Fashion Redefined with Virtual Grooming & Shopping Assistant

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ABSTRACT:

AI and Machine Learning pave a new domain of possibilities in the Fashion industry, from Data Analytics to Fashion Chatbot as your personal stylists. You can leverage chatbot technology to your fashion industry which will have the following benefits

Chatbots recommends products to a user based on their preferences
By virtue of visual search, it gets easy to reach the desired clothes. All you need to do is take a picture of your preferred garment and upload it online to know about its availability
Similar to voice assistants, virtual personal stylists are also out there to help you while shopping for some trendsetting clothes.

INTRODUCTION:

In this modern era, everybody wants to be dressed up in a way that reflects 'Swag.' Evidently, your nature decides who you are, not your clothes. But at the same time, there is no loss in raising your fashion standard. At the present time, celebrities are setting the trend. For example, Megan Fox has a fantastic dressing sense, which is more than enough to make the hearts of her fans skip a beat. Believe it or not, girls are always more concerned about their attire as compared to boys. This could be the prime reason why girls take extra hours while shopping. With time, millennial shoppers consider e-commerce platforms a perfect place to buy clothes due to more variety. However, online shopping isn't as easy as it sounds. Usually, customers are confronted by issues related to size, availability, etc.. To overcome such problems, the fashion industry is using applications of artificial intelligence. Because of AI, nowadays, people are enjoying an

amazing shopping experience.

How can technology solve the problem?

AI and Machine Learning pave a new domain of possibilities in the Fashion industry, from Data Analytics to Fashion Chatbot as your personal stylists. You can leverage chatbot technology to your fashion industry which will have the following benefits

- Chatbots recommends products to a user based on their preferences
- By virtue of visual search, it gets easy to reach the desired clothes. All you need to do is take a picture of your preferred garment and upload it online to know about its availability
- Similar to voice assistants, virtual personal stylists are also out there to help you while shopping for some trendsetting clothes

The Idea :

To make e-commerce shopping experience easier we propose creating a chatbot that can **:**

- Easily study patterns from the interaction that the bot made with a user.
- Analyse and comprehend the context of the chat, to predict a user's preferences and interests.
- know what style of outfit a user intends to purchase.
- Dig its database to find the right match depending on user preferences.

- Can continuously throw different questions to users and keep them engaged to gain access to user details about their choices.
- Implement image analysis to recommend the perfect outfit according to the user's physique and style preferences.
- Implement Virtual search to display the desired apparels.

MODULES:

- ➤ User
- ➤ Chatbot
- ➤ Deep Learning Model
- ➤ Website

EXISTING SYSTEM:

- To get fashion advice from Fashion designer or beautician.
- To check dress availability using of their names only.

Disadvantages:

- It is not flexible for user.
- If the user make a call at fashion designer or Beautician of their busy schedule , it makes the difficult situation to beautician and user.
- Most of the fashion website , we checks the availability of fashion products using only their names.

PROPOSED SYSTEM:

- In proposed system, user get the fashion advices from the chatbot.
- If the user want to check the availability of fashion products ,the deep learning model will helps to visual search.

Advantages:

- ➤ It is more flexible compare to existing system.
- ➤ It has the interactive AI Fashion Advicing chatbot.
- ➤ In this system is advanced, because it has visual search.

TECHNOLOGY USED:

- ➤ Front end design for website::HTML,CSS
- ➤ Backend for website::Python flask
- ➤ Platform to create Chatbot: IBM Watson Assistant
- ➤ Concept of Chatbot::Machine learning
- ➤ Language used For check Availability of Fashion products:: Python
- ➤ Python Modules :: PIL,feature_extractor,numpy,pathlib,datetime,flask
- ➤ Concept behind check Availability of Fashion products:: Deep Learning

SOFTWARE SPECIFICATION:

HTML

HTML is a computer language devised to allow website creation. These websites can then be viewed by anyone else connected to the Internet. It is relatively **easy to learn**, with the basics being accessible to most people in one sitting; and quite **powerful** in what it allows you to create. It is constantly undergoing revision and evolution to meet the demands and requirements of the growing Internet audience under the direction , the organisation charged with designing and maintaining the language.

The definition of HTML is **HyperText Markup Language**.

- *HyperText* is the method by which you move around on the web — by clicking on special text called **hyperlinks** which bring you to the next page. The fact that it is *hyper* just means it is not linear — i.e. you can go to any place on the Internet whenever you want by clicking on links — there is no set order to do things in.
- *Markup* is what **HTML tags** do to the text inside them. They mark it as a certain type of text (*italicised* text, for example).
- HTML is a *Language*, as it has code-words and syntax like any other language.

CSS:

CSS stands for Cascading Style Sheets. It is a style sheet language which is used to describe the look and formatting of a document written in markup language. It provides an additional feature to HTML. It is generally used with HTML to change the style of web pages and user interfaces. It can also be used with any kind of XML documents including plain XML, SVG and XUL.

CSS is used along with HTML and JavaScript in most websites to create user interfaces for web applications and user interfaces for many mobile applications.

- You can add new looks to your old HTML documents.
- You can completely change the look of your website with only a few changes in CSS code.

Why use CSS

These are the three major benefits of CSS:

1) Solves a big problem

Before CSS, tags like font, color, background style, element alignments, border and size had to be repeated on every web page. This was a very long process. For example: If

you are developing a large website where fonts and color information are added on every single page, it will be become a long and expensive process. CSS was created to solve this problem. It was a W3C recommendation.

2) Saves a lot of time

CSS style definitions are saved in external CSS files so it is possible to change the entire website by changing just one file.

3) Provide more attributes

CSS provides more detailed attributes than plain HTML to define the look and feel of the website.

PYTHON:

Python is a popular programming language. It was created by Guido van Rossum, and released in 1991.It is used for:

- web development (server-side),
- software development,
- mathematics,
- system scripting.

What can Python do?

