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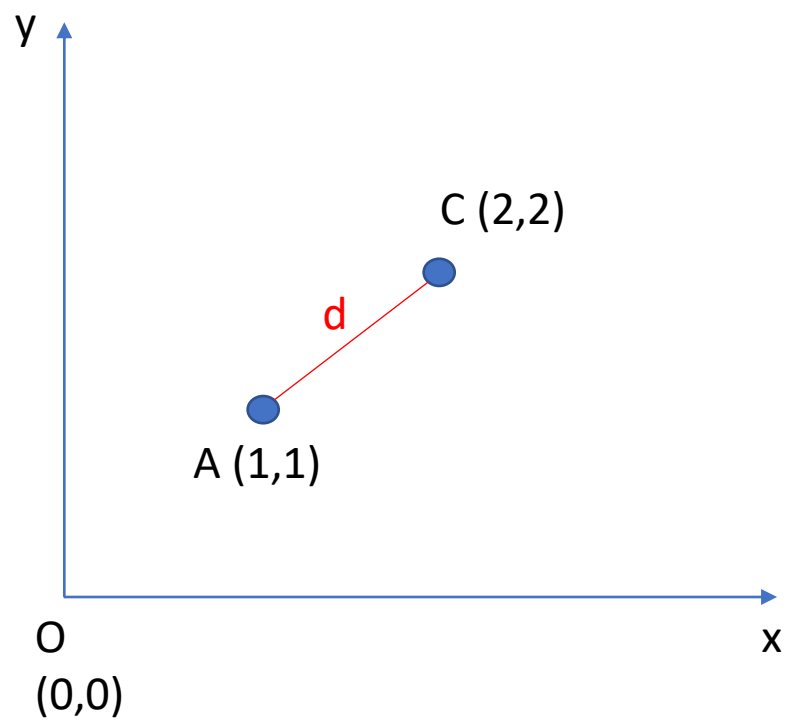
Calculating Euclidean & Manhattan Distance in Python

Euclidean Distance



Euclidean Distance formula:

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

(x_1, y_1) = A (1,1)

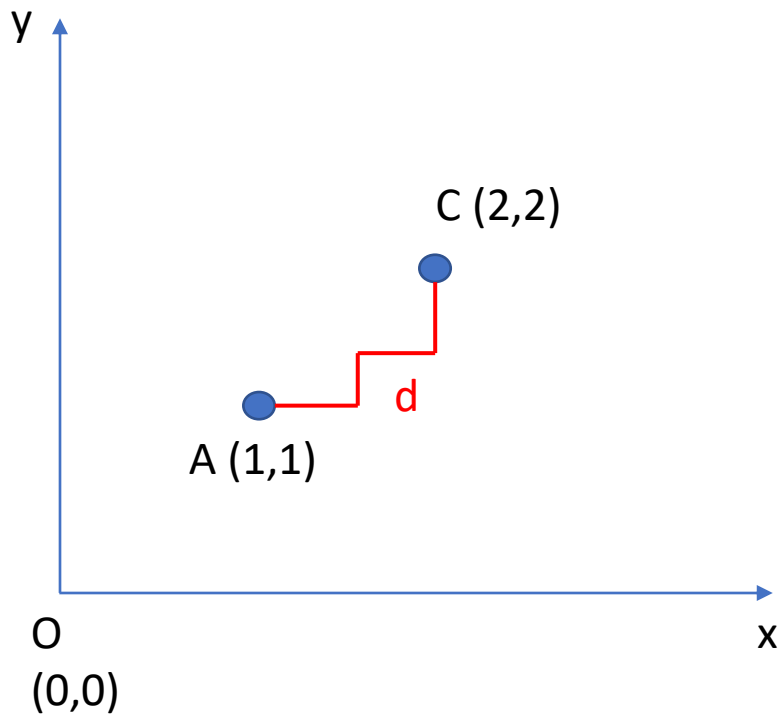
(x_2, y_2) = B (2,2)

$$d = \sqrt{(2 - 1)^2 + (2 - 1)^2}$$

$$d = \sqrt{1 + 1}$$

$$d = \sqrt{2}$$

Manhattan Distance



Manhattan Distance formula:

$$d = |x_1 - x_2| + |y_1 - y_2|$$

(x_1, y_1) = A (1,1)

(x_2, y_2) = B (2,2)

$$d = |1 - 2| + |1 - 2|$$

$$d = 1 + 1$$

$$d = 2$$

Manhattan distance is preferred over Euclidean distance when there is **high dimensionality** in the data.