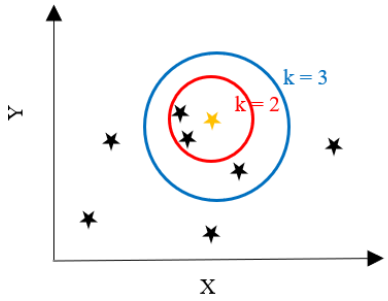
k-Nearest-Neighbours

The algorithm works by finding the nearest points (neighbors) next to our desired point including noise in the prediction. The number of neighbours, k, is a hyperparameter and the predictions are based on it. The following diagram demonstrates the fundamental idea behind knn, where the yellow star represents the desired point:



The algorithm finds the closest neighbors by calculating the distances from a desired point to every single data point and then chooses the specified k nearest points. A commonly used distance is the Euclidean distance. Lastly, knn averages the respective property values to give an answer.

$$Euclidean\ distance: \sqrt{\sum_{i=1}^{n}(x_i - y_i)^2}$$