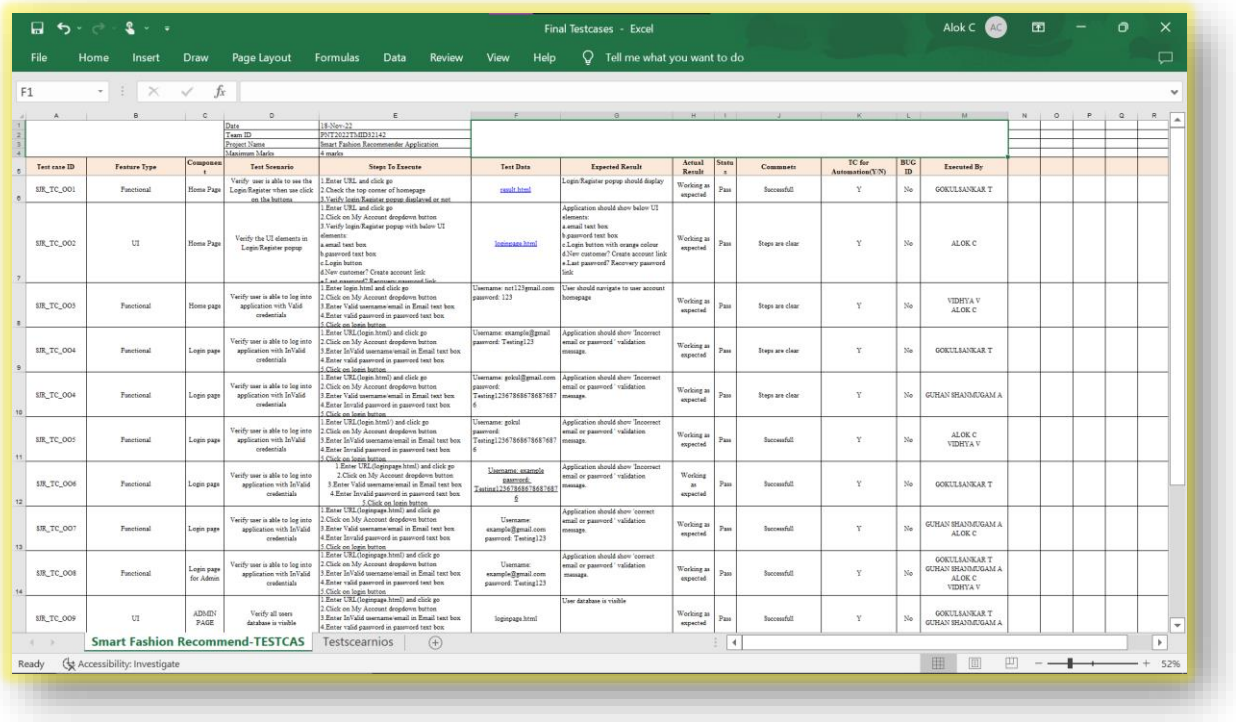
```
  setTimeout(function(){
    const t=document.createElement('script');
    t.src="https://web-chat.global.assistant.watson.appdomain.cloud/versions/" +
(window.watsonAssistantChatOptions.clientVersion || 'latest') +
"/WatsonAssistantChatEntry.js";
    document.head.appendChild(t);
  });
</script>
```

