CLOTHES RECOMMENDATION SYSTEM

CONTENTS

- Introduction
- Objective
- COBWEB Algorithm
- DBSCAN Algorithm
- K Means Clustering Algorithm
- Conclusion
- References

Introduction

Dressing appropriately is very important when going out in the real world. Wearing clothes properly that show some level of style and wearing them such that they adhere to the norms of social standards uplifts the confidence of the person and creates a very good impression. The study focuses on helping the user to find optimized matching pair of clothes taking into account intricate details like style, patterns, colors, textures, etc. also keeping in mind users attributes like age, skin tone, favorite color etc. It aims to help the user choose clothes that are fashionable and organize their closet. It tries to help the user to wear clothes that are suitable to occasions and helps user to buy clothes that would suit their style.

OBJECTIVE

- **The objective of this project is to form clusters based on images of clothes and retrieve them to form a CLOTHES RECOMMENDATION SYSTEM.**
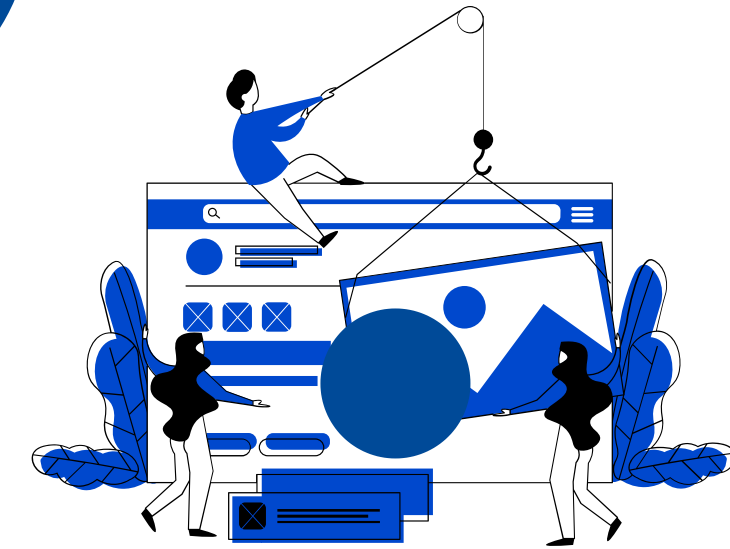
- **The dataset consists of the following attributes:**
- **Images of Clothes: This attribute consists of 5000 images of clothes.**
- **ID: Each image of clothes has an ID associated with it. This attribute stores the IDs of the images.**

ALGORITHMS USED

The following Algorithms are used for the development of this project :-

- Cobweb
- DBSCAN
- K means Algorithm

COBWEB algorithm constructs a classification tree incrementally by inserting the objects into the classification tree one by one. When inserting an object into the classification tree, the COBWEB algorithm traverses the tree top-down starting from the root node and finds the best position to insert a new object by calculating the Category utility(CU) function.

COBWEB is an incremental system for hierarchical conceptual clustering. COBWEB incrementally organizes observations into a classification tree. Each node in a classification tree represents a class (concept) and is labeled by a probabilistic concept that summarizes the attribute value distributions of objects classified under the node. The classification tree can be used to predict missing attributes or the class of a new object. Cobweb employs in building the classification tree. Which operation is selected depends on the category utility of the classification achieved by applying it.
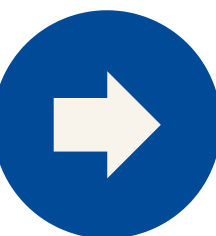
DBSCAN

- Density-Based Spatial Clustering of Applications with Noise (DBSCAN) is a base algorithm for density-based clustering. It can discover clusters of different shapes and sizes from a large amount of data, which is containing noise and outliers.
- The DBSCAN algorithm uses two parameters:
- minPts: The minimum number of points (a threshold) clustered together for a region to be considered dense.
- eps (ε): A distance measure that will be used to locate the points in the neighborhood of any point.

DBSCAN is a clustering method that is used in machine learning to separate clusters of high density from clusters of low density.

