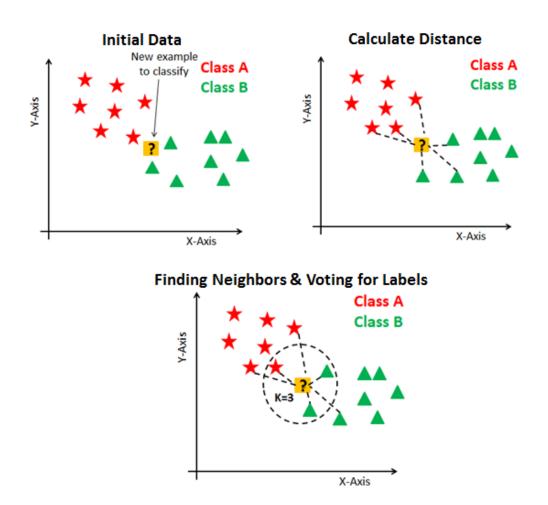
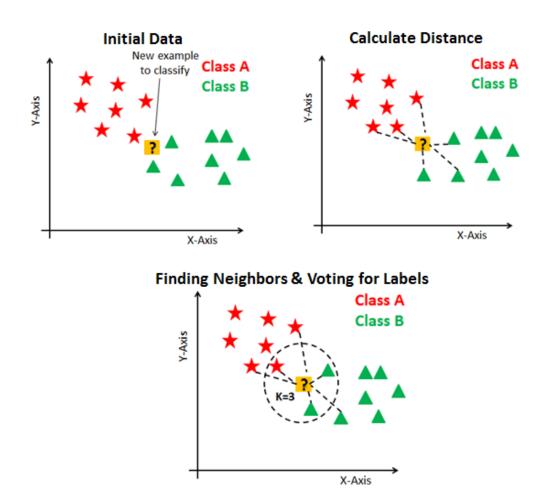
# k-Nearest Neighbors (k-NN)

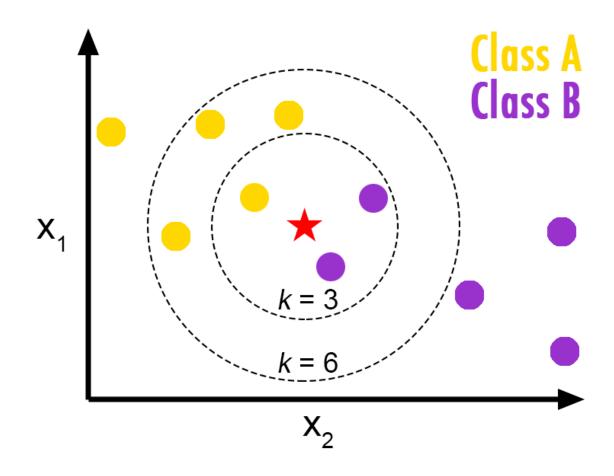
# Algorithm



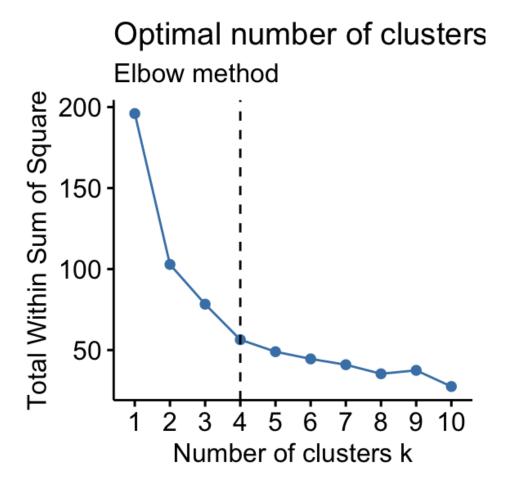
## Lazy-learner vs Eager-leaner



# Effects of choosing diferente k values



#### Elbow method



#### Distance Functions

#### Distance functions

Euclidean

$$\sqrt{\sum_{i=1}^{k} (x_i - y_i)^2}$$

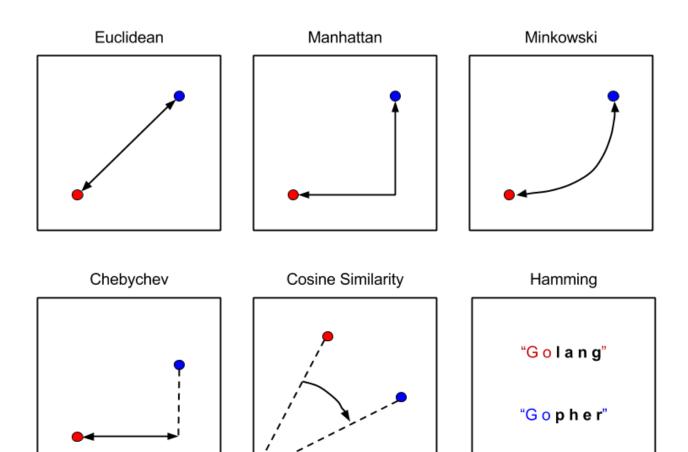
Manhattan

$$\sum_{i=1}^{k} \left| x_i - y_i \right|$$

Minkowski

$$\left(\sum_{i=1}^{k} \left(\left|x_{i}-y_{i}\right|\right)^{q}\right)^{1/q}$$

https://www.saedsayad.com/k nearest neighbors.htm



https://subscription.packtpub.com/book/big data and business intelligence/9781785882104/6/ch06lvl1sec40/measuring-distance-or-similarity

### Extra

- Choose an odd *k*
- Online learning vs batch learning