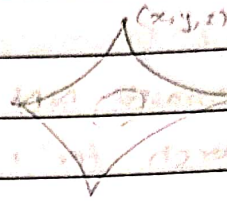


M311

KNN → Distance metrics

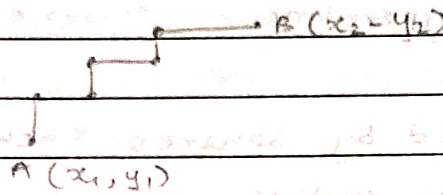
1. Euclidean distance

$$d(x, x') = \sqrt{\sum_{i=1}^D (x_i - x'_i)^2}$$



2. Manhattan Distance

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



3. Minkowski Distance

$$d(x, x') = \left(\sum_{i=1}^D (x_i - x'_i)^p \right)^{1/p}$$

4. Hamming Distance

Str 1 =

Str 2 =

} of same length

5. Chebyshev Distance

$$d_{\text{chebyshev}}(x, y) = \max(|x_i - y_i|)$$

$$x-1 = \text{np.array}(c1, 2)$$

$$x-2 = \text{np.array}(c3, 4)$$

$$|x_i| \rightarrow 2$$

$$|y_i| \rightarrow 4$$

6. Jaccard Distance

intersection

$$2) JI = \frac{1}{2} = 0.5$$

$$3) JI = \frac{1}{3} = 0.33$$

$$\text{Jaccard Distance} = 1 - \text{Jacc Index} \quad JD = 1 - JI = 0.6$$