CLASS 13 08-06-2021

**QUESTIONS**

👉 What are the most practical applications of k-means?  
👉 What is elbow method?  
👉 How is the elbow method used in clustering?  
👉 How to plot WCSS against an increasing k?  
👉 What is Seaborn used for?  
👉 What is difference between Matplotlib and Seaborn?  
👉 What is hue in Seaborn plots?

**ANSWERS**

1. k-means can typically be applied to data that has a smaller number of dimensions, is numeric, and is continuous. think of a scenario in which you want to make groups of similar things from a randomly distributed collection of things; k-means is very suitable for such scenarios.

some **applications of KMeans clustering** are document clustering, identifying crime-prone areas, customer segmentation, insurance fraud detection, public transport data analysis, clustering of IT alerts…etc

2. In cluster analysis, the **elbow method** is a heuristic used in determining the number of clusters in a data set. The method consists of plotting the explained variation as a function of the number of clusters, and picking the elbow of the curve as the number of clusters to use.

3. The method consists of plotting the explained variation as a function of the number of clusters, and picking the **elbow** of the curve as the number of clusters to use.

4. An ideal way to figure out the right number of clusters would be to calculate the Within-**Cluster-Sum-of-Squares (WCSS)**. **WCSS** is the sum of squares of the distances of each data point in all clusters to their respective centroids. The idea is to minimise the sum.

5. **Seaborn** is a Python data visualization library based on matplotlib. It provides a high-level interface for drawing attractive and informative statistical graphics.

6. **Seaborn and Matplotlib** are two of Python's most powerful visualization libraries. Seaborn uses fewer syntax and has stunning default themes and Matplotlib is more easily customizable through accessing the classes.

7. In **seaborn**, the **hue** parameter determines which column in the data frame should be used for colour encoding.