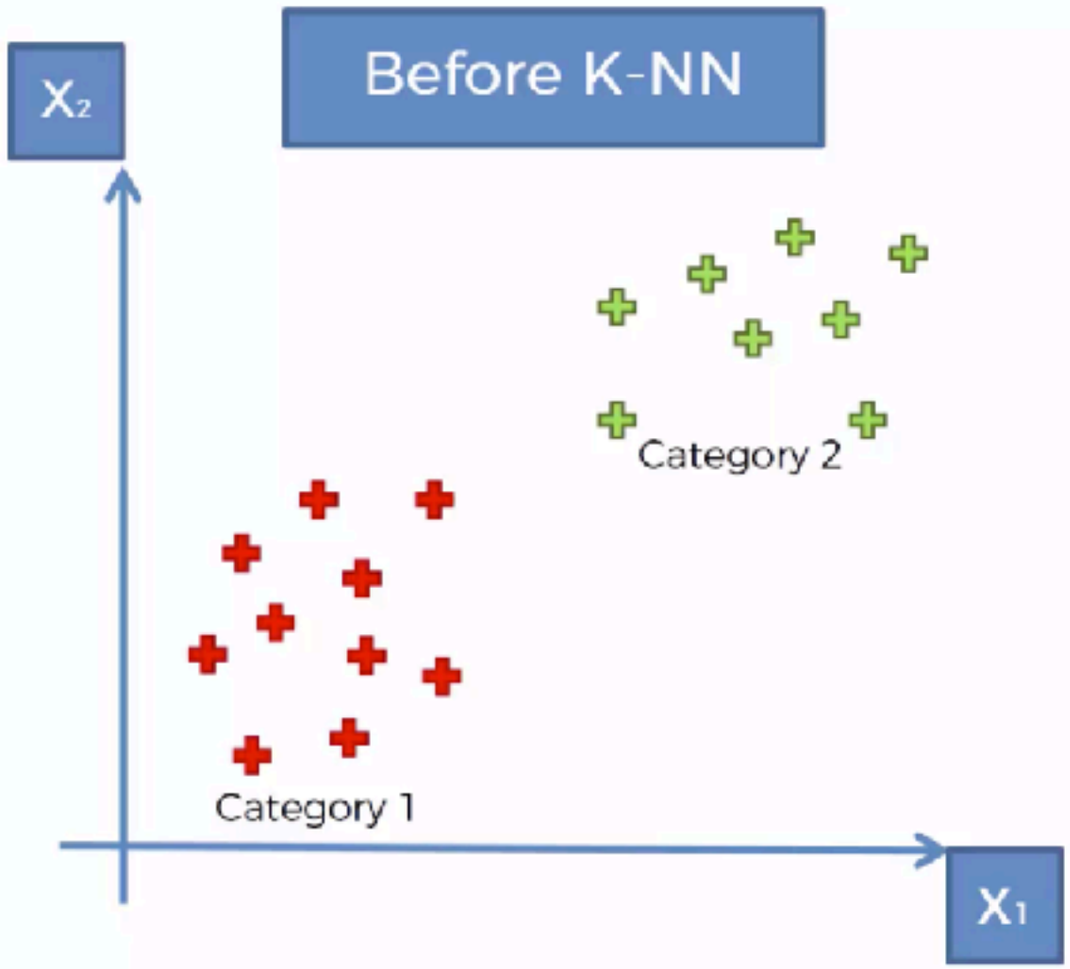