- Python can be used on a server to create web applications.
- Python can be used alongside software to create workflows.
- Python can connect to database systems. It can also read and modify files.
- Python can be used to handle big data and perform complex mathematics.
- Python can be used for rapid prototyping, or for production-ready software development.

Why Python?

- Python works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc).
- Python has a simple syntax similar to the English language.
- Python has syntax that allows developers to write programs with fewer lines than some other programming languages.
- Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick.
- Python can be treated in a procedural way, an object-oriented way or a functional way.

Python Syntax compared to other programming languages

- Python was designed for readability, and has some similarities to the English language with influence from mathematics.
- Python uses new lines to complete a command, as opposed to other programming languages which often use semicolons or parentheses.
- Python relies on indentation, using whitespace, to define scope; such as the scope of loops, functions and classes. Other programming languages often use curly-brackets for this purpose.

IBM WATSON ASSISTANT:

The IBM Watson™ Assistant service combines machine learning, natural language understanding, and an integrated dialog editor to create

conversation flows between your apps and your users.

The Assistant v2 API provides runtime methods your client application can use to send user input to an assistant and receive a response.It is used to create an ineractive chatbot.

CHATBOT:

- Chatbot is used for interaction between the user.It is a AI application.We create this chatbot using IBM Watson Assistant.It is a easiest platform for creating a chatbot.Chatbot is fully depend on Machine learning concept.

Steps to create chatbot:

1. Login to IBM Cloud Account.
2. Add IBM Watson Assistant to our account.
3. Name the project and create the skill.
4. Create intents and dialogue for our chatbot.
5. Integrate into our web page.

PYTHON FLASK:

Flask is a web framework, it's a Python module that lets you develop web applications easily.

It's has a small and easy-to-extend core: it's a microframework that doesn't include an ORM (Object Relational Manager) or such features.

It does have many cool features like url routing, template engine. It is a WSGI web app framework.

MACHINE LEARNING:

Machine learning (ML) is the study of computer algorithms that improve automatically through experience and by the use of data. It is seen as a part of artificial intelligence. Machine learning algorithms build a model based on sample data, known as "training

data", in order to make predictions or decisions without being explicitly programmed to do so. Machine learning algorithms are used in a wide variety of applications, such as in medicine, email filtering, speech recognition, and computer vision, where it is difficult or unfeasible to develop conventional algorithms to perform the needed tasks. A subset of machine learning is closely related to computational statistics, which focuses on making predictions using computers; but not all machine learning is statistical learning. The study of mathematical optimization delivers methods, theory and application domains to the field of machine learning. Data mining is a related field of study, focusing on exploratory data analysis through unsupervised learning. In its application across business problems, machine learning is also referred to as predictive analytics.

DEEP LEARNING:

Deep learning is a branch of **machine learning** which is completely based on **artificial neural networks**, as neural network is going to mimic the human brain so deep learning is also a kind of mimic of human brain. In deep learning, we don't need to explicitly program everything. The concept of deep learning is not new. It has been around for a couple of years now. It's on hype nowadays because earlier we did not have that much processing power and a lot of data. As in the last 20 years, the processing power increases exponentially, deeplearning and machine learning came in the picture.
A formal definition of deep learning is- neurons

Deep learning is a particular kind of machine learning that achieves great power and flexibility by learning to represent the world as a nested hierarchy of concepts, with each concept defined in relation to simpler concepts, and more abstract representations computed in terms of less abstract ones.

CODE FOR THIS PROJECT:

offline.py

```
from PIL import Image

from feature_extractor import FeatureExtractor
```

```
from pathlib import Path
import numpy as np


if __name__ == '__main__':
    fe = FeatureExtractor()


    for img_path in
sorted(Path(r"C:\Users\WELCOME\AppData\Local\Programs\Python\Python38\Scripts\IBM Fashion guider project\static\img").glob("*.jpg")):
        print(img_path)  # e.g., ./static/img/xxx.jpg
        feature = fe.extract(img=Image.open(img_path))
        feature_path =
Path(r"C:\Users\WELCOME\AppData\Local\Programs\Python\Python38\Scripts\IBM Fashion guider project\static\feature") / (img_path.stem + ".npy")  # e.g.,
./static/feature/xxx.npy
        print(feature_path)
        np.save(feature_path, feature)
```

server.py

```
import numpy as np
from PIL import Image
from feature_extractor import FeatureExtractor
from datetime import datetime
from flask import Flask, request, render_template
from pathlib import Path


app = Flask(__name__)
```

```
# Read image features
fe = FeatureExtractor()
features = []
img_paths = []
for feature_path in Path("./static/feature").glob("*.npy"):
    features.append(np.load(feature_path))
    img_paths.append(Path("./static/img") / (feature_path.stem + ".jpg"))
features = np.array(features)



@app.route('/', methods=['GET', 'POST'])
def index():
    if request.method == 'POST':
        file = request.files['query_img']

        # Save query image
        img = Image.open(file.stream)  # PIL image
        uploaded_img_path = "static/uploaded/" + datetime.now().isoformat().replace(":", ".") + "_" + file.filename
        img.save(uploaded_img_path)

        # Run search
        query = fe.extract(img)
        dists = np.linalg.norm(features-query, axis=1)  # L2 distances to features
        ids = np.argsort(dists)[:30]  # Top 30 results
        scores = [(dists[id], img_paths[id]) for id in ids]
```

```
        return render_template('final.html',
                               query_path=uploaded_img_path,
                               scores=scores)
    else:
        return render_template('final.html')
if __name__=="__main__":
    app.run("0.0.0.0")
```

