

Classification of points in a euclidean space

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The problem

A simple example

We have the following dataset in a $2d$ space :

$$X = \{(1, 3), (1, 8), (2, 2), (2, 10), (3, 6), (4, 1), (5, 4), (6, 8), \\ (7, 4), (7, 7), (8, 2), (8, 5), (9, 9)\}$$

$$Y = \{Blue, Blue, Blue, Blue, Blue, Blue, Red, Red, Red, Red, \\ Red, Red, Red\}$$

We want to classify the following point : $(4, 8)$

What is being used today?

Knn

Knn

How do we partition the space?

Include gif of partitioning here

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how do we find the k nearest neighbours?