linear Algebra

DS → GenAI

1D → 2D → 3D → 4D

2D → 3D

(vector)

Historical

Build

eg

2D

# of active loan, # of closed loan

cid	income	credit-score		status
	14	750	3	Yes
	15	780	5	Yes
	17	700	11	Yes
	7	350		NO
	5	300		NO
	3	320		NO

Analysis → Pandas + Numpy | stats

matplotlib → visual

seaborn

plotly

plot

vis

data an

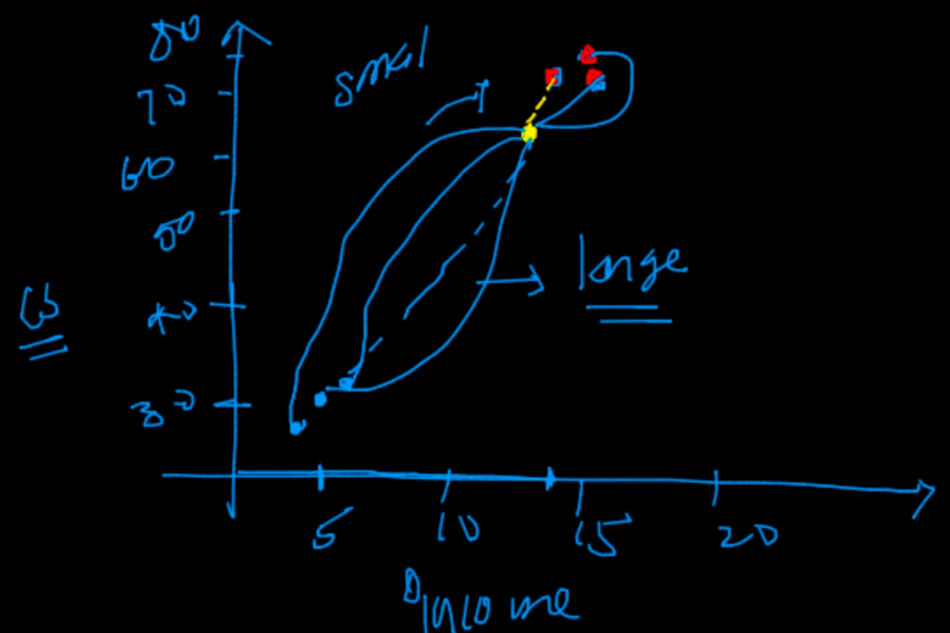
if else model → Yes | NO

[2.5, 350]

code → analysing → conclusion

if income > 10
& cs > 600
→ yes
else
→ NO

2D



E1

New Customer

⇓

yes / No

Cnew ⇒ [14,655]

↑

P Q

[(14,655) (14,755)]