final.html

```
<!DOCTYPE html>
<html lang="en">
<head>
<title>Fashion Redefined with Virtual Grooming & Shopping Assistant</title>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1">
<style>
* {
  box-sizing: border-box;
}

/* Style the body */
body {
  font-family: Arial, Helvetica, sans-serif;
  margin: 0;
```

```
}

/* Header/logo Title */
.header {
  padding: 100px;
  text-align: center;
  background-color: #1abc9c;
  color: hsl(340deg 100% 32%);
  background-repeat:repeat;
  background-size:100% 100%;
  animation: mymove 5s infinite;

}
@keyframes mymove{
   50% {background-size:200px 300px;}}

/* Increase the font size of the heading */
.header h1 {
  font-size: 40px;
}

/* Style the top navigation bar */
.navbar {
  overflow: hidden;
  background-color:  hsl(340deg 100% 32%);
}
```

```
/* Style the navigation bar links */
.navbar a {
  float: left;
  display: block;
  color: White;
  text-align: center;
  padding: 14px 20px;
  text-decoration: none;
}

/* Right-aligned link */
.navbar a.right {
  float: right;
}

/* Change color on hover */
.navbar a:hover {
  background-color: #1abc9c;
  color: hsl(340deg 100% 32%);
}

/* Column container */
.row {
  display: -ms-flexbox; /* IE10 */
  display: flex;
```

```
  -ms-flex-wrap: wrap; /* IE10 */
  flex-wrap: wrap;
}

/* Create two unequal columns that sits next to each other */
/* Sidebar/left column */
.side {
  -ms-flex: 30%; /* IE10 */
  flex: 30%;
  background-color: White ;
  padding: 20px;
}

/* Main column */
.main {
  -ms-flex: 70%; /* IE10 */
  flex: 70%;
  background-color: white;
  padding: 20px;
}

/* Fake image, just for this example */
.fakeimg {
  background-color: #aaa;
  width: 100%;
  padding: 20px;
```

```
}

/* Footer */
.footer {
  padding: 20px;
  text-align: center;
  background-color: #1abc9c;
  color: hsl(340deg 100% 32%);
}

/* Responsive layout - when the screen is less than 700px wide, make the two columns stack on top of each other instead of next to each other */
@media screen and (max-width: 700px) {
  .row {
    flex-direction: column;
  }
}

/* Responsive layout - when the screen is less than 400px wide, make the navigation links stack on top of each other instead of next to each other */
@media screen and (max-width: 400px) {
  .navbar a {
    float: none;
    width: 100%;
  }
}
```

```
</style>
</head>
<body>

<div class="header">
  <h1>Fashion Redefined with Virtual Grooming & Shopping Assistant</h1>

</div>

<div class="navbar">
  <a href="#A" class="active">Home</a>
  <a href="#B">About Us</a>
  <a href="#C">Chech Fashion Availability</a>

  <a href="#D" class="right">Fasion Guider Contact</a>
</div>

<div class="row">
        <div class="main">
          <center><h1 id= "B"><font color="#1abc9c" size="20%"align="center">About us</font></h1>
                        <b><p align="center">We are Fashion Redefined with Virtual Grooming & Shopping Assistant.We are providing the services of fashion guidance.<br>
                        In our website contains the vitual search , you can check the availability of apparels using of image search.<br>
                        Fashion Guider chatbot helps to recommmend the fashion tips ,
```

```
trends and gives the fashion advices.<br></p>
                        </b>


                        </center>
                        </div>


  <div class="main">
    <center>  <h1 id="C"><font color="#1abc9c" size="20%">Chech Fashion Availability</font></h1>
          <form method="POST" enctype="multipart/form-data">
             <input type="file" name="query_img"><br><br><br>
             <input type="submit" style="background-color:hsl(340deg 100% 32%);color:white;width:150px;height:40px;"value="Check Availability"></font>
          </form>
          <h2><font color="#1abc9c" size="6%">Search Image</font></h2>
          {% if query_path %}
          <img src="{{ query_path }}" width="300px">
          {% endif %}
          <h2> <font color="#C21E56" size="6%">Availability of Apparels</font></h2>
          {% for score in scores %}
          <figure style="float: left; margin-right: 20px; margin-bottom: 20px;">
             <img src="{{ score[1] }}" height="200px">
             <figcaption>{{ score[0] }}</figcaption>
          </figure>
          {% endfor %}
   </center>
```

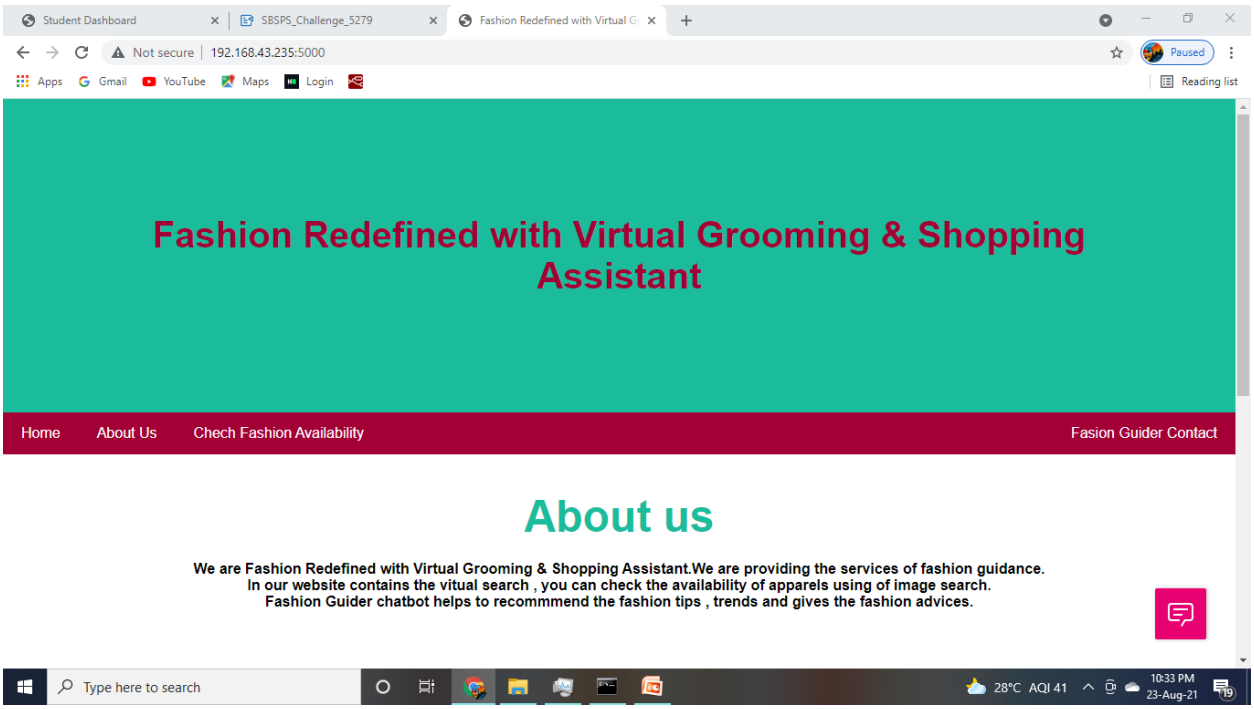
```
  </div>


</div>
<script>
  window.watsonAssistantChatOptions = {
      integrationID: "19aef597-a34c-4bfd-83ef-b6b39c5c7967", // The ID of this integration.
      region: "eu-gb", // The region your integration is hosted in.
      serviceInstanceID: "5330d41f-0f0c-43c7-8467-0a4922ee31c8", // 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/loadWatsonAssistantChat.js";
    document.head.appendChild(t);
  });
</script>


<div class="footer">
  <h2 id="D"> Fasion Guider Contact</h2><br>
  Created by Swarnamythili Ramakrishnan<br>
 <b> <p> Mobile Number:+91 8665765265<br>Whatsapp Number:+91 7875657576<br>Email Id: fashion@gmail.com<br></p></b>
</div>
```