K-MEANS CLUSTERING ALGORITHM

Before K-Means ➝ K-Means ➝ **After K-Means**
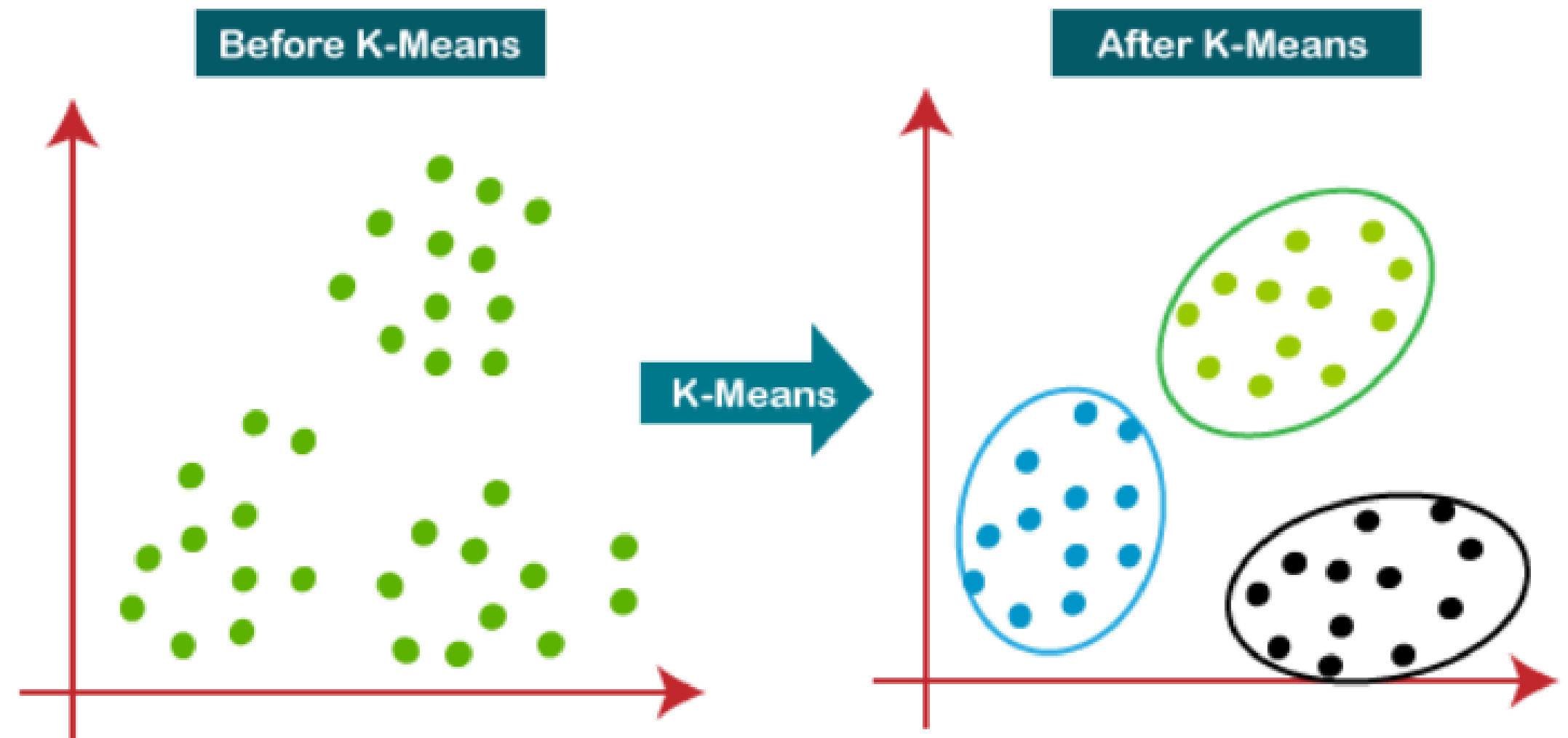
K-Means Clustering is an unsupervised learning algorithm that is used to solve clustering problems in machine learning or data science. In this topic, we will learn what is K-means clustering algorithm, how the algorithm works, along with the Python implementation of k-means clustering.

The k-means clustering algorithm mainly performs two tasks:

- Determines the best value for K center points or centroids by an iterative process.
- Assigns each data point to its closest k-center. Those data points which are near to the particular k-center, create a cluster.

Conclusion

The study examines a variety of systems, their techniques and methodology, algorithms, and previous technologies, as well as their outcomes. This review article shows a comparison study between them, exhibiting their efficiency and accuracy of methodologies utilised, as well as their benefits and drawbacks. After a thorough examination, the article presents a system that combines the various methodologies and includes features such as clothing matching and suggestion. This review article aids us in comprehending the fundamental components of the system that we will be designing in the future, combining our own algorithm with some current solutions.

REFERENCES

1. https://monkeylearn.com/
2. https://www.analyticsvidhya.com/
3. https://towardsdatascience.com/logistic-regression-detailed-overview-46c4da4303bc
4. Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems (Book)
5. https://arxiv.org/ftp/arxiv/papers/1601/1601.06971.pdf
6. https://scikit-learn.org/stable/modules/naive_bayes.html