

CLUSTERING

KMEANS CLUSTERING

KMeans Clustering

STEP 1: Choose the number K of clusters



STEP 2: Select at random K points, the centroids (not necessarily from your dataset)



STEP 3: Assign each data point to the closest centroid → That forms K clusters



STEP 4: Compute and place the new centroid of each cluster



STEP 5: Reassign each data point to the new closest centroid.

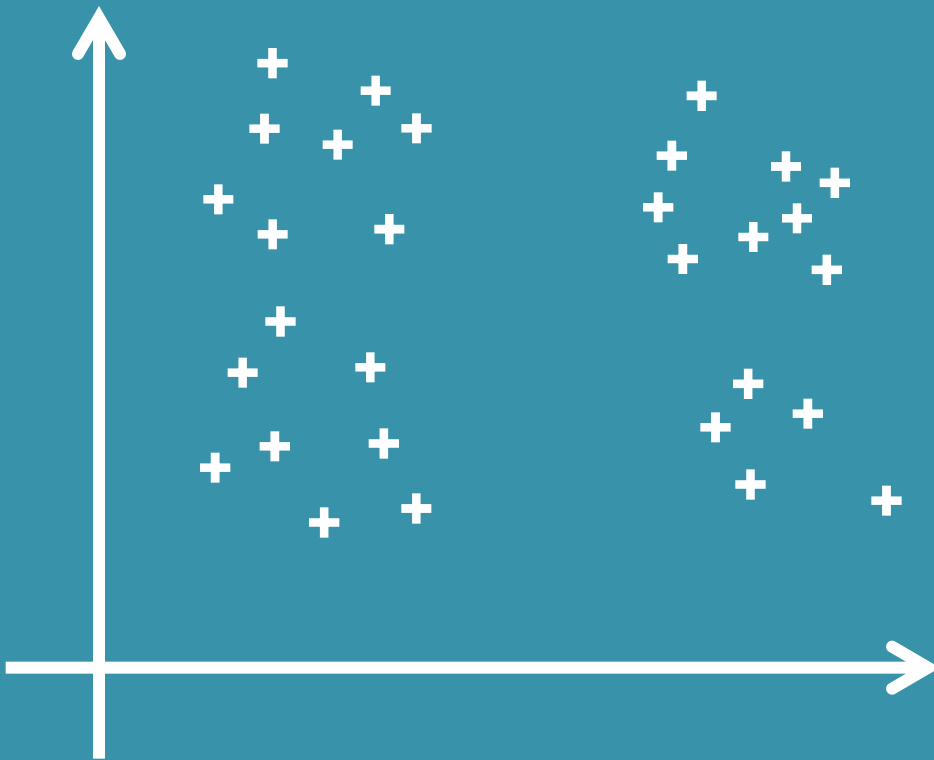
If any reassignment took place, go to STEP 4, otherwise go to FIN.



