# FASHION RECOMMENDATION SYSTEM

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*Abstract*: **Personalized buying experiences on e-commerce websites, user-specific marketing, item classification, and color detection from photographs are all made possible by artificial intelligence. The methods used to forecast a person's rating of a product or social institution are called recommendation systems. Books, movies, dining establishments, and other things on which people have distinct tastes are examples of the objects. Two techniques are used to predict these preferences. First, a content-based strategy that takes into account an item's features; second, a collaborative filtering technique that assesses options based on previous user behavior. This thesis suggests a method for fashion image recommendations that takes into account the offered apparel photos' styles.**

**The user's clothing and, using a recommendation system, suggest the most appropriate outfit for the occasion. The suggested system demonstrates that it can analyze the user's attire from the photographs, determine the kind and color of the outfit, and then suggest the most appropriate clothing for the situation based on the user's current outfit.**

*Keywords*: **Recommendation system**

## 1.INTRODUCTION

There is yet no mechanism in place that can suggest clothing depending on the occasion. Various wardrobes are required for various events. Also, a lot of fashion is dependent on the color schemes of clothing. A person with little or no fashion sense will struggle to choose outfits that make an impact. The planned usage of the proposed Fashion Recommendation System is for individual users to save photos of the garments they possess in what is referred to as a "digital wardrobe" and to receive suggestions from the system on what to dress for a certain event. The primary goal of the project is to recommend the best appropriate attire for a specific event based on the circumstances

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 .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.[1]

- **Project Overview:**

This System can smoothly run in minimum hardware requirements The goal of the project is to develop a app for job seekers to manage information about their dream company and jobs. The main objectives of this app development can be defined as follows:

1. Recent technological advancements have enabled consumers to track current fashion trends around the globe, which influence their choices

2. Develop a fashion recommendation system which answers the queries related to fashion shopping.

3. To identify the fashion type of given input image.

4. If the given fashion image is valid then similar set of clothing will be recommended.

- **Software Specification**
  To run the web server, simply execute
  Stream it with the main recommender app:

- **Technologies**
- Open source - Open Source Computer Vision and Machine Learning software library
  - Tensorflow - is an end-to-end open source platform for machine learning .
  - Pandas - pandas is a fast, powerful, flexible and easy to use open source data analysis and manipulation tool, built on top of the Python programming language.
  - OpenCV is a huge open-source library for computer vision, machine learning, and image processing.

## 2. LITERATURE SURVEY

The recommendation system that is currently used by most e-commerce market-places selling clothing items is based solely on customer's previous purchases, trends in the street fashion industry and sponsored styles from brands. Though this recommendation system can give out a modest performance it doesn't feel personal to any of their shoppers. A style that may suit one body type not necessarily mean to suit the other body types as well [2]. To maximize growth in e-commerce profits the fashion item selling emarketplaces must understand the preferences of different customers and provide more intelligent recommendation services. Unlike generic consumer goods, clothes represent significant variations in visual appearances, which have a vital impact on consumer's satisfaction and their buying decision. Body shape compatibility with clothing styles is important [3]. When styling for the body type, it is essential that the recommendation models as well as the customer under-stands the unendingly different body shapes. Creating a recommendation model that fits for basic body types like hourglass, rectangle, triangle, inverted triangle, pear, round is a challenge. Possibly only theoretically as selecting the types of clothes that can accentuate every body's highlighting features and town down ones which a customer might not find appealing requires a wide training data set. To determine the body shape, the proportion between body measurements is to be dealt with carefully. Many body shape calculators determine body shapes using alphabetical letters, fruit shapes and geometric objects, which are subjective to measure and susceptible to multiple biases as there is a lack of standardization in the determination of body shapes. Upon understanding and analyzing the type of body shape, to find a style that best suits would greatly affect the look and tidiness. It's critical to comprehend the limits, as well as the possible style and physical characteristics. It is also critical that a deep learning model for classifying fashion apparel images is carefully selected and implemented emphasizes that state-of-the-art performance can be achieved by jointly performing deep representation learning for the content in-formation and collaborative filtering for the ratings matrix[4]. As far as the authors know, collaborative deep learning is the first hierarchical Bayesian model to bridge the gap between state-of-the-art deep learning models and recommender systems. The Bayesian nature of CDL provides potential performance boost if other side information is incorporated. The models achieve performance boost mainly by loosely coupled methods without exploiting the interaction between content information and ratings.

**2.1 Existing System :-**

•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.

**2.2 Advantages :**

There are many benefits to using an recommdation system. 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.

There are some point written in below :
- Drive Traffic. ...
- Deliver Relevant Content. ...
- Engage Shoppers. ...
- Convert Shoppers to Customers. ...
- Increase Average Order Value. ...
- Increase Number of Items per Order. ...
- Control Merchandising and Inventory Rules. ...