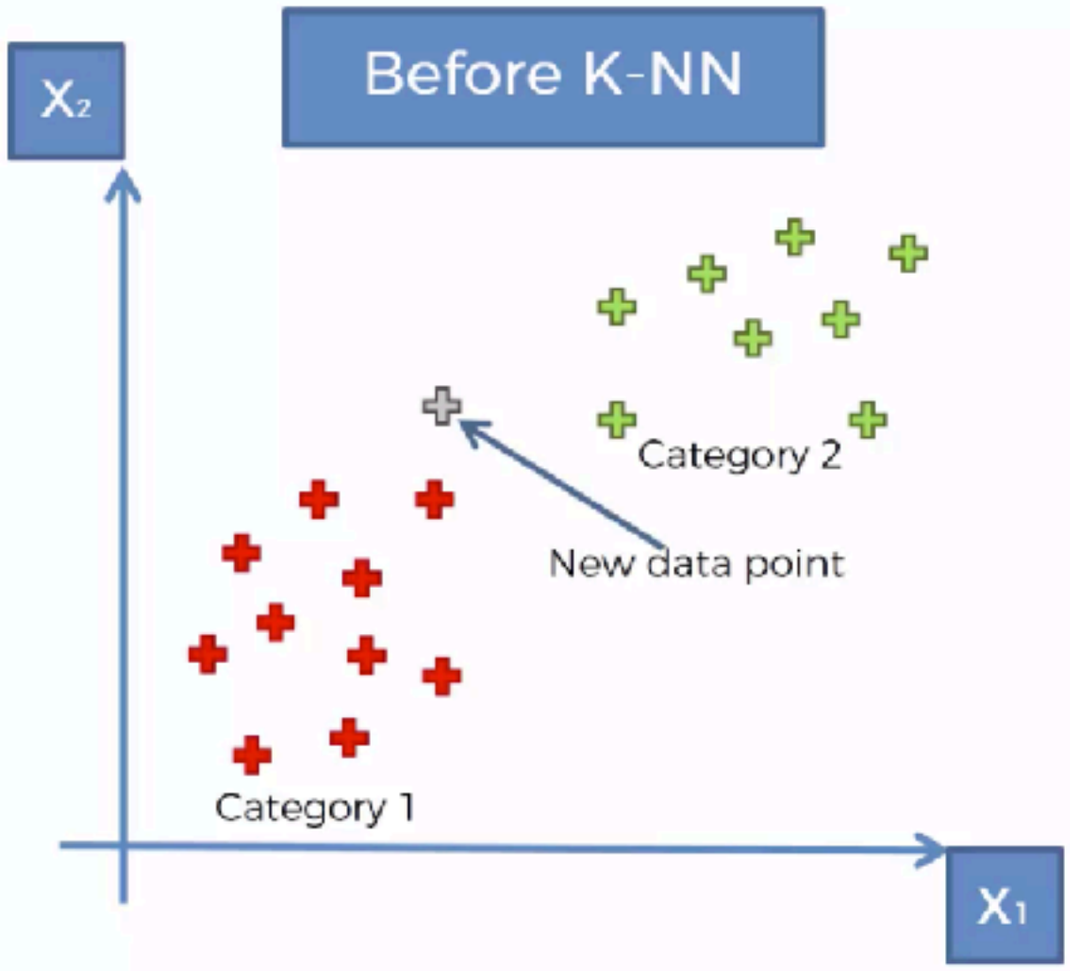
# K-NN Intuition