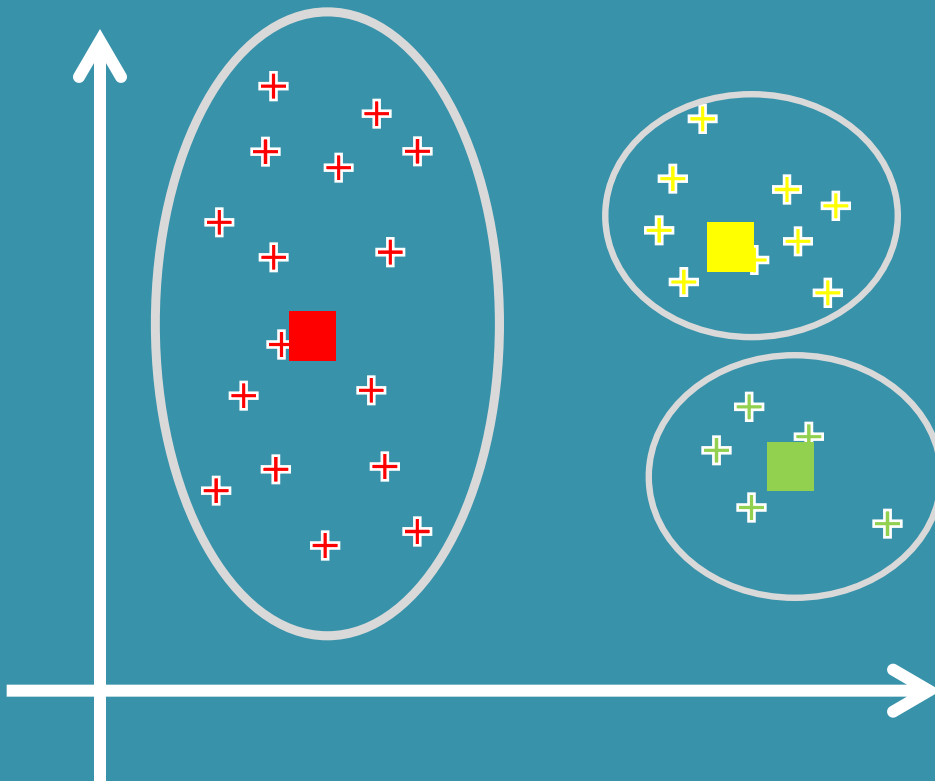
Your Model is Ready

KMeans Clustering

RANDOM INITIALIZE TRAP



KMeans Clustering

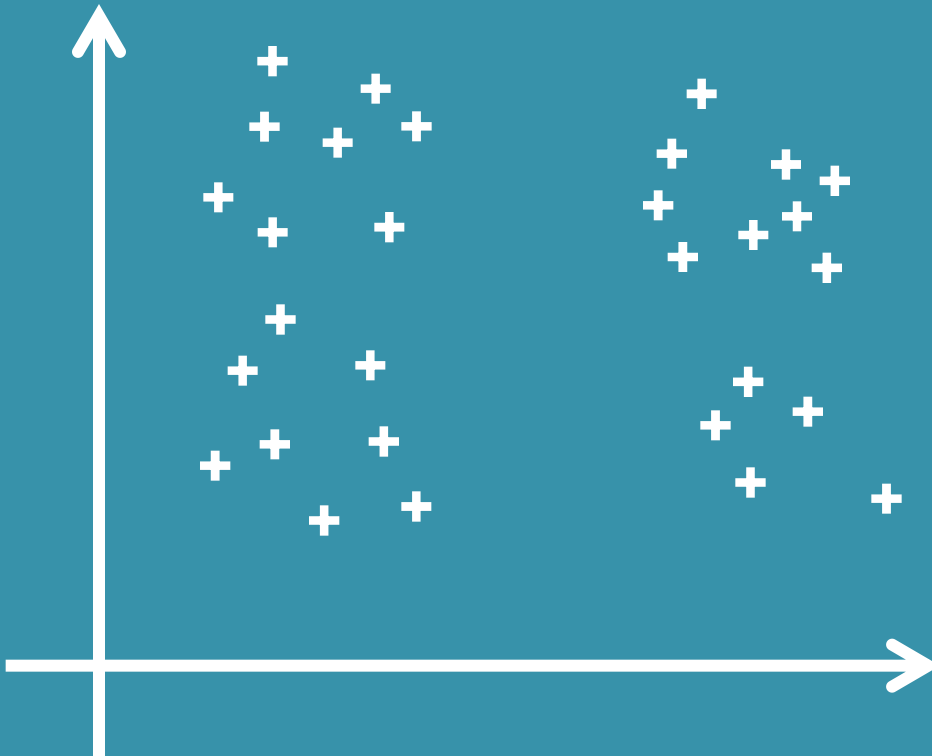


