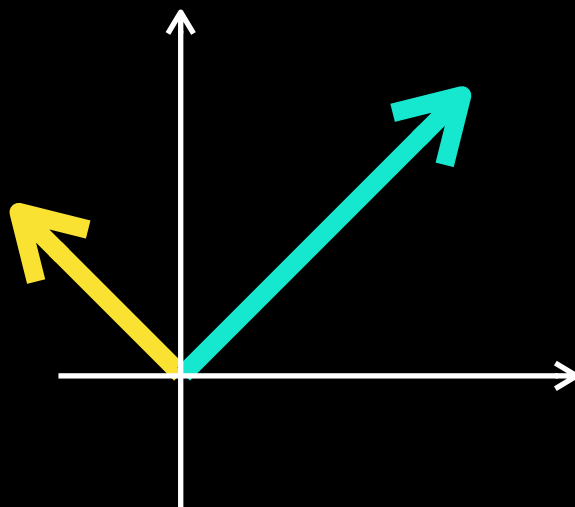
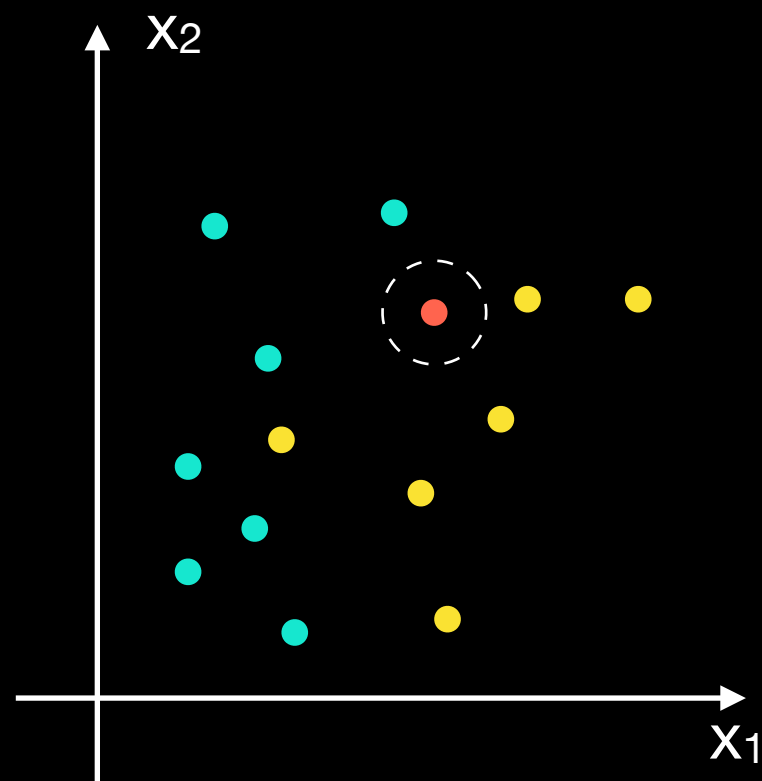


k-nearest neighbors

Linear Algebra Essentials



k-NN classification



● class 1

● class 2

● $x - ?$

$k = 3$

$x \in \text{class 2}$

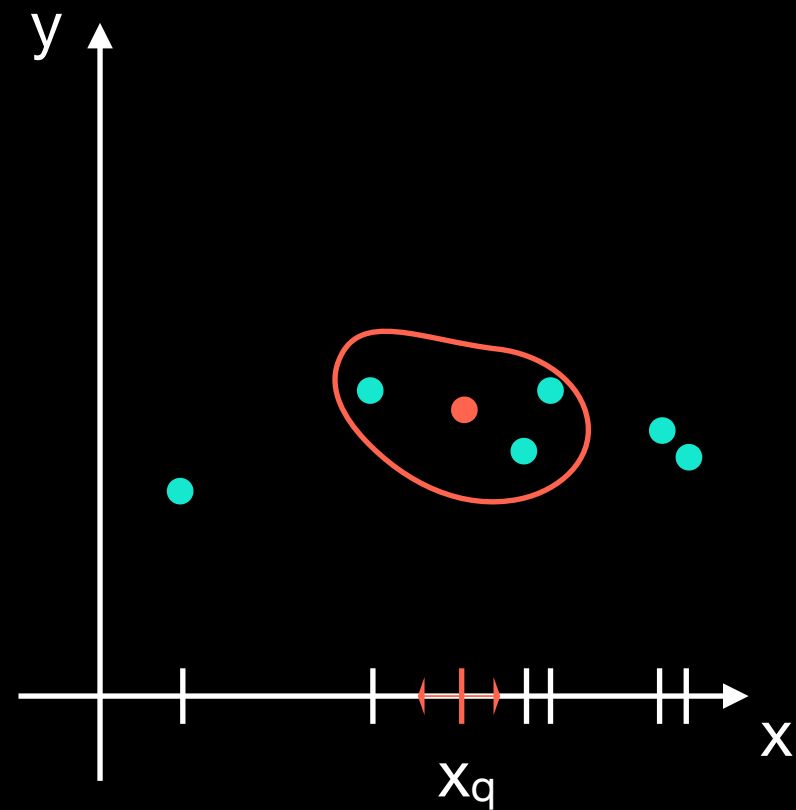
k-NN regression

Data = $\{ (\mathbf{x}_i, y_i), \dots \}$

$\mathbf{x}_{\text{query}}$ - ?

$k = 3$

$$y_q = \frac{1}{k} \sum_i^k y_i$$



Weighted k-NN

$$y_q = C \cdot \sum_i^k \alpha_i y_i$$

$$\alpha_i \sim \frac{1}{d_i}$$

$$C \cdot \sum_i^k \alpha_i = 1$$