</body>

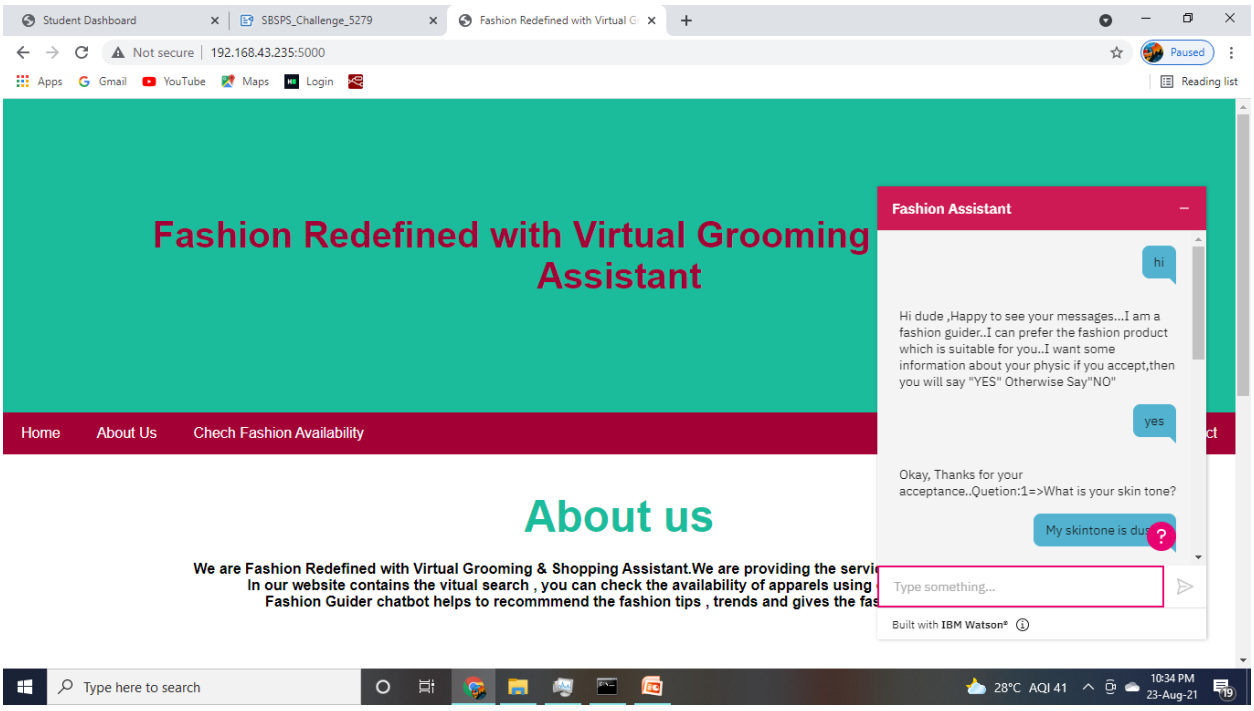
</html>

OUTPUT SCREENSHOT:

Homepage header



Chatbot


Student Dashboard
SBSPS_Challenge_5279
Fashion Redefined with Virtual G
Not secure | 192.168.43.235:5000
Paused
Apps
Gmail
YouTube
Maps
Login
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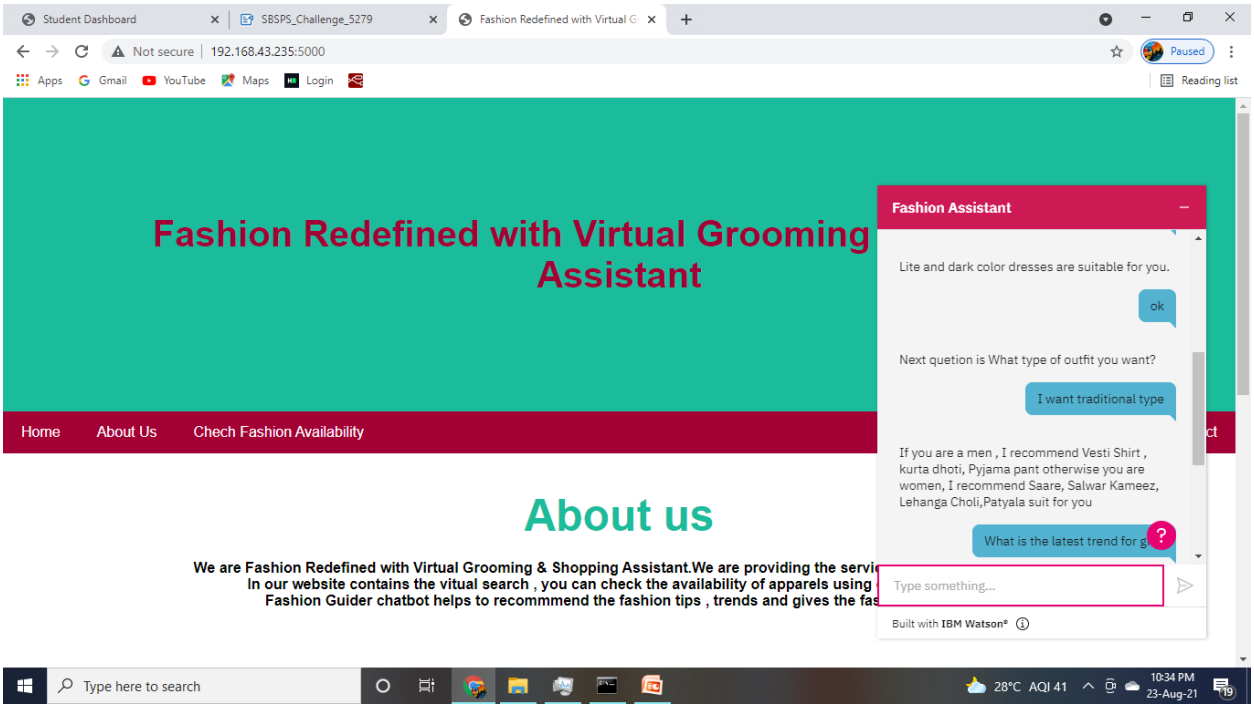
Fashion Guider chatbot helps to recommmend the fashion tips , trends and gives the fas
Fashion Assistant
hi
Hi dude ,Happy to see your messages...I am a fashion guider..I can prefer the fashion product which is suitable for you..I want some information about your physic if you accept,then you will say "YES" Otherwise Say"NO"
yes
Okay, Thanks for your acceptance..Quetion:1=>What is your skin tone?
My skintone is du
Type something...
Built with IBM Watson®
Type here to search
28°C AQI 41
10:34 PM
23-Aug-21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In our website contains the vitual search , you can check the availability of apparels using
Fashion Guider chatbot helps to recommmend the fashion tips , trends and gives the fas
Fashion Assistant
Lite and dark color dresses are suitable for you.
ok
