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FASHION RECOMMENDATION SYSTEM USING SOCIAL MEDIA WEBSITE

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ABSTRACT

Fashion knowledge encourages people to properly dress and faces not only physiological necessity of users, but also the requirement of social practices and activities. It usually includes three jointly related aspects of: occasion, person and clothing. Nowadays, social media platforms allow users to interact with each other online to share opinions and information. The use of social media sites such as Instagram has already spread to almost every fashion brand and been evaluated as business take-off tools. With the heightened use of social media as a means of marketing communication for fashion brands, it has become necessary to empirically analyses and extract fashion knowledge from them

Keywords: Fashion, Social Media, Fashion Brands, Business, Insatgram.

I. INTRODUCTION

Online Social networks are part of every person's life. More than half of the world's population is connected to the internet and has at least one social platform. According to the report carried out by We Are Social of January 2021, in the world there are 7.83 billion people, 66.6% of these have a mobile phone. 4.66 billion People access the internet, an increase of 7.3% compared to January 2020. World internet penetration stands at 59.5%, but the values could be even higher by virtue of problems related to the correct tracking of internet users related to the COVID-19 pandemic. There are 4.20 billion users of social platforms, an increase of 13%. The use of social platforms therefore stands at 53% of the world population.

In particular, social networks have long since changed the way of communicating and perceiving the world: it is there-fore no coincidence that fashion, of which communication and perception are two fundamental pillars, is an integral part of this revolution. In fact, the fashion industry is one of the most dynamic in society and in this context social media are fundamental communication tools, in particular Facebook (born in 2004), Instagram (born in 2010) and Tik Tok (born in 2018).

Facebook was born in 2004 and, to date, is one of the most used social networks in the world, with over 2 billion active users. To date, many fashion brands are present on Facebook with a company page. The primary goal is to attract new customers and retain existing ones. A strategically managed Facebook page with careful publication of content will make a brand more attractive, involving an increasing number of users.

Instagram was born in 2010 and one of the strengths of this social network is the communicative power of the images that are able to convey the identity of a brand. Tik Tok was born in 2018 and it is a platform where users can express their creativity to the maximum through short videos between 15 and 60 seconds, with background music of all kinds.

The main social reference for the fashion domain is Instagram. However, leading fashion brands have proven the power of social media marketing across multiple channels. Each channel has different features to offer, giving new ways to achieve goals.

II. METHODOLOGY

2.1 Methodologies

2.1.1 Module Overview

The system is organized into key modules, each designed to handle distinct aspect of security awareness of university in network information. The modules are as follows:

- Dataset

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- Importing the necessary libraries
- Retrieving the images
- Splitting the dataset
- Building the model
- Apply the model and plot the graphs for accuracy and loss
- Accuracy on test set
- Saving the Trained Model

Technique

CNN & DenseNet121

ML and DL techniques bring great benefits to image recognition and classification in the fashion environment.

In fact, they can help to improve the user experience, which is a fundamental factor for the calculation of the Key Performance Indicator (KPI), which can be measured through factors such as the time spent by the user in front of the computer, the purchase volume and average checkout value.

Deep Learning methods, and in particular Convolutional Neural Networks, can help the user to have a more pleasant experience on the site, being able to make a quicker and more convenient search of the products.

2.1.2 Module Descriptions

1) Dataset:

In the first module, we developed the system to get the input dataset for the training and testing purpose. We have taken the dataset for fashion classification and product recommendation.

The fashion classification dataset consists of 60000 fashion-mnist images The product recommendation dataset consists of 5000 fashion-mnist images.

2) Importing the necessary libraries:

We will be using Python language for this. First we will import the necessary libraries such as keras for building the main model, sklearn for splitting the training and test data, PIL for converting the images into array of numbers and other libraries such as pandas, numpy ,matplotlib and tensorflow.

3) Retrieving the images:

We will retrieve the images and their labels. Then resize the images to (200,200) as all images should have same size for recognition. Then convert the images into numpy array.

4) Splitting the dataset:

Split the dataset into train and test. 80% train data and 20% test data.