**3 Results /outcome**

- Input end user wardrobe and predict the embedding for each image.
- Generate all possible combinations of outfits using the images.
- Score each possible outfit using the CNN.
- Create three clusters of outfits based on the embeddings.
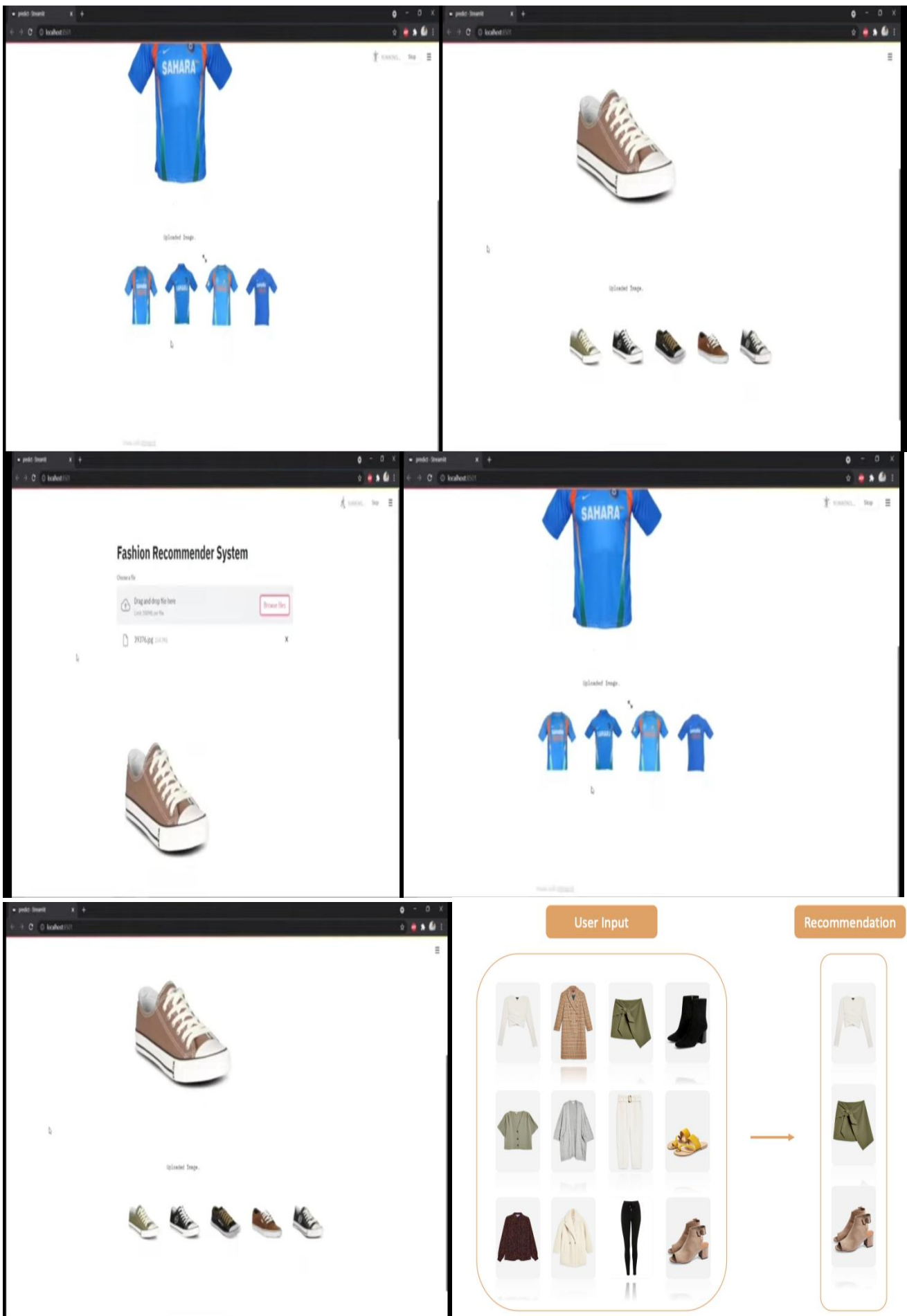- Return the outfit with the top score for each cluster as predictions.

Fig. Fashion Recommendation System Recommended Outfit.

## 4.CONCLUSIONS

A user who lacks fashion sense might utilize the Fashion Recommendation System to suggest the best clothing combinations depending on their closet. As the algorithm is entirely dependent on the clothing items existing in the user's closet, it might not always suggest the best outfit to wear for an event. Another factor is that fashion is very influenced by the era. Yet, the system does a remarkable job of helping users develop a sense of fashion, and it can provide the best suggestions based on the user's clothing. The system is relatively simple for end users to access and utilize because it is developed as a website. This system's reach may be increased by adding

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