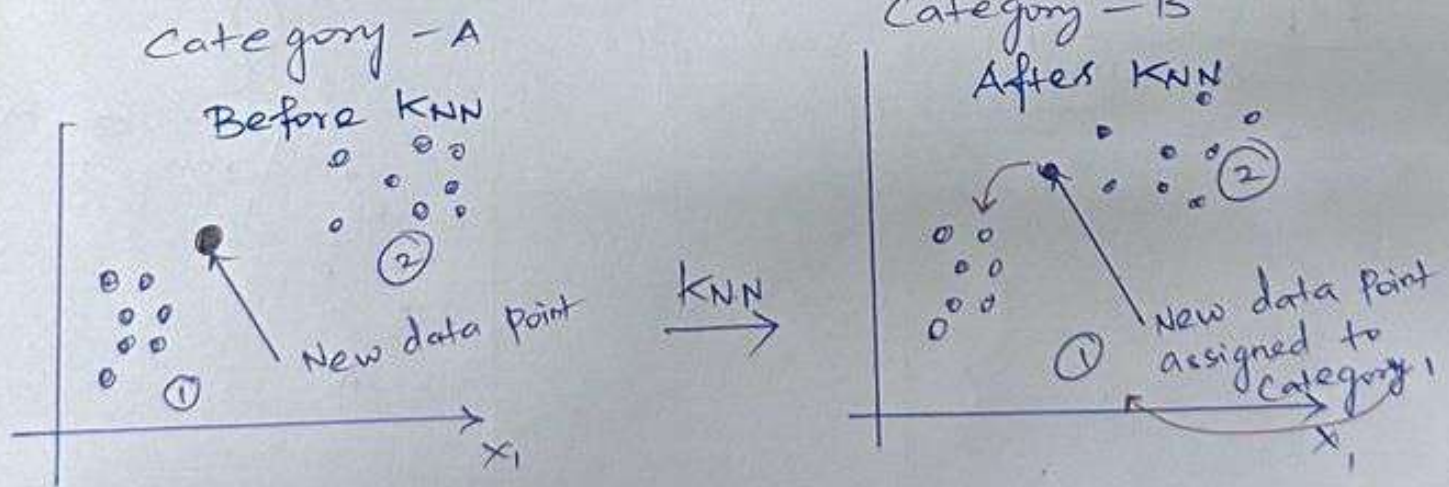




k-Nearest Neighbour Algorithm (KNN Algorithm)

- * K-NN Algorithm stores all the available data and classifies a new data point based on the similarity. This means when new data appears then it can be easily classified into a well suited category by using KNN Algorithm.
- * KNN Algorithm can be used for regression as well as for classification but mostly it's used for classification problems.
- * K-NN is a non-parametric Algorithm, which means it does not make any assumption on underlying data.
- * It's also called 'Lazy learner Algorithm'.

Apple \rightarrow KNN Classifier \rightarrow Apple
Eat Apple, CAT



The KNN Algorithm can be explained on the basis of below algorithm



Step 1:

Select the number 'k' of the neighbours

Step 2:

Calculate the Euclidean distance of k-numbers of neighbours

Step 3:

Take the k-nearest neighbors as per the Calculated Euclidean distance.

$$L = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Step 4:

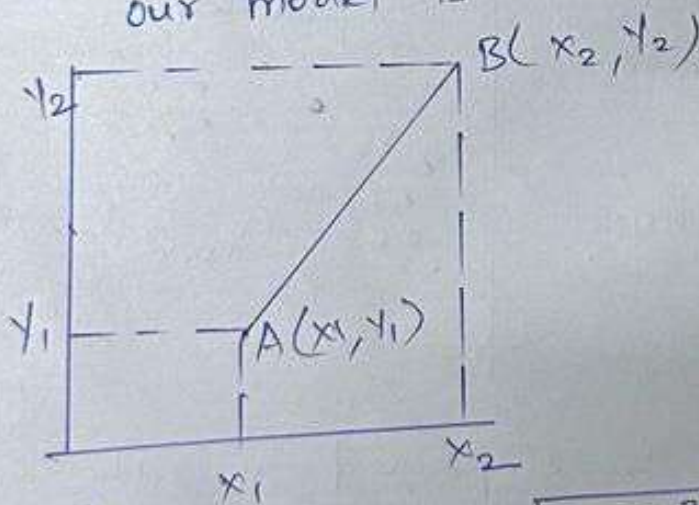
Among these k-neighbors count the number of the data points in each category.

Step 5:

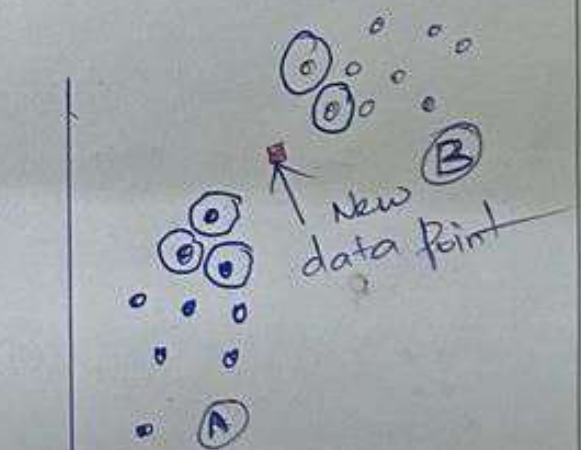
Assign the new data points to that category for which the number of the neighbour is maximum.

Step 6:

our model is ready.



$$\text{Euclidean Distance} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$



Category A: 3 neighbours

Category B: 2 neighbours