A. Convolutional Neural Networks

The objectives behind the first module of the course 4

- To understand the convolution operation
- To understand the pooling operation
- Remembering the vocabulary used in convolutional neural networks (padding, stride, filter, etc.)
- Building a convolutional neural network for multi-class classification in images

B. Computer Vision

Some of the computer vision problems which we will be solving in this article are:

1. Image classification
2. Object detection
3. Neural style transfer

One major problem with computer vision problems is that the input data can get really big. Suppose an image is of the size 68 X 68 X 3. The input feature dimension then becomes 12,288. This will be even bigger if we have larger images (say, of size 720 X 720 X 3). Now, if we pass such a big input to a neural network, the number of parameters will swell up to a HUGE number (depending on the number of hidden layers and hidden units). This

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will result in more computational and memory requirements – not something most of us can deal with

5) Building the model:

For building the model we will use sequential model from keras library. Then we will use CNN Model for fashion classification dataset and the DenseNet121 CNN Model for product recommendation dataset which consist of Convolutional layer with 64 filters and a 7x7 kernel size, with stride of 2 and padding of 3.

Batch normalization layer and ReLU activation layer. Max pooling layer with a 3x3 kernel size and a stride of 2. 4 dense blocks, each containing several layers as follows:

A batch normalization layer and ReLU activation layer

A convolutional layer with 4k filters and a 1x1 kernel size A batch normalization layer and ReLU activation layer

A convolutional layer with 32 filters and a 3x3 kernel size Concatenation of the input with the output of the convolutional layer Transition layers between the dense blocks, consisting of:

A batch normalization layer and ReLU activation layer

A convolutional layer with 4k filters and a 1x1 kernel size A max pooling layer with a 2x2 kernel size and a stride of 2 Final dense layer for classification with 1000 output classes

6) Apply the model and plot the graphs for accuracy and loss:

We will compile the model and apply it using fit function. Then we will plot the graphs for accuracy and loss.

7) Accuracy on training set:

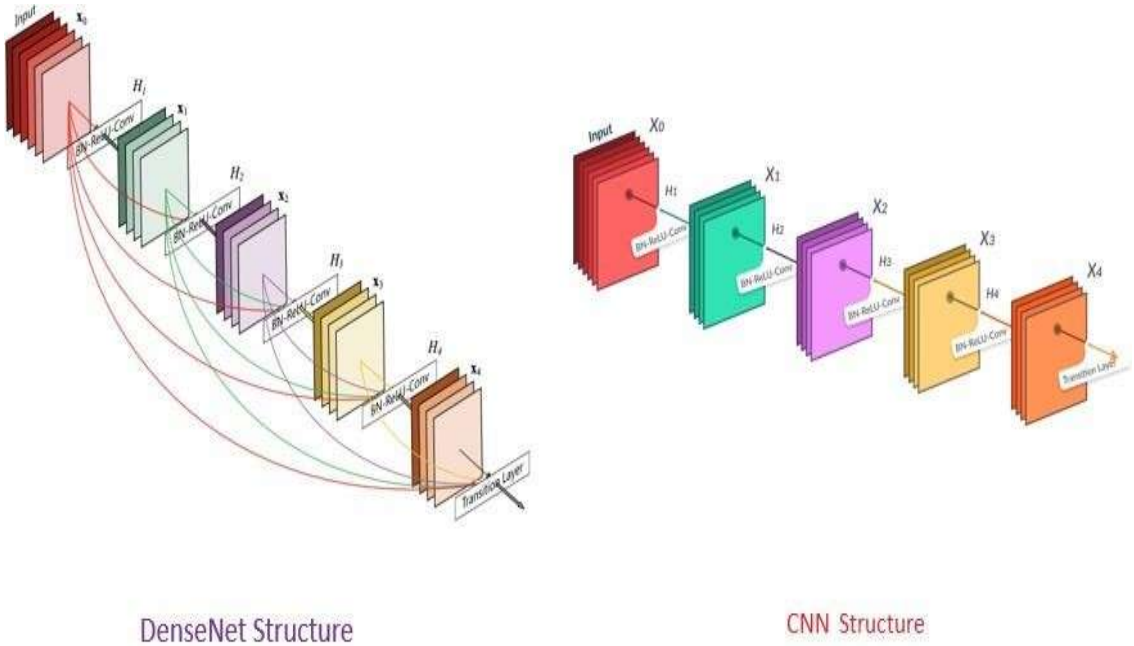
We got an accuracy of 99.2% on training set.

