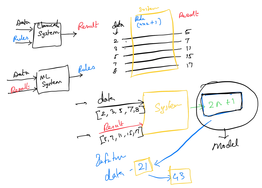
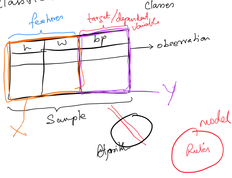


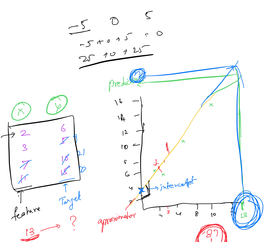
Regression → Result → continuous value

classification → Fixed set of classes



Supervised

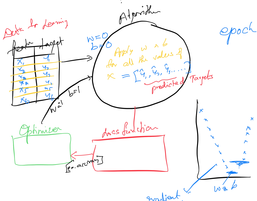
Unsupervised

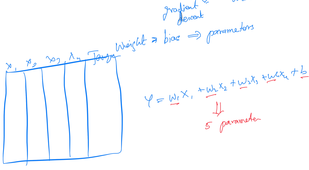


$y = 3x + 5$

$Y = w_1 x + b$

weight ? bias ?

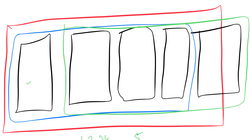




$Y = w_1 x_1 + w_2 x_2 + w_3 x_3 + w_4 x_4 + b$

⇓

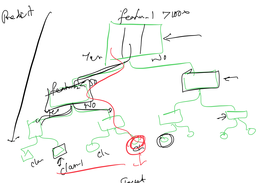
5 parameters



1, 2, 3, 4. 5

1, 2, 3, 5 - 4

1, 2, 4, 5 - 3



Height	Weight	Diabetic	Target
160	90	Yes	—
153	85	No	

One hot Encoding

$w_1 \times 160 + w_2 \times 90 + w_3 \times 1 + b = \hat{y}$

$w_1 \times 153 + w_2 \times 85 + w_3 \times 0 + b = \hat{y}_2$

Input	Weight	Diabetic	Non Diabetic	NP
160	90	1	0	
153	85	0	1	

Red	Green	Blue
1	0	0
0	1	0
0	0	1

Distance Based

. k = 3

a = C1 = 10

b = C2 = 12

d = -5

e = -3

f = C2

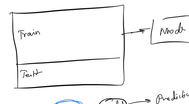
f

$60 \times 90 = 540000$

R - 0.255

G - 0.255

B - 0.255



k-means Cluster

Centroids

$\mu_x \quad \mu_y$ = new centroid

ReLU

$x \to f \to (0, x)$

$y = mx + b$

$y = m_1 x_1 + m_2 x_2 + m_3 x_3 + b$