Next quetion is What type of outfit you want?
I want traditional type
If you are a men , I recommend Vesti Shirt , kurta dhoti, Pyjama pant otherwise you are women, I recommend Saare, Salwar Kameez, Lehanga Choli,Patyala suit for you
What is the latest trend for g
Type something...
Built with IBM Watson®
Type here to search
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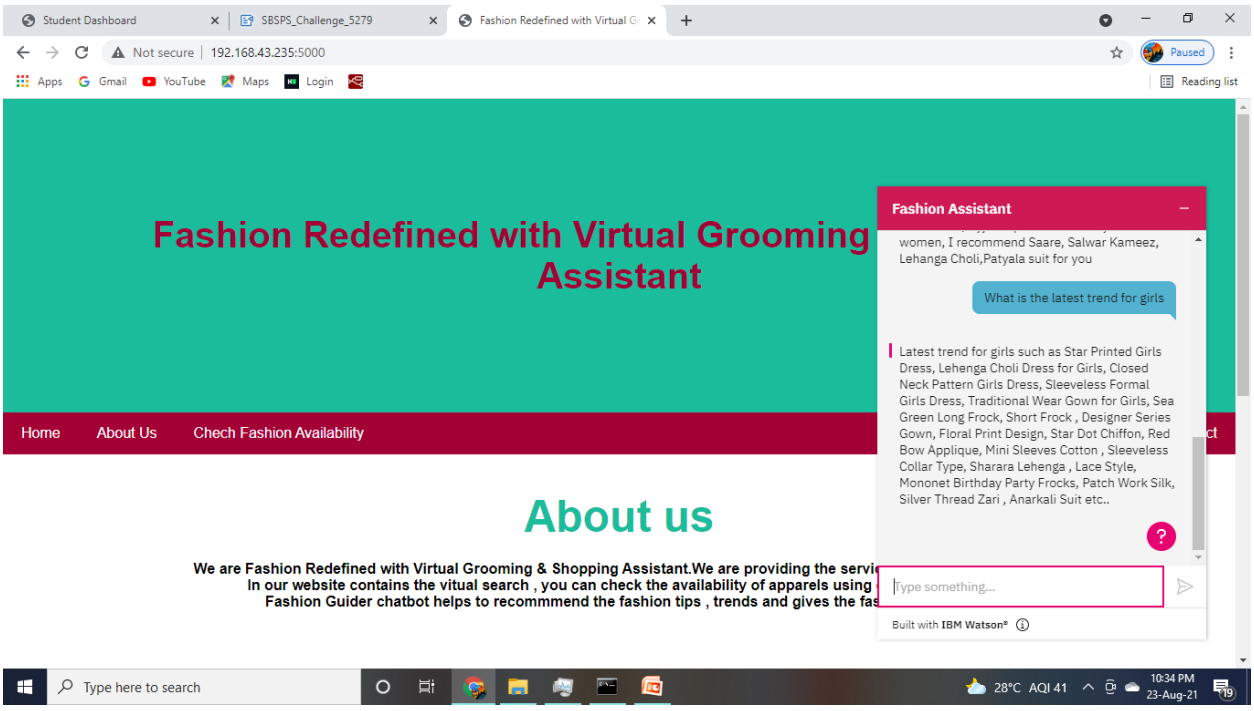
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Fashion Guider chatbot helps to recommmend the fashion tips , trends and gives the fas
Fashion Assistant
women, I recommend Saare, Salwar Kameez, Lehanga Choli,Patyala suit for you
What is the latest trend for girls
Latest trend for girls such as Star Printed Girls Dress, Lehenga Choli Dress for Girls, Closed Neck Pattern Girls Dress, Sleeveless Formal Girls Dress, Traditional Wear Gown for Girls, Sea Green Long Frock, Short Frock , Designer Series Gown, Floral Print Design, Star Dot Chiffon, Red Bow Applique, Mini Sleeves Cotton , Sleeveless Collar Type, Sharara Lehenga , Lace Style, Mononet Birthday Party Frocks, Patch Work Silk, Silver Thread Zari , Anarkali Suit etc..