7.3 DATABASE SCHEMA:



8. TESTING

8.1 TEST CASES:



Final Testcases - Excel

Test case ID	Feature Type	Component	Test Scenario	Steps To Execute	Test Data	Expected Result	Actual Result	Status	Comments	TC for Automation(Y/N)	BUG ID	Executed By
SR_TC_001	Functional	Home Page	Verify user is able to see the Login/Register when use click on the buttons	1.Enter URL and click go 2.Check the top corner of homepage 3.Verify login/Register popup displayed or not	result.html	Login/Register popup should display	Working as expected	Pass	Successfull	Y	No	GOKULSANKAR T
SR_TC_002	UI	Home Page	Verify the UI elements in Login/Register popup	1.Enter URL and click go 2.Click on My Account dropdown button 3.Verify login/Register popup with below UI elements a.email text box b.password text box c.Login button d.New customer? Create account link e.Last password? Recovery password link	loginpage.html	Application should show below UI elements: a.email text box b.password text box c.Login button with orange colour d.New customer? Create account link e.Last password? Recovery password link	Working as expected	Pass	Steps are clear	Y	No	ALOK C
SR_TC_003	Functional	Home page	Verify user is able to log into application with Valid credentials	1.Enter login.html and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email text box 4.Enter valid password in password text box 5.Click on login button	Username: not123gmail.com password: 123	User should navigate to user account homepage	Working as expected	Pass	Steps are clear	Y	No	VIDHYA V ALOK C
SR_TC_004	Functional	Login page	Verify user is able to log into application with InValid credentials	1.Enter URL(login.html) and click go 2.Click on My Account dropdown button 3.Enter InValid username/email in Email text box 4.Enter valid password in password text box 5.Click on login button	Username: example@gmail password: Testing123	Application should show 'Incorrect email or password ' validation message.	Working as expected	Pass	Steps are clear	Y	No	GOKULSANKAR T
SR_TC_004	Functional	Login page	Verify user is able to log into application with InValid credentials	1.Enter URL(login.html) and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email text box 4.Enter Invalid password in password text box 5.Click on login button	Username: gokul@gmail.com password: Testing1236786867868768 6	Application should show 'Incorrect email or password ' validation message.	Working as expected	Pass	Steps are clear	Y	No	GUHAN SHANMUGAM A
SR_TC_005	Functional	Login page	Verify user is able to log into application with InValid credentials	1.Enter URL(login.html) and click go 2.Click on My Account dropdown button 3.Enter InValid username/email in Email text box 4.Enter Invalid password in password text box 5.Click on login button	Username: gokul password: Testing1236786867868768 6	Application should show 'Incorrect email or password ' validation message.	Working as expected	Pass	Successfull	Y	No	ALOK C VIDHYA V
SR_TC_006	Functional	Login page	Verify user is able to log into application with InValid credentials	1.Enter URL(loginpage.html) and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email text box 4.Enter Invalid password in password text box 5.Click on login button	Username: example password: Testing1236786867868768 6	Application should show 'Incorrect email or password ' validation message.	Working as expected	Pass	Successfull	Y	No	GOKULSANKAR T
SR_TC_007	Functional	Login page	Verify user is able to log into application with InValid credentials	1.Enter URL(loginpage.html) and click go 2.Click on My Account dropdown button 3.Enter Valid username/email in Email text box 4.Enter Invalid password in password text box 5.Click on login button	Username: example@gmail.com password: Testing123	Application should show 'correct email or password ' validation message.	Working as expected	Pass	Successfull	Y	No	GUHAN SHANMUGAM A ALOK C
SR_TC_008	Functional	Login page for Admin	Verify user is able to log into application with InValid credentials	1.Enter URL(loginpage.html) and click go 2.Click on My Account dropdown button 3.Enter InValid username/email in Email text box 4.Enter valid password in password text box 5.Click on login button	Username: example@gmail.com password: Testing123	Application should show 'correct email or password ' validation message.	Working as expected	Pass	Successfull	Y	No	GOKULSANKAR T GUHAN SHANMUGAM A ALOK C VIDHYA V
SR_TC_009	UI	ADMIN PAGE	Verify all users database is visible	1.Enter URL(loginpage.html) and click go 2.Click on My Account dropdown button 3.Enter InValid username/email in Email text box 4.Enter valid password in password text box	loginpage.html	User database is visible	Working as expected	Pass	Successfull	Y	No	GOKULSANKAR T GUHAN SHANMUGAM A

Smart Fashion Recommend-TESTCAS | Testscearnios

8.2 USER ACCEPTANCE TESTING (UAT) :

1. PURPOSE OF DOCUMENT :

The purpose of this document is to briefly explain the test coverage and open issues of the [ProductName] project at the time of the release to User Acceptance Testing (UAT).

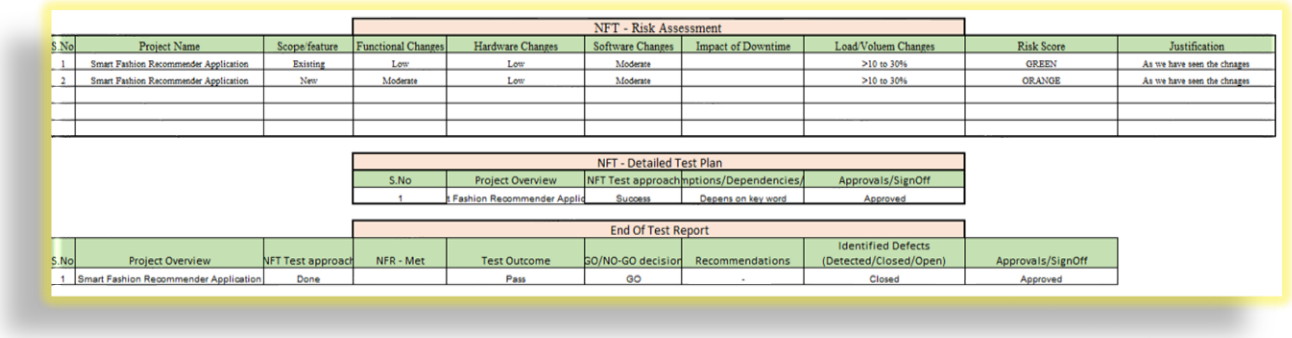
2. DEFECT ANALYSIS DEFECT ANALYSIS :