8) Saving the Trained Model:

Once you're confident enough to take your trained and tested model into the production-ready environment,

III. MODELING AND ANALYSIS

System Architecture



$$a^{[l]} = g\left(\left[a^{[0]}, a^{[1]}, a^{[2]}, \ldots\ldots\ldots, a^{[l-1]}\right)\right.$$

Fig 3.1: System Architecture

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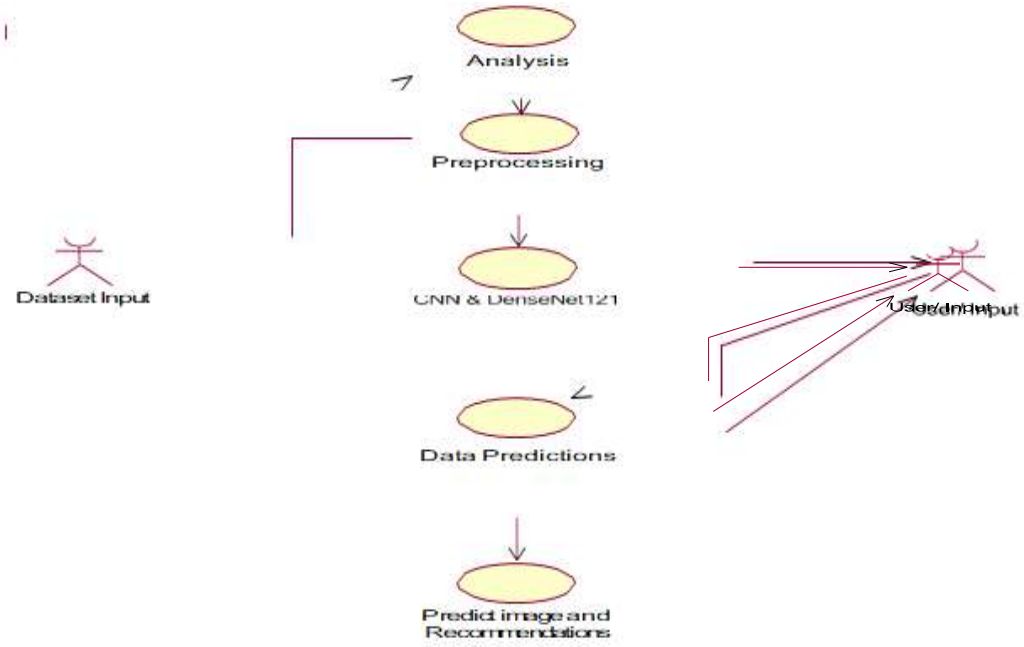