Type something...
Built with IBM Watson®
Type here to search
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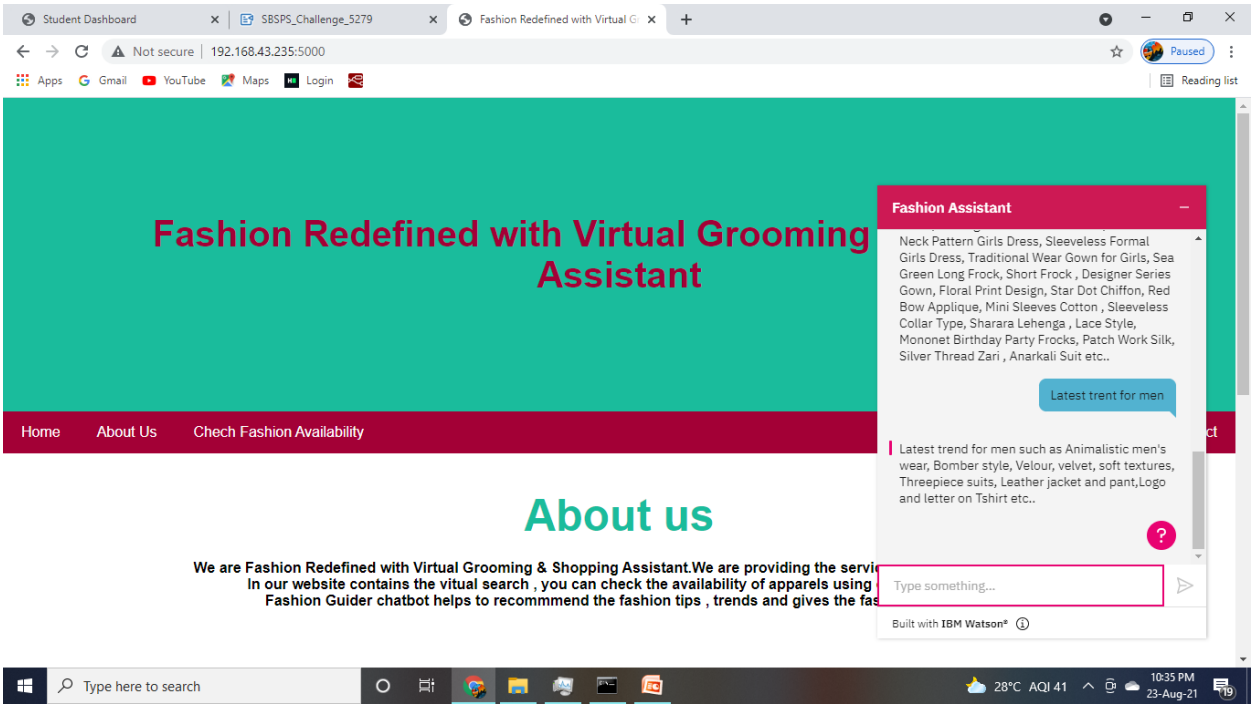
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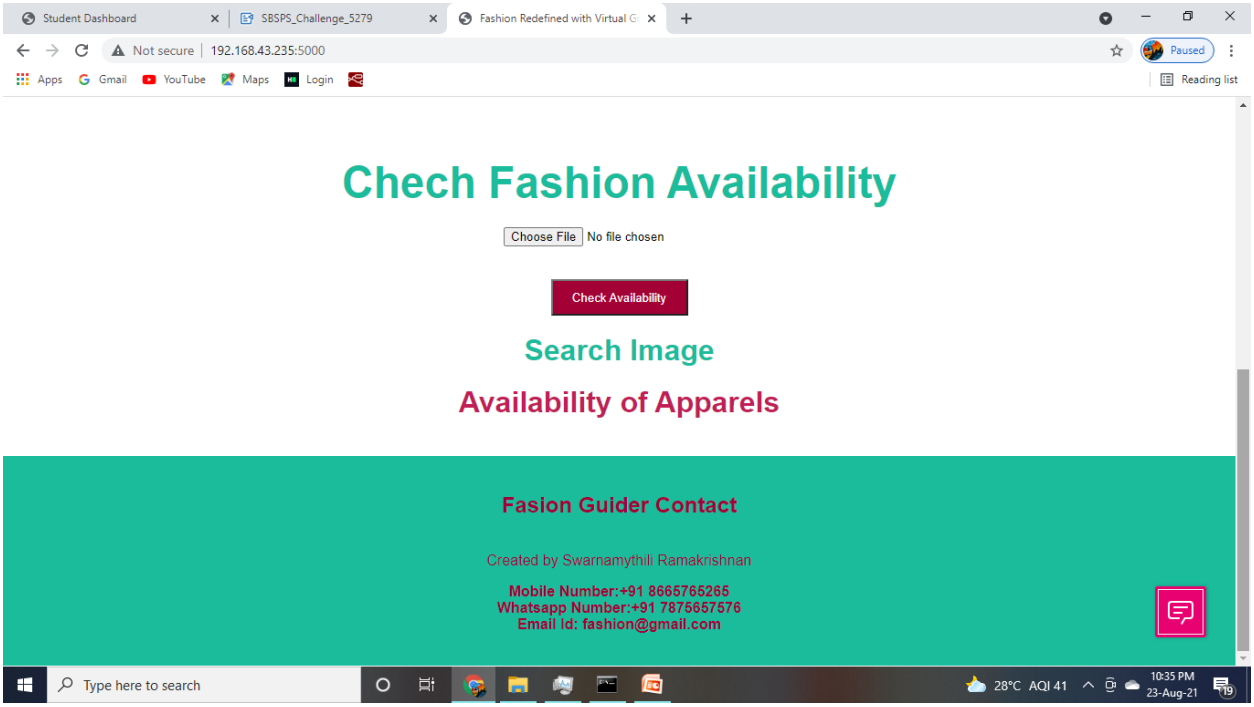
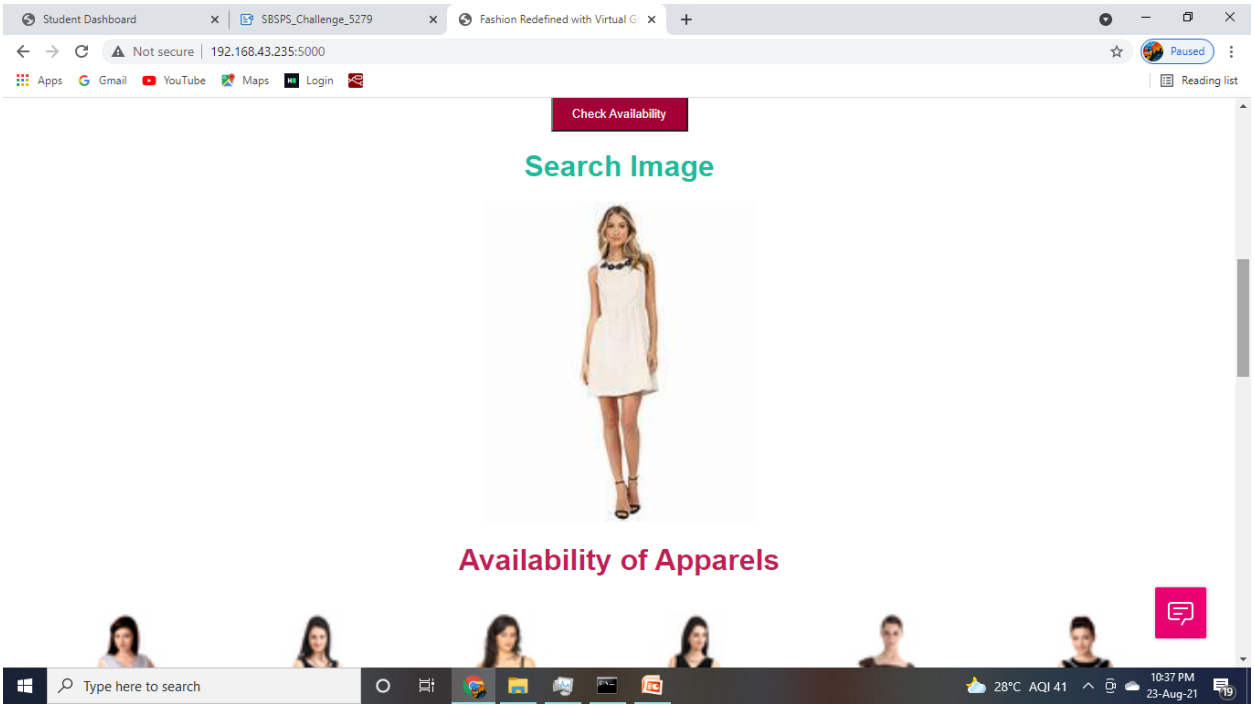
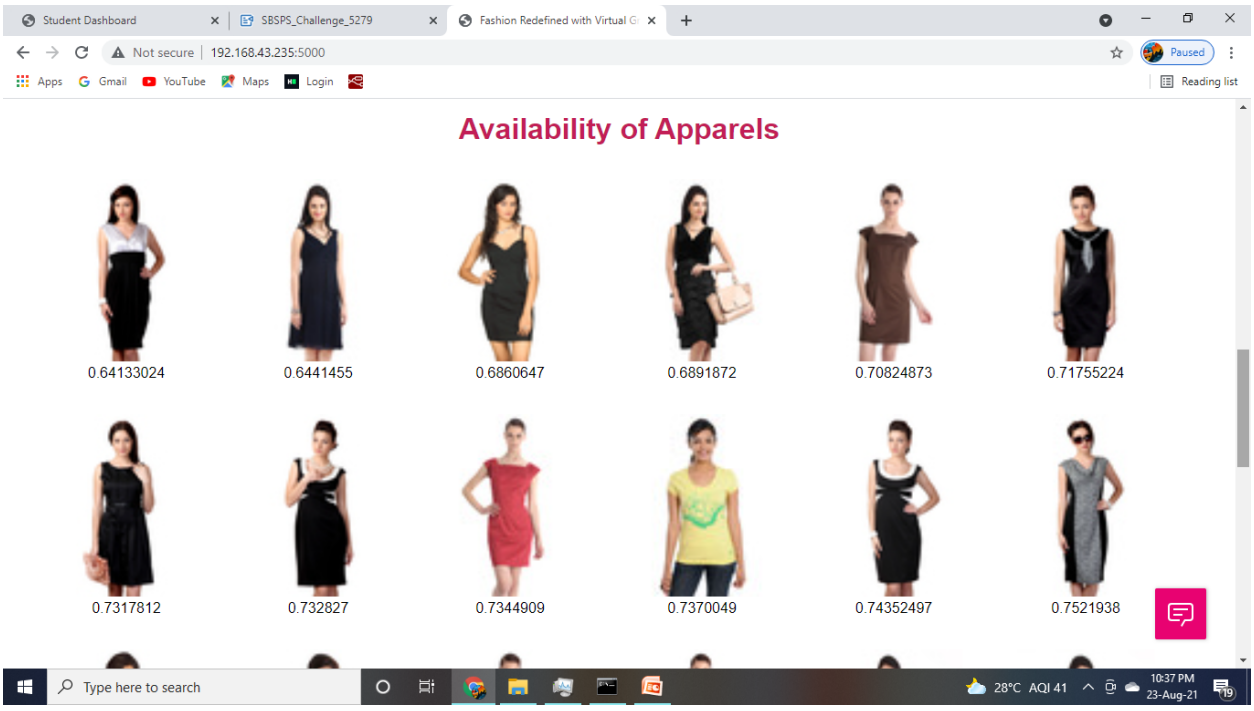
Fashion Assistant
Neck Pattern Girls Dress, Sleeveless Formal Girls Dress, Traditional Wear Gown for Girls, Sea Green Long Frock, Short Frock , Designer Series Gown, Floral Print Design, Star Dot Chiffon, Red Bow Applique, Mini Sleeves Cotton , Sleeveless Collar Type, Sharara Lehenga , Lace Style, Mononet Birthday Party Frocks, Patch Work Silk, Silver Thread Zari , Anarkali Suit etc..
Latest trent for men
Latest trend for men such as Animalistic men's wear, Bomber style, Velour, velvet, soft textures, Threepiece suits, Leather jacket and pant,Logo and letter on Tshirt etc..
Type something...
Built with IBM Watson®
Type here to search
28°C AQI 41
10:35 PM
23-Aug-21