Resolution	Severity 1	Severity 2	Severity 3	Severity 4	Sub Total
By Design	12	5	0	5	20
Duplicate	4	0	4	65	58
External	2	3	0	1	7
Fixed	7	5	4	16	35
Not Reproduced	6	0	2	0	7
Skipped	0	7	0	8	15
Won't Fix	1	8	0	2	8
Totals	29	14	6	30	70

3. TEST CASES ANALYSIS :

Section	Total Cases	Not Tested	Fail	Pass
Print Engine	12	0	0	12
Client Application	45	0	0	45
Security	2	0	0	2
Outsource Shipping	2	0	0	2
Exception Reporting	6	0	0	6
Final Report Output	5	0	0	5
Version Control	2	0	0	2

8.3 PERFORMANCE TESTING :



NFT - Risk Assessment

S No	Project Name	Scope/feature	Functional Changes	Hardware Changes	Software Changes	Impact of Downtime	Load/Volum Changes	Risk Score	Justification
1	Smart Fashion Recommender Application	Existing	Low	Low	Moderate		>10 to 30%	GREEN	As we have seen the chnages
2	Smart Fashion Recommender Application	New	Moderate	Low	Moderate		>10 to 30%	ORANGE	As we have seen the chnages

NFT - Detailed Test Plan

S.No	Project Overview	NFT Test approach	nptions/Dependencies/	Approvals/SignOff
1	t Fashion Recommender Applic	Success	Depens on key word	Approved

End Of Test Report

S.No	Project Overview	NFT Test approach	NFR - Met	Test Outcome	GO/NO-GO decision	Recommendations	Identified Defects (Detected/Closed/Open)	Approvals/SignOff
1	Smart Fashion Recommender Application	Done		Pass	GO	-	Closed	Approved

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 [61], 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:

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

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:

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

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:

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

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, which can be as represented as follows:

$$Accuracy = \frac{TP + FN}{TP + FN + TN + FP} \quad (5)$$

Intersection over union (IoU). It represents the accuracy of an object detector used on a specific dataset [62].

$$IoU = \frac{TP}{TP + FN + FP} \quad (6)$$

ROC. ROC curve is used to conduct a comprehensive assessment of the algorithm's performance [57].

AUC. AUC measures the performance of recommendation and its baselines as well as the quality of the ranking based on pairwise comparisons [5].

Rank aware top-N metrics. The rank aware top-N recommendation metric finds some of the interesting and unknown items that are presumed to be most attractive to a user [63]. Mean reciprocal rank (MRR), mean average precision (MAP) and normalized discounted cumulative gain (NDCG) are three most popular rank aware metrics.

MRR. MRR is calculated as a mean of the reciprocal of the position or rank of first relevant recommendation [64][65]. MRR as mentioned by [64][65] can be expressed as follows:

$$MRR = \frac{1}{N_u} \sum_{u \in N_u} \frac{1}{L_u^n [k] \in R_u} \quad (7)$$

where u, N_u and R_u indicate specific user, total number of users and the set of items rated by the user, respectively. L indicates list of ranking length (n) for user (u) and k represents the position of the item found in the he lists *L.MAP:* MAP is calculated by determining the mean of average precision at the points where relevant products or items are found. MAP as mentioned by [65] can be expressed as follows.

$$MAP = \frac{1}{N_u |R_u|} \sum_{k=1}^{n} \mathbb{1}(L_u^n [k] \in R_u) P_u @k \quad (8)$$

where P_u represents precision in selecting relevant item for the user. NDCG: NDCG is calculated by determining the graded relevance and positional information of the recommended items, which can be expressed as follows [65].

$$NDCG_u = \frac{\sum_{k=1}^{n} G(u, n, k) D(k)}{\sum_{k=1}^{n} G^*(u, n, k) D(k)} \quad (9)$$

where $D(k)$ is a discounting function, $G(u, n, k)$ is the gain obtained recommending an item found at k-th position from the list L and $G^*(u, n, k)$ is the gain related to k-th item in the ideal ranking of n size for u user.

10.ADVANTAGES & DISADVANTAGES

10.1 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.

10.2 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.

Recommendation systems have the potential to explore new opportunities for retailers by enabling them to provide customized recommendations to consumers based on information retrieved from the Internet. They help consumers to instantly find the products and services that closely match with their choices.

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 follow brandspecific 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.

For different markets, it could split in short-term and long-term recommendations in the future research. Current discussions and reviews are all based on short-term recommendations toward apparel retailing markets. It delivers real-time recommendations straight to the online shoppers as shopping advice and suggestions. Apart from online shopping, recommendations could also be utilized in design and manufacture by providing long term recommendations, such as predicting new trends through years and seasons.

GitHub Repository Link :

https://github.com/IBM-EPBL/IBM-Project-12548-1659453659

Project Demo Link :

https://drive.google.com/file/d/1v2Rr64kHyqTtuuwbJH0zREspVoDGeqj-/view?usp=sharing

SUBMITTED BY :

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THINK POSITIVE !!!

MAKE POSITIVE ☺