KMeans Clustering

STEP 1

STEP BY STEP

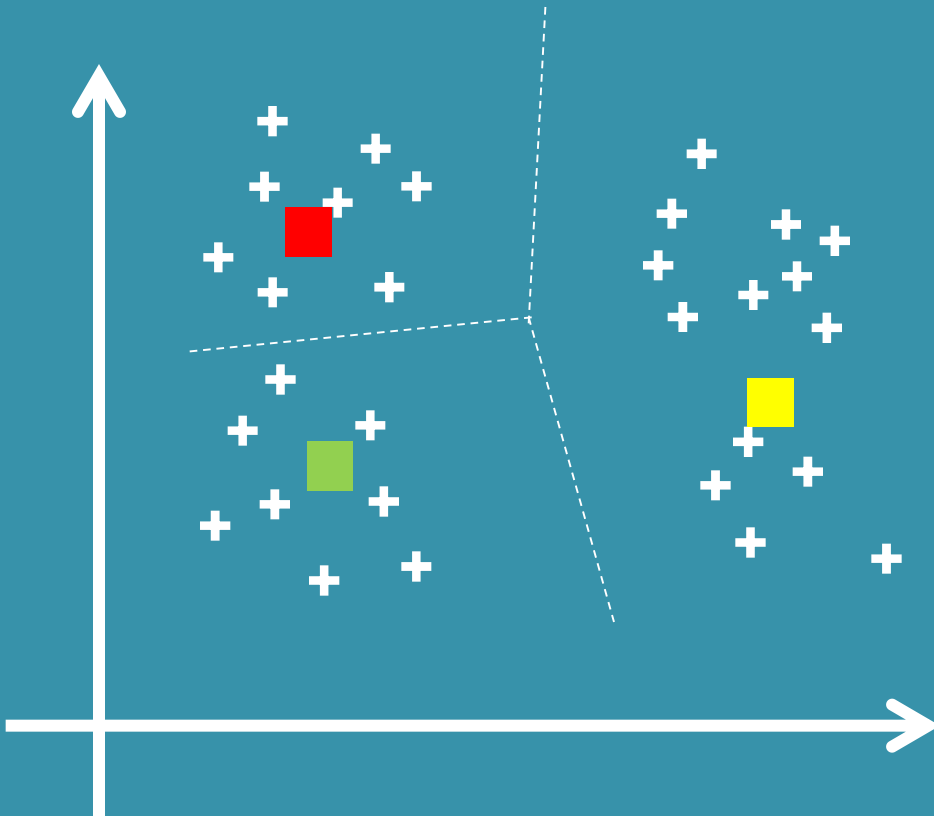
$K = 3$ | Number of Clusters



KMeans Clustering

STEP 2

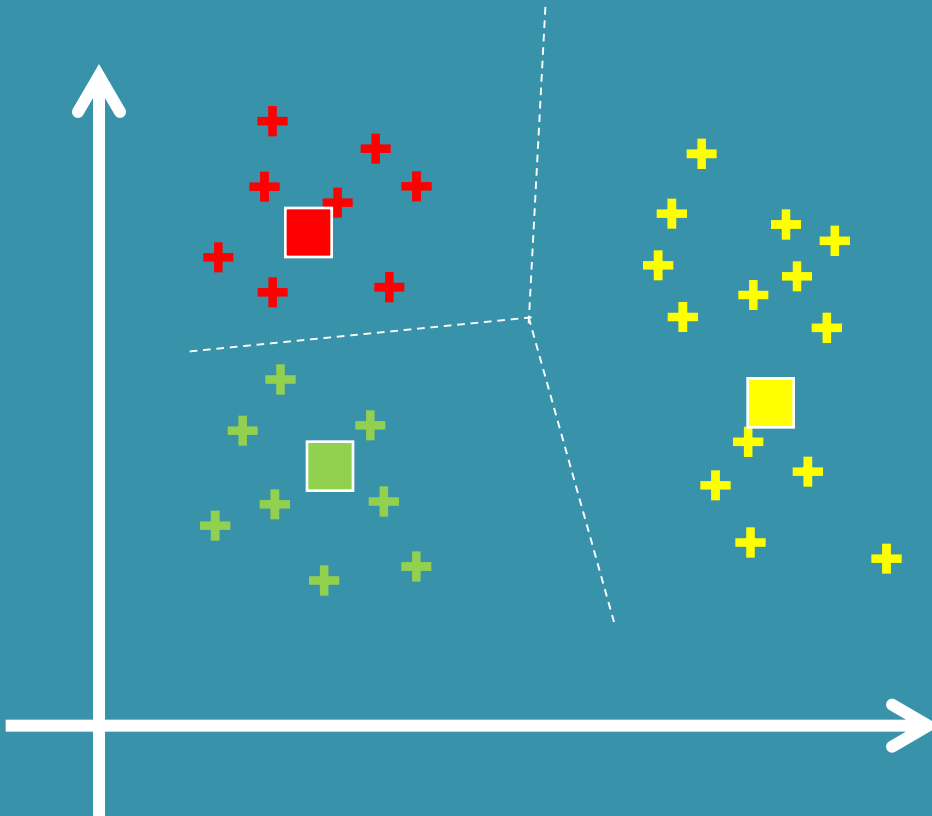
