Foundation

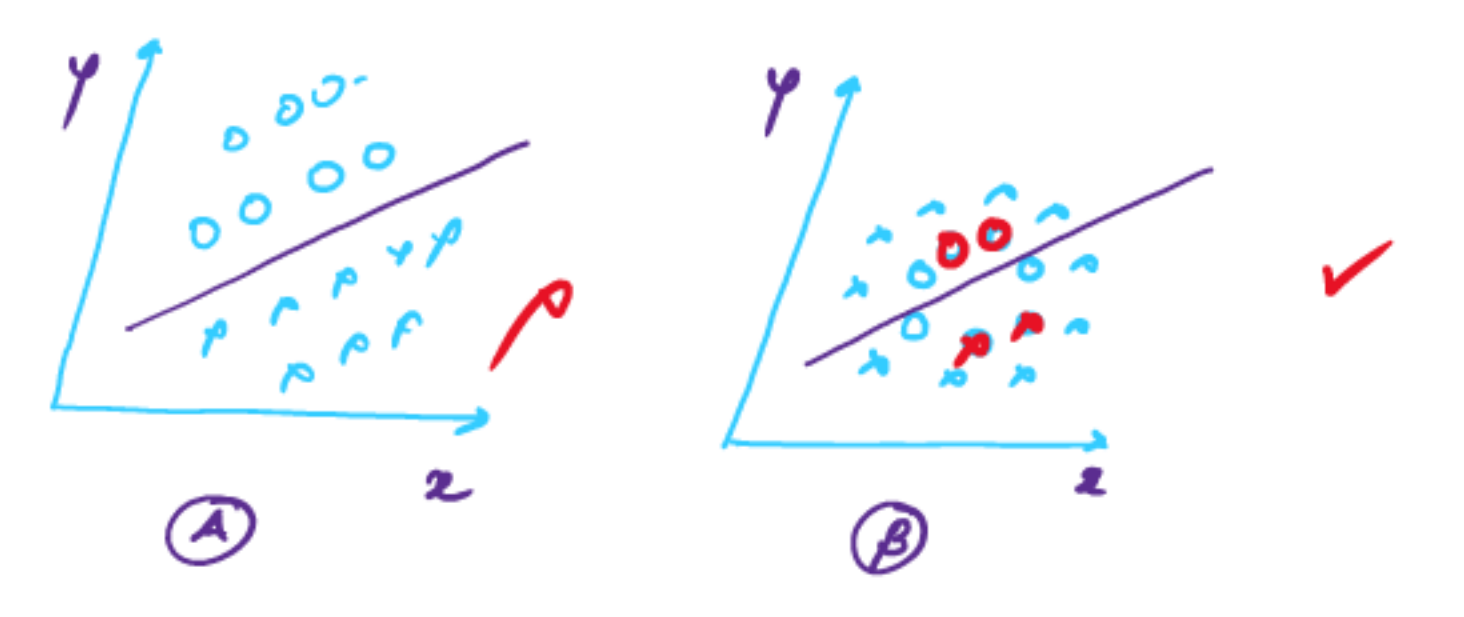
11 September 2023 07:07

Image data ⇒ vgg 16, 19
RESNET 50
Inception v3
MobileNET