Fig 3.2: Use Case Diagram

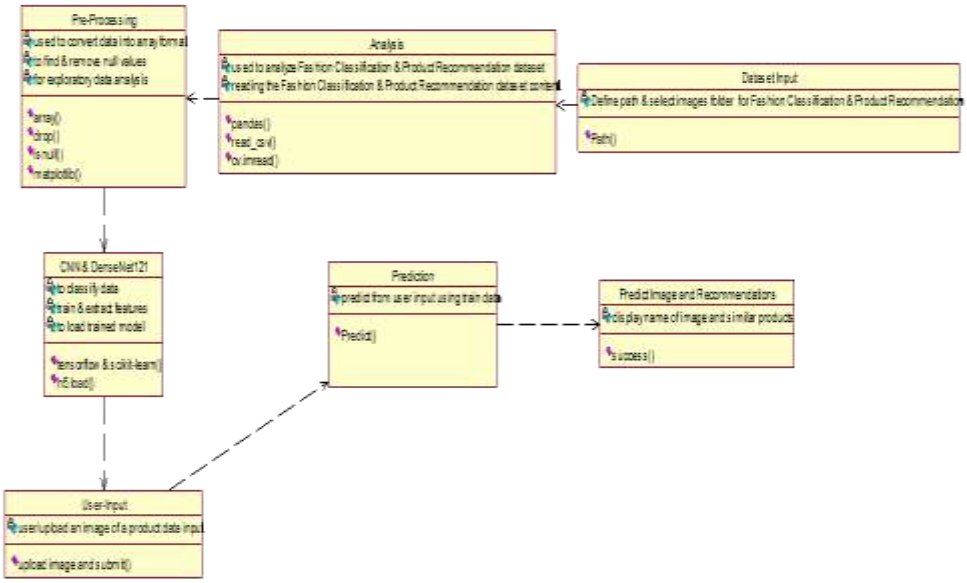

Fig 3.3: Class Diagram

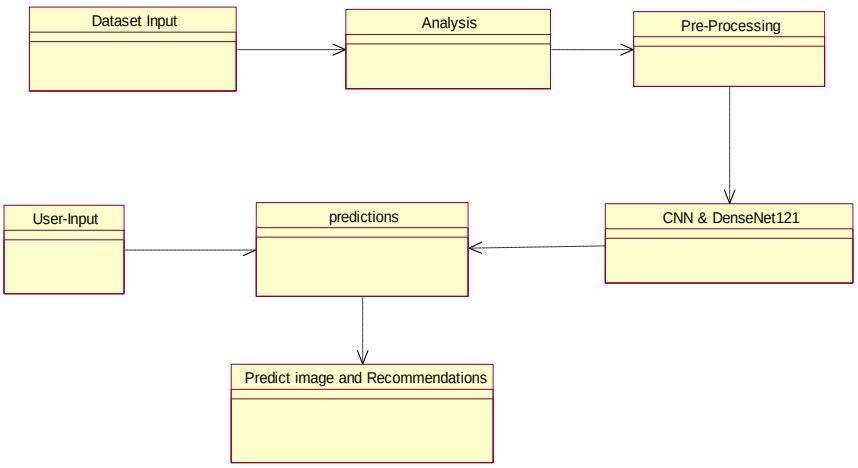