$K = 3$ | Assign the Centroids



KMeans Clustering

STEP 3

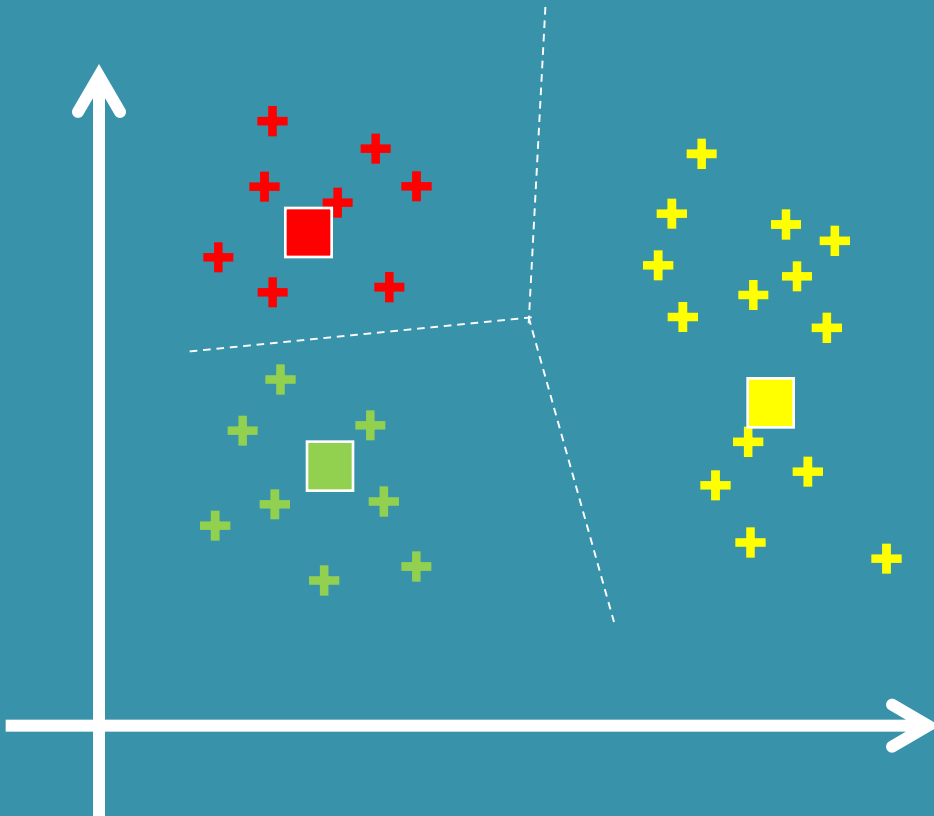
$K = 3$ | Assign each data the Closest centroid