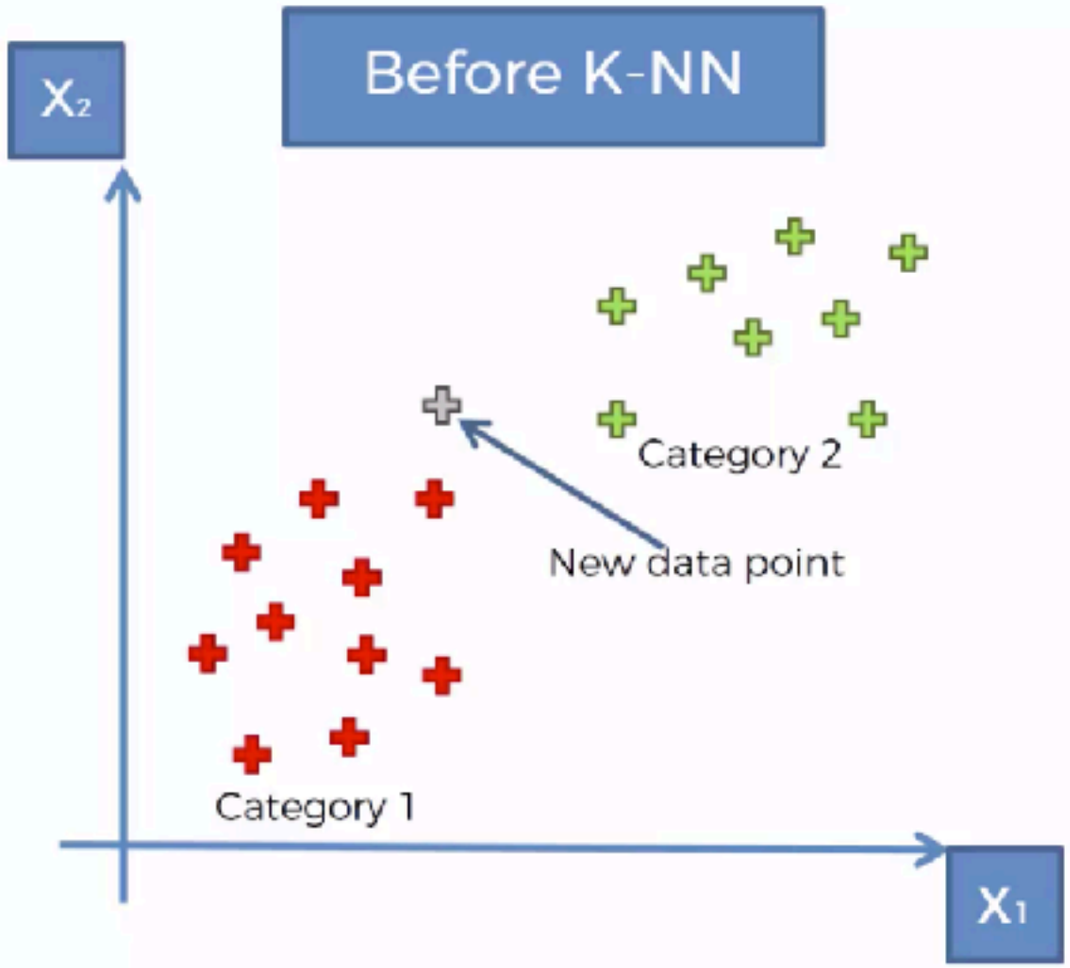
# What K-NN does for you



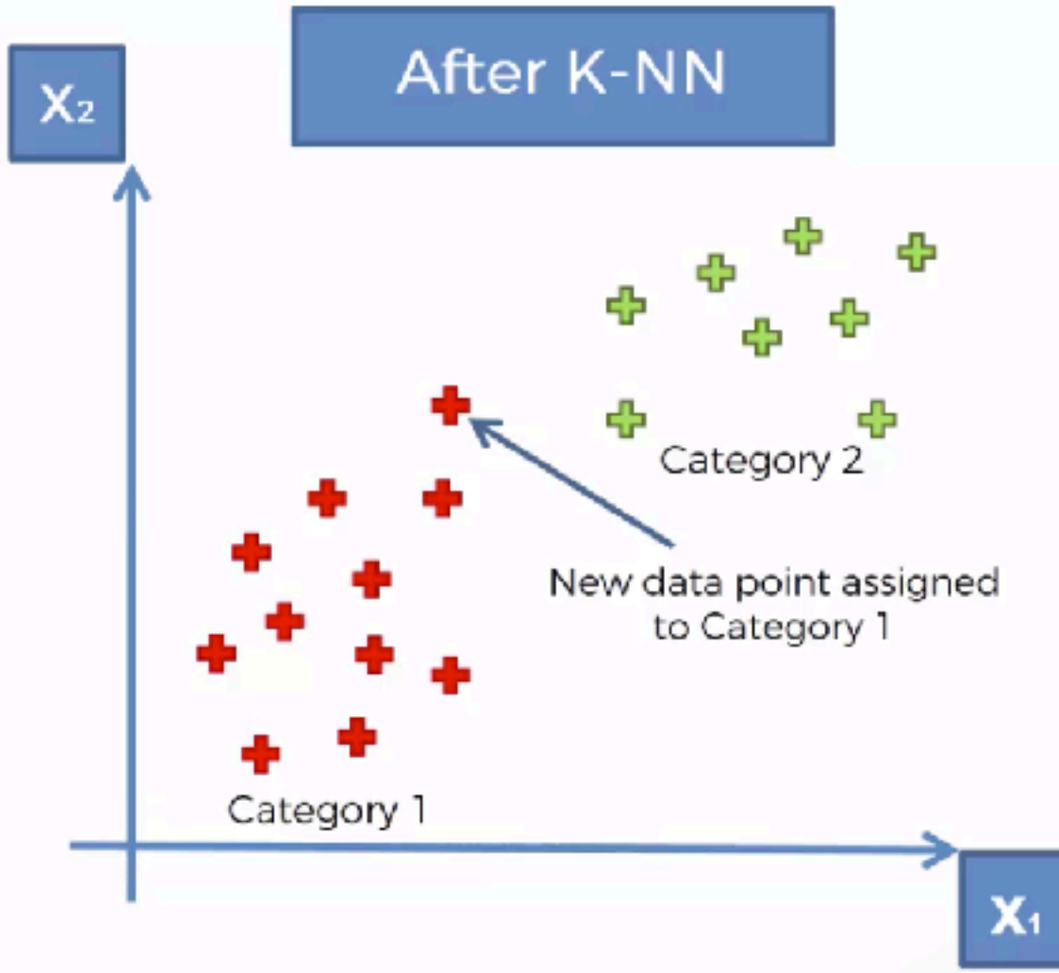
# What K-NN does for you



# What K-NN does for you







# How did it do that ?

STEP 1: Choose the number K of neighbors

# How did it do that ?

STEP 1: Choose the number K of neighbors

STEP 2: Take the K nearest neighbors of the new data point, according to the Euclidean distance

# How did it do that ?

STEP 1: Choose the number K of neighbors

STEP 2: Take the K nearest neighbors of the new data point, according to the Euclidean distance

STEP 3: Among these K neighbors, count the number of data points in each category

# How did it do that ?

STEP 1: Choose the number K of neighbors

STEP 2: Take the K nearest neighbors of the new data point, according to the Euclidean distance

STEP 3: Among these K neighbors, count the number of data points in each category

STEP 4: Assign the new data point to the category where you counted the most neighbors

# How did it do that ?

STEP 1: Choose the number K of neighbors

STEP 2: Take the K nearest neighbors of the new data point, according to the Euclidean distance

STEP 3: Among these K neighbors, count the number of data points in each category