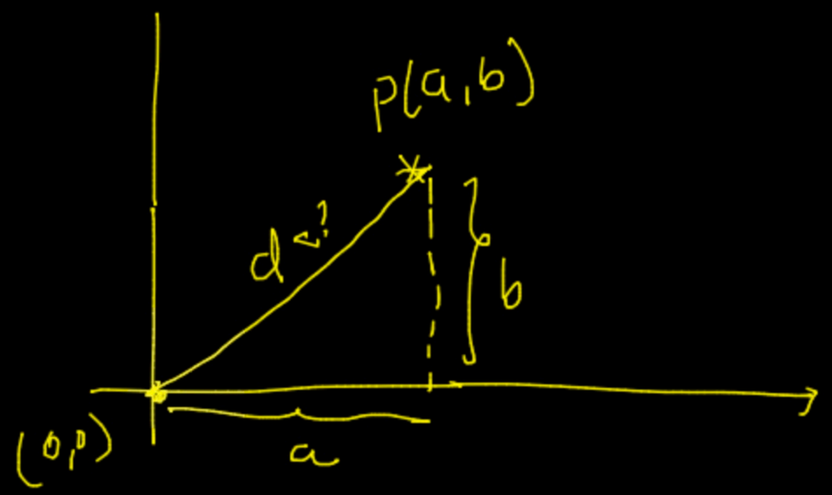
?? distance b/w 2 points

↑

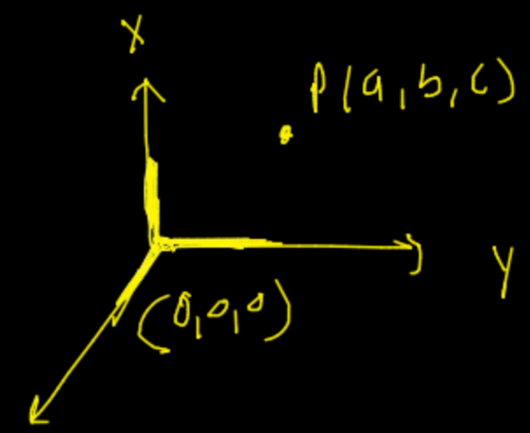
!! formula

⇒ start with → distance from a points to origin

'2D'



3D



$$d = \sqrt{a^2 + b^2} \quad \dashrightarrow \quad d = \sqrt{a^2 + b^2 + c^2}$$

$$\downarrow$$

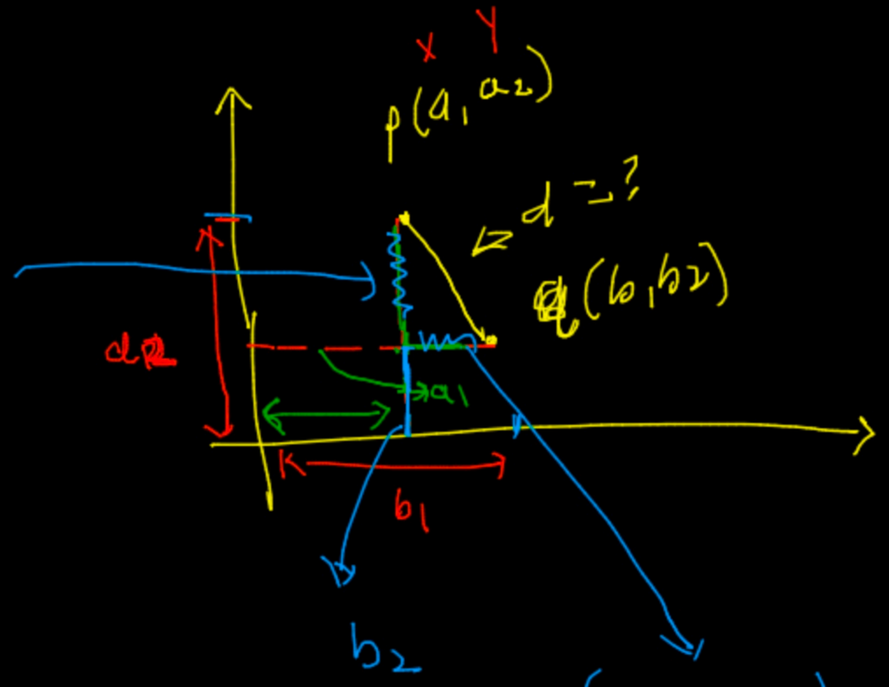
$$P(a_1 a_2 a_3 \dots a_n)$$

$$\downarrow$$

$$d = \sqrt{a_1^2 + a_2^2 + a_3^2 + \dots + a_n^2}$$

distance b/w 2 data points

2D



$(a_2 - b_2)$

$(b_1 - a_1)$

$$d = \sqrt{(a_1-b_1)^2 + (a_2-b_2)^2}$$

3D

$p(a_1, a_2, a_3)$

$q(b_1, b_2, b_3)$

$d =$

3D

$$d = \sqrt{(a_1-b_1)^2 + (a_2-b_2)^2 + (a_3-b_3)^2}$$

$d = \sqrt{\quad}$

$$p = (a_1 a_2 a_3 \; --- a_n)$$

$$q = (b_1 b_2 b_3 \; --- b_n)$$

$$d = \sqrt{(a_1 - b_1)^2 + (a_2 - b_2)^2 + \; --- + (a_n - b_n)^2}$$

$$d = \text{sqrt}\left(\sum_{i=1}^{n} (a_i - b_i)^2 \right) \rightarrow \text{Higher dim}$$

$P = (3, 5)$

$Q = (3, 6)$

$d = \sqrt{}$

$d(1,0) = \frac{1}{r}$

	income	credit score
C1		
C2		
C3		
C4		
C5		
C6		