KMeans Clustering

STEP 4

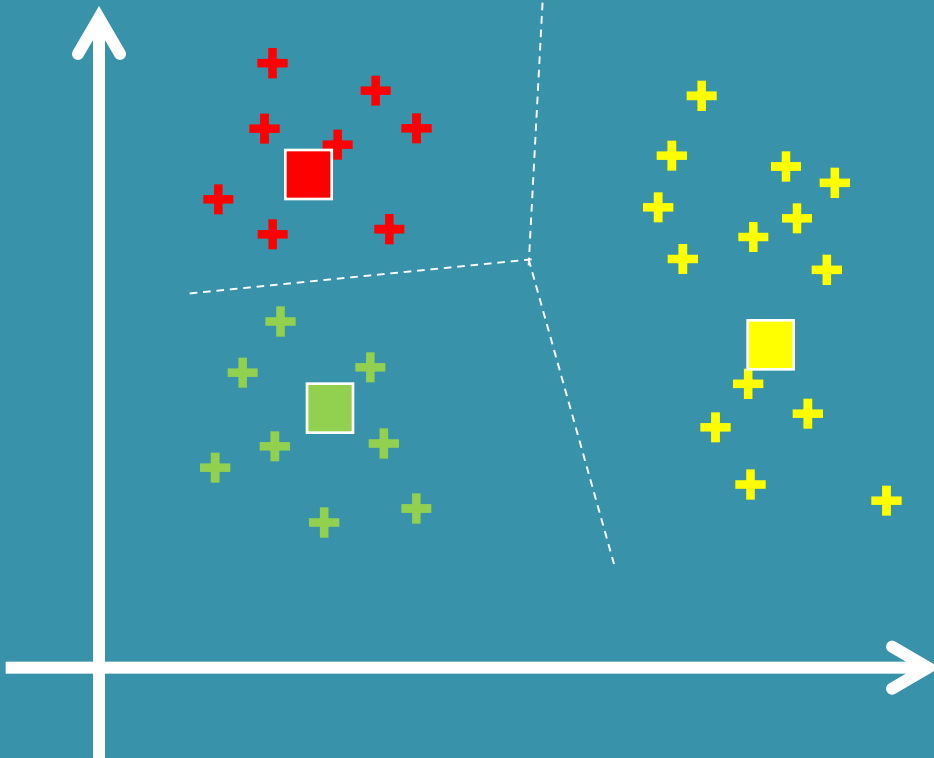
$K = 3$ | Compute and Place the new Centroid of each cluster



KMeans Clustering

STEP 5

$K = 3$ | Reassign each datapoint to closest centroid. If any reassignment took place, GO TO Step 4, else FIN



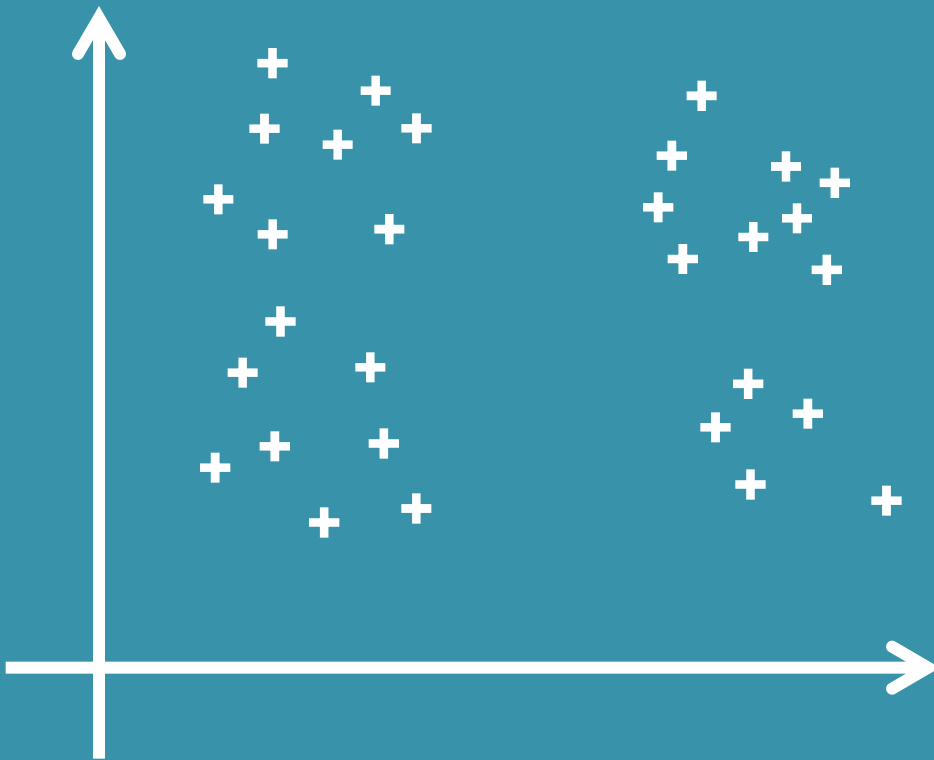
KMeans Clustering

WITHIN CLUSTER SUM of SQUARES

$$\text{WCSS} = \sum_{P_i \text{ in Cluster 1}} \text{distance}(P_i, C_1)^2 + \sum_{P_i \text{ in Cluster 2}} \text{distance}(P_i, C_2)^2 + \sum_{P_i \text{ in Cluster 3}} \text{distance}(P_i, C_3)^2$$