CHECK AVALABILITY OF FASHION PRODUCT:



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0.6860647
0.6891872
0.70824873
0.71755224
0.7317812
0.732827
0.7344909
0.7370049
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0.7521938
Type here to search
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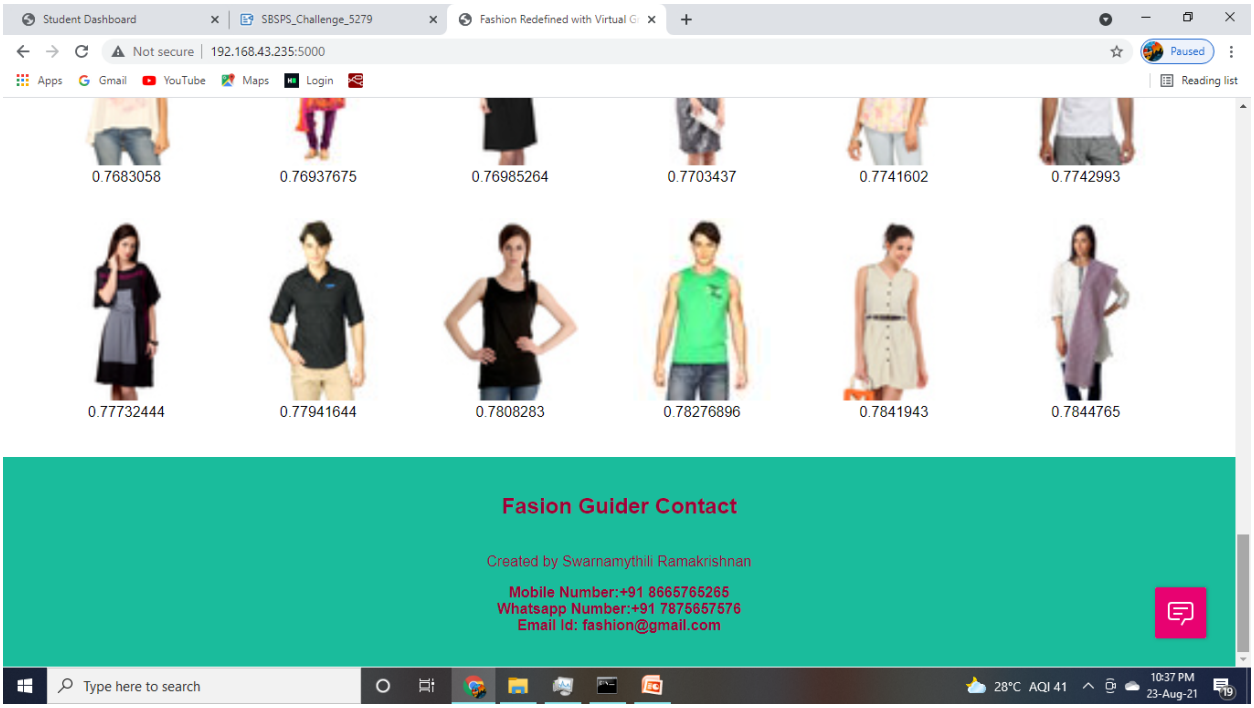
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SBSPS_Challenge_5279
Fashion Redefined with Virtual G
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Created by Swarnamythili Ramakrishnan
Mobile Number:+91 8665765265
Whatsapp Number:+91 7875657576
Email Id: fashion@gmail.com
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APPLICATION AND ADVANTAGES:

Application:

- Visual search uses artificial intelligence technology to help people search through the use of real-world imagery, rather than through text search. So, when a person takes a photograph of an object, using Google Lens, for instance, the software identifies the object within the picture and provides information and search results to the user.
- Chatbots could also be a game-changer in terms of companionship. The applications of chatbots as virtual and digital assistants could help in providing companionship to people in need, such as elderly people and Alzheimer's patients. One of the notable chatbot examples, in this case, would be the one by Endurance, a Russian technology company.

Advantages:

- ➤ It is more flexible compare to existing system.
- ➤ It has the interactive AI Fashion Advicing chatbot.
- ➤ The Chabot improves customer services, because of this improvement the benefits of the Chatbot are increasing day by day. In today's world messaging has become one of the popular means of communication, whether it is a text message or through messaging apps.
- ➤ It makes it easy for them to find a wider variety of products on your website and forges a sense of connection between your online store and your customers' everyday lives in the physical world. There's one big hurdle traditional in-store sellers have to jump: the noise of ecommerce.

CONCLUSION:

However, online shopping isn’t as easy as it sounds. Usually, customers are confronted by issues related to size, availability, etc. To overcome such problems, the fashion industry is using applications of artificial intelligence. Because of AI, nowadays, people are enjoying an amazing shopping experience.In this solution increase the user's satisfaction and it is flexible to all.In future we adding more services.