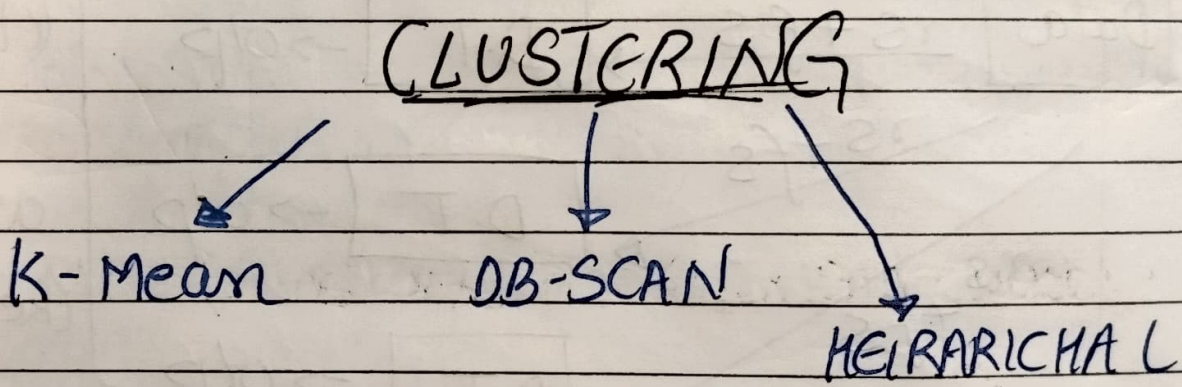
# CLUSTERING

PAGE NO.:

(Unsupervised Learning)

→ Clustering is a type of unsupervised learning in which provide model with unlabelled & make model to identify pattern & cluster them in different Group.




## K MEAN CLUSTERING

↓
CENTROID

### Steps

(i) Select a K (centroid) value using elbow method

(ii) Initialize K number of centroids.

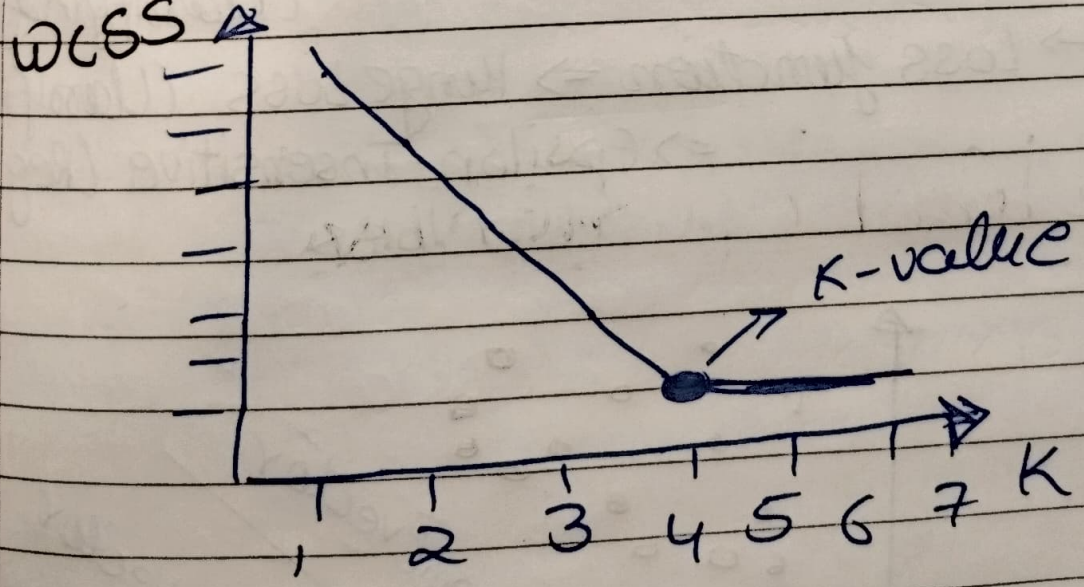
(III) For each datapoint, calculate Eudedian Distance from each centroid

(IV) Assign the datapoint to the cluster whose centroid is the closest

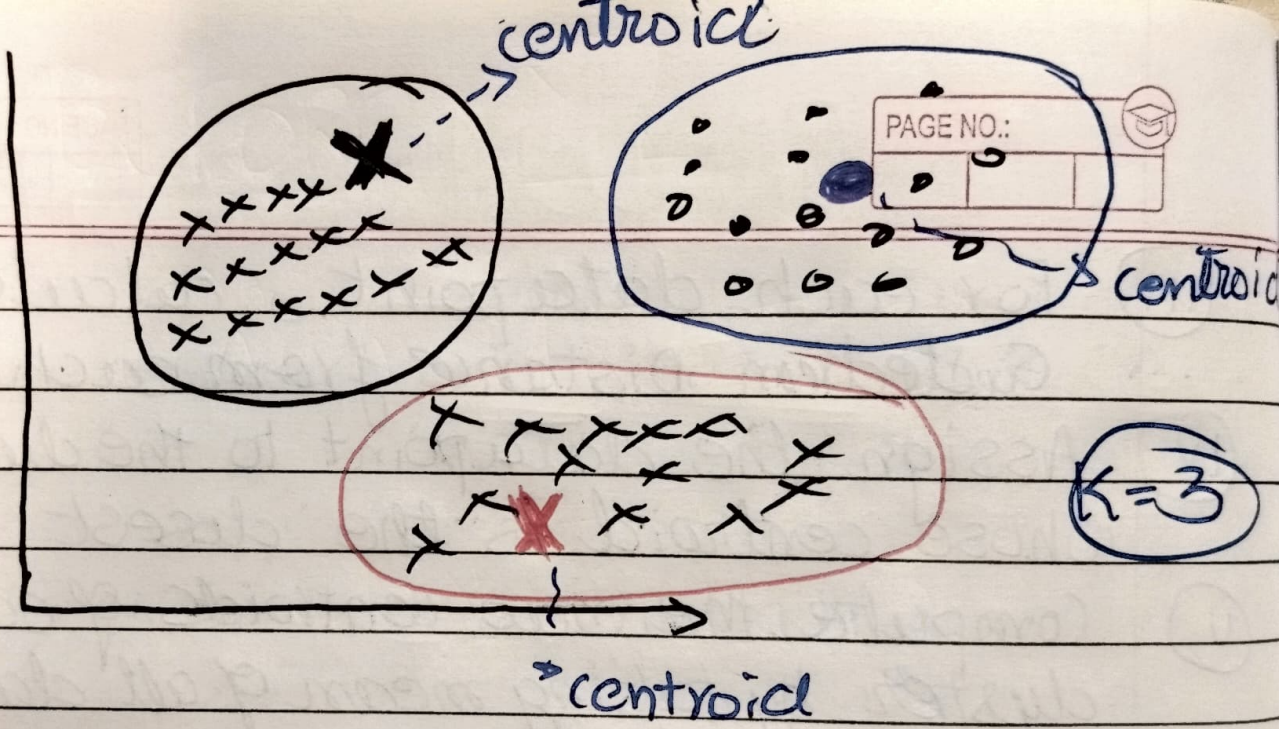
(V) Compute the new centroids of each cluster by taking mean of all datapoints assigned to that cluster.

(VI) Repeat step 3, 4, 5 until centroid don't change significantly.

## ELBOW METHOD (TO DECIDE K VALUE)




WCSS => within cluster sum of square




# SVM (Classification & Regression)

↳ Uses HyperPlane for Detection (Classifying)

↳ Loss function => Hinge Loss (Classification)
=> Epsilon-Insensitive (Regression) loss