Fig 3.4: Object Diagram

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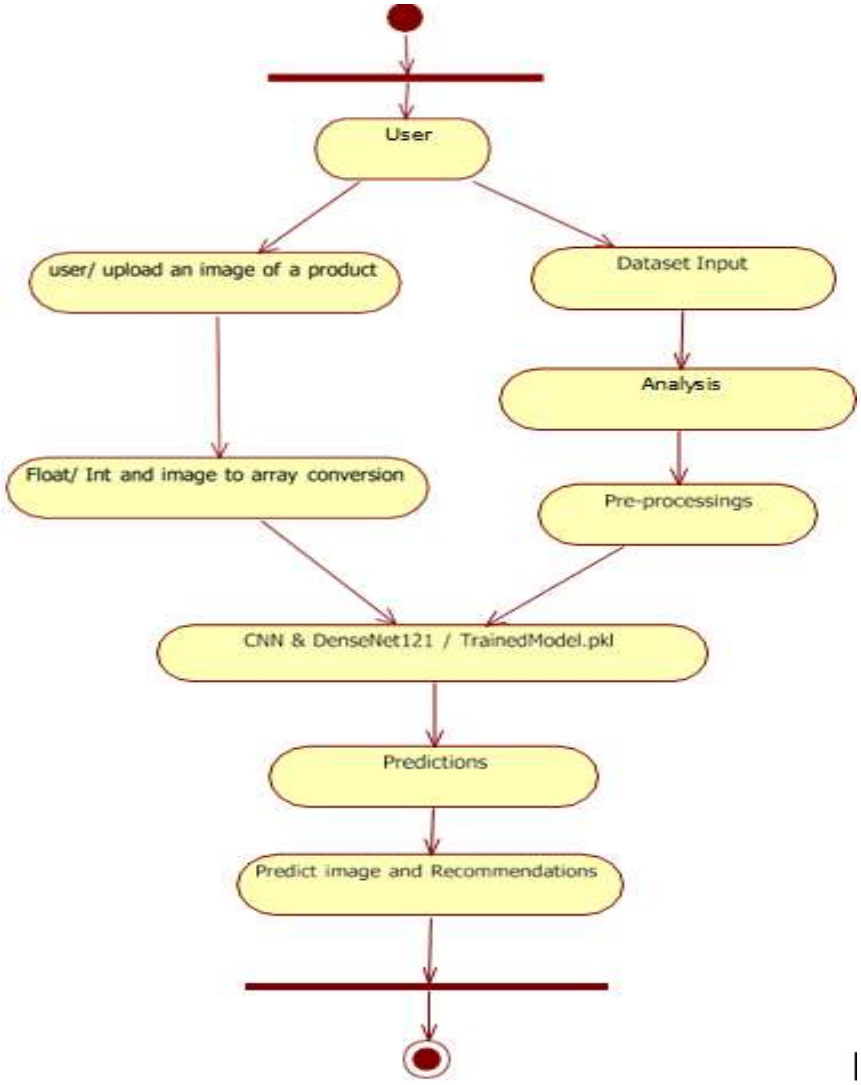