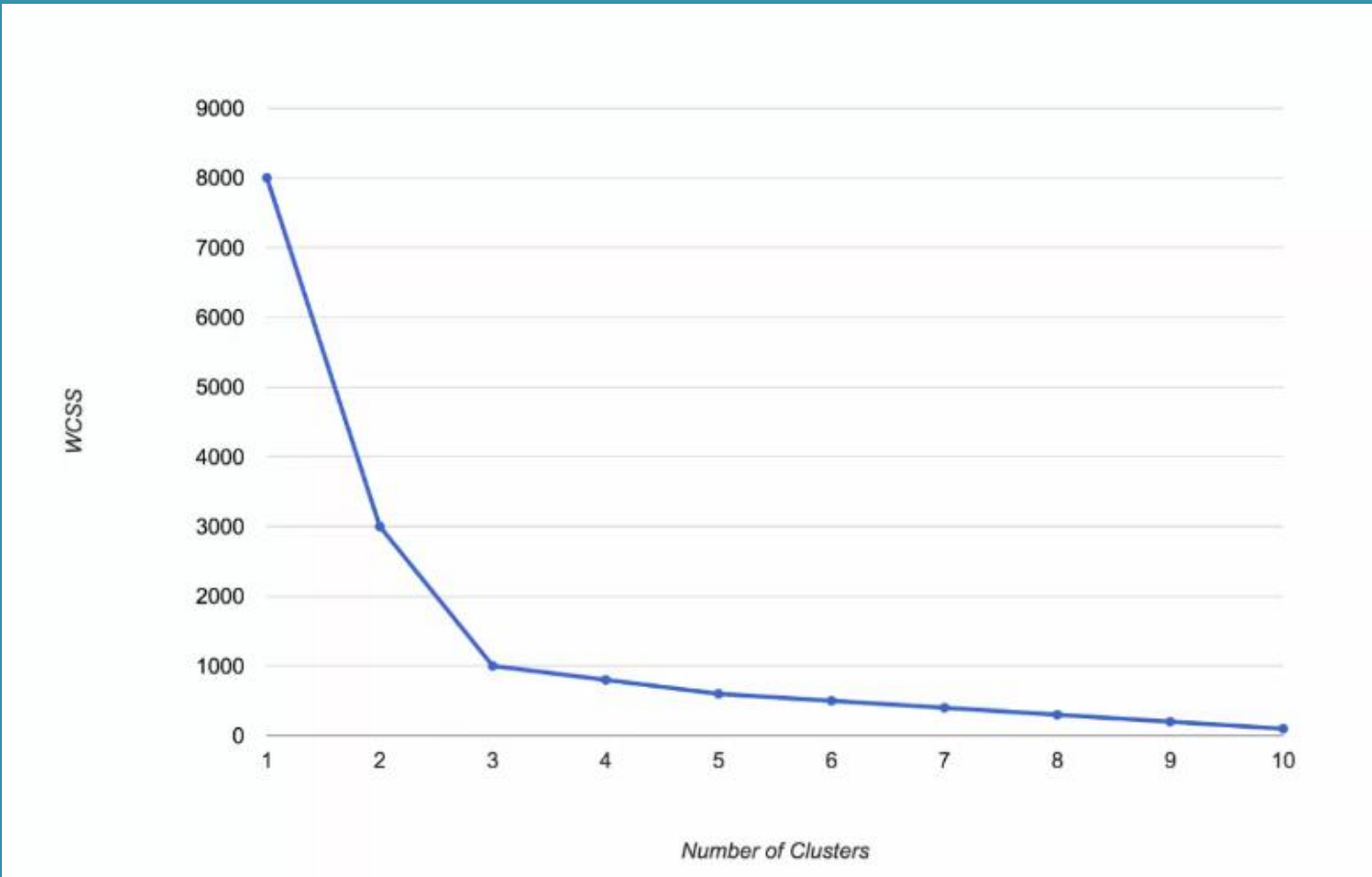
KMeans Clustering

CLUSTER FORMATIONS



KMeans Clustering

ELBOW CURVE





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