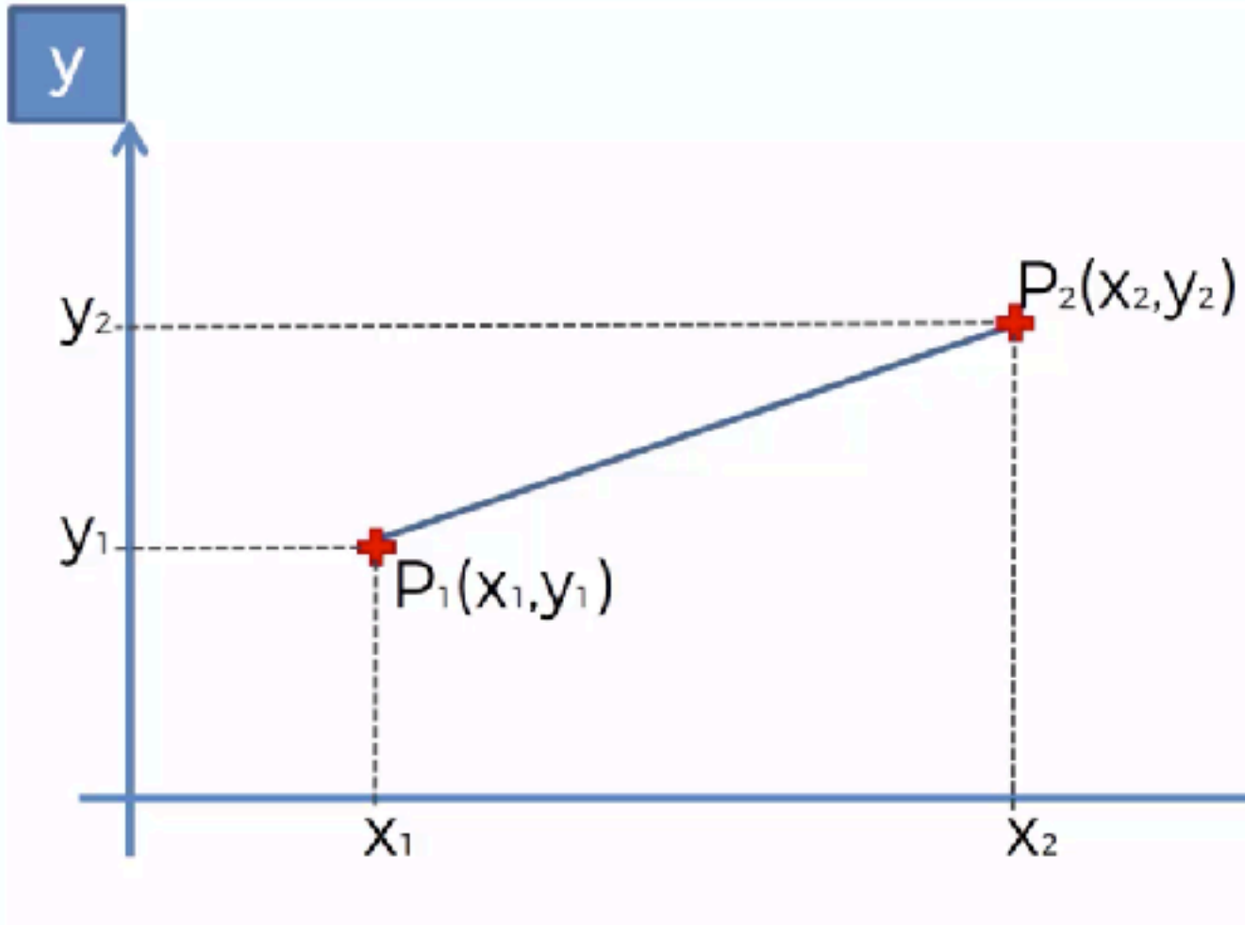
STEP 4: Assign the new data point to the category where you counted the most neighbors

Your Model is Ready

# K-NN algorithm

STEP 1: Choose the number K of neighbors: K = 5

# Euclidean Distance




Euclidean Distance between $P_1$ and $P_2 = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

# K-NN algorithm

STEP 2: Take the K = 5 nearest neighbors of the new data point, according to the Euclidean distance

# K-NN algorithm

STEP 3: Among these K neighbors, count the number of data points in each category


Category 1: 3 neighbors

Category 2: 2 neighbors

# K-NN algorithm

STEP 4: Assign the new data point to the category where you counted the most neighbors


Category 1: 3 neighbors

Category 2: 2 neighbors

# K-NN algorithm

STEP 4: Assign the new data point to the category where you counted the most neighbors