Fig 3.5: Activity Diagram

Design Engineering deals with the various UML [Unified Modelling language] diagrams for the implementation of project. Design is a meaningful engineering representation of a thing that is to be built. Software design is a process through which the requirements are translated into representation of the software. Design is the place where quality is rendered in software engineering.

The main purpose of a USE CASE DIAGRAM is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted. The above diagram consists of user as actor. Each will play a certain role to achieve the concept.

In this CLASS DIAGRAM represents how the classes with attributes and methods are linked together to perform the verification with security. From the above diagram shown the various classes involved in our project.

In the above ACTIVITY DIAGRAM tells about the flow of objects between the classes. It is a diagram that shows a complete or partial view of the structure of a modeled system. In this object diagram represents how the classes with attributes and methods are linked together to perform the verification with security

IV. RESULTS AND DISCUSSSION

This project is implements like application using python and the Server process is maintained using the SOCKET & SERVERSOCKET and the Design part is played by Cascading Style Sheet.

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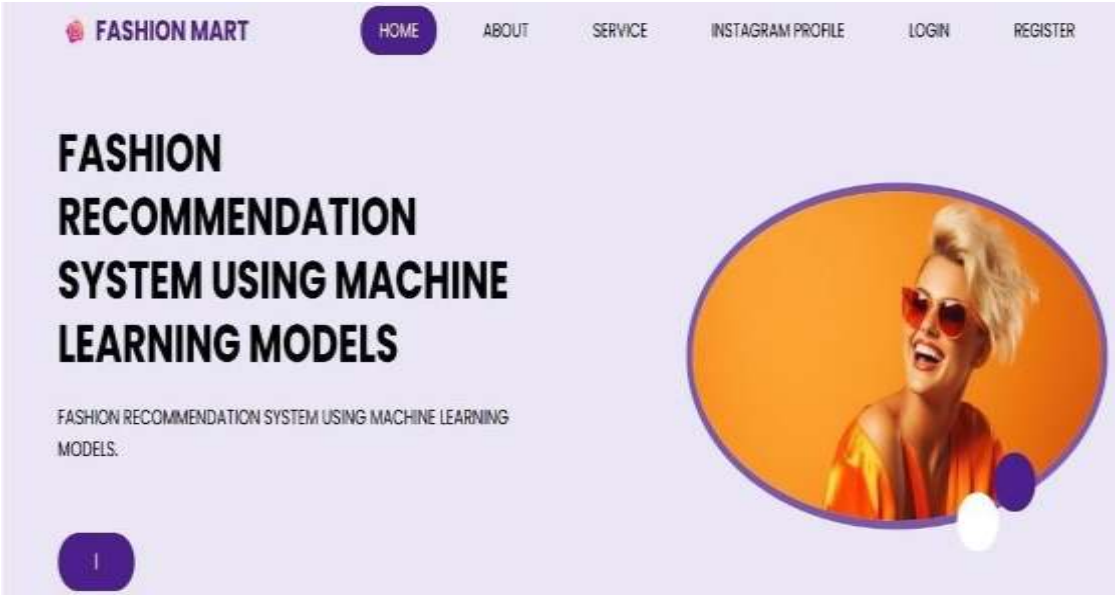

Fig 4.1: Home Page

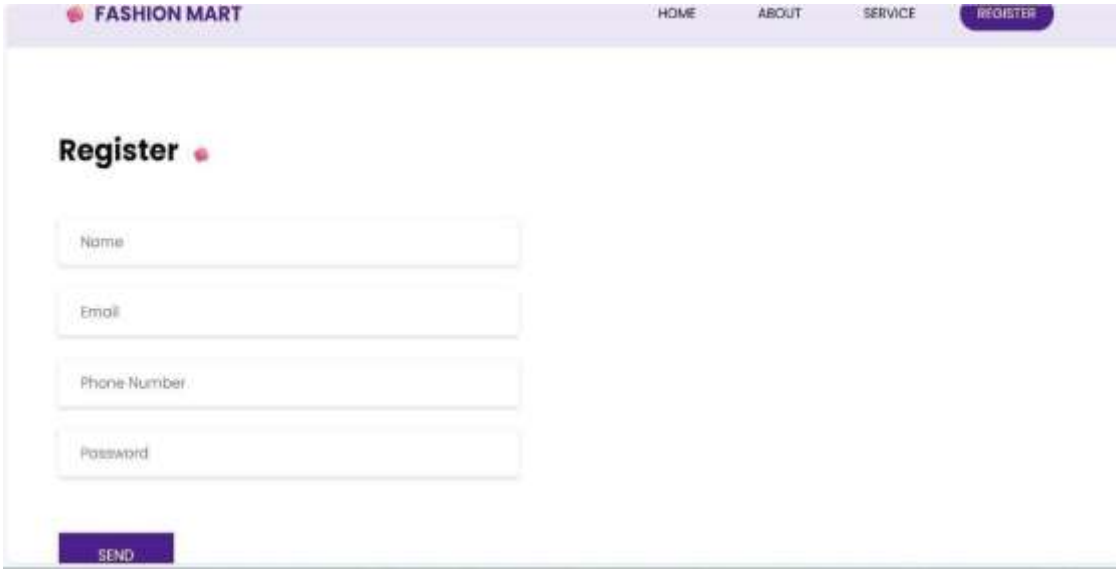

Fig 4.2: Registration Page

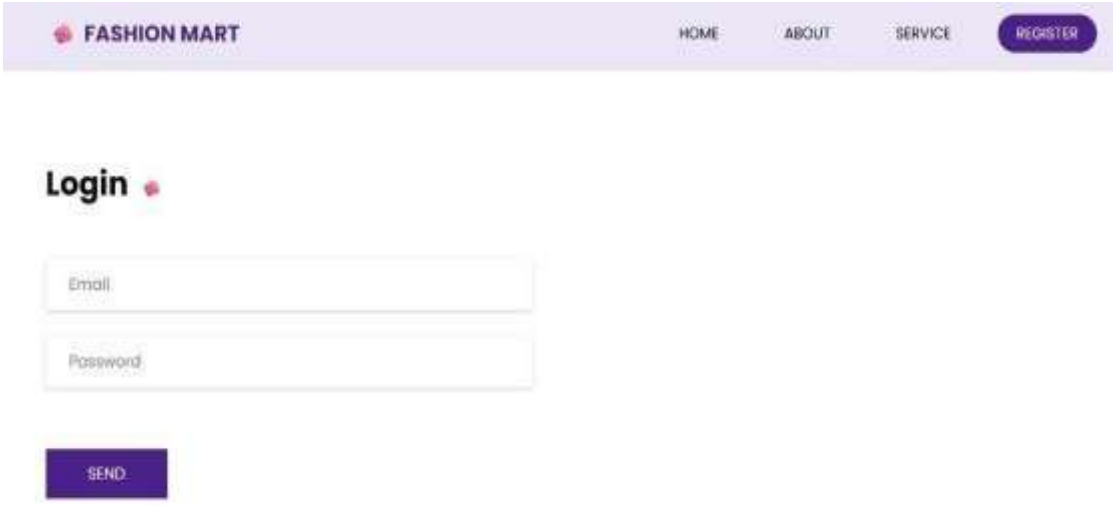

Fig 4.3: Login Page

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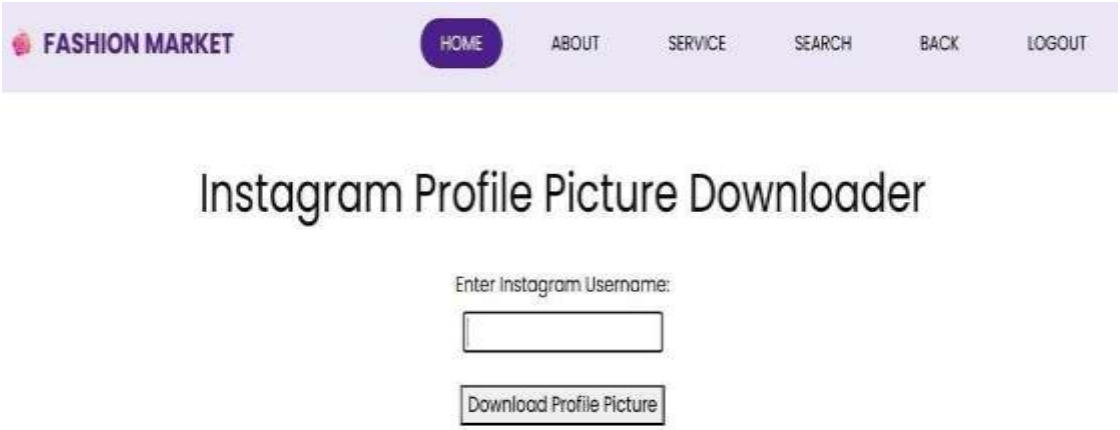

Fig 4.4: Instagram Page

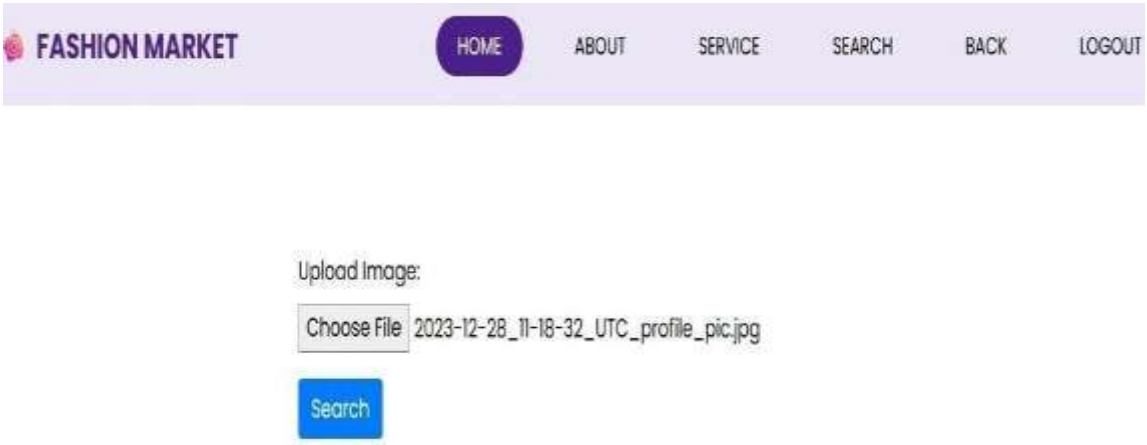

Fig 4.5: Input Page

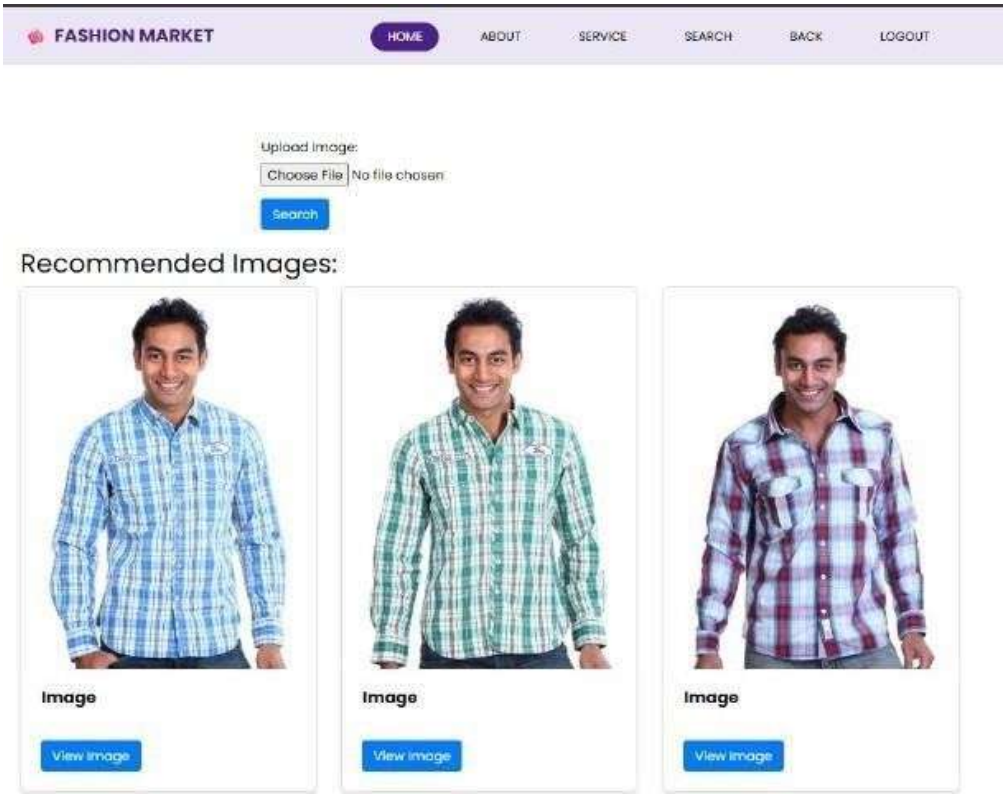

Fig 4.6: Result Page

V. CONCLUSION

Valued at over 3 trillion dollars, the global fashion industry contributes to a healthy 2% of the global Gross Domestic Product (GDP). For this reason, fashion companies are increasingly trying to invest inthe world of artificial intelligence to be able to satisfy the customer 100%. In particular, social media have long since changed the way of perceiving the world of fashion by the costumers: in this context social networks are fundamental communication tools, in particular Facebook and Instagram. Above all, the Instagram social network has become of fundamental importance for companies as the influencer sponsoring products is paid by companies to influence consumer preferences.

For this reason, this review aims to summarize the datasets that have been collected and the methods that have been used in deep learning in the fashion sector, and in particular in social networks. Methodsand techniques for each kind of fashion task have been analysed, the main paths have been summarised,and their contributions have been highlighted. This review offers rich information and improves the understanding of the research issues related to the use of AI with social media fashion data. Furthermore, it is informative on how and if DL techniques and methods could help the development of applications in various fields utilized in social networks, namely, for deep learning in the fashion industry. Each type of fashion task's methods and procedures have been examined, their contributions emphasized, and the primary routes have been summed up. Rich information is provided by this review, which also advances knowledge of the research questions around the application of AI to social media fashion data. It also provides information on if and how DL approaches and techniques could support the creation of applications across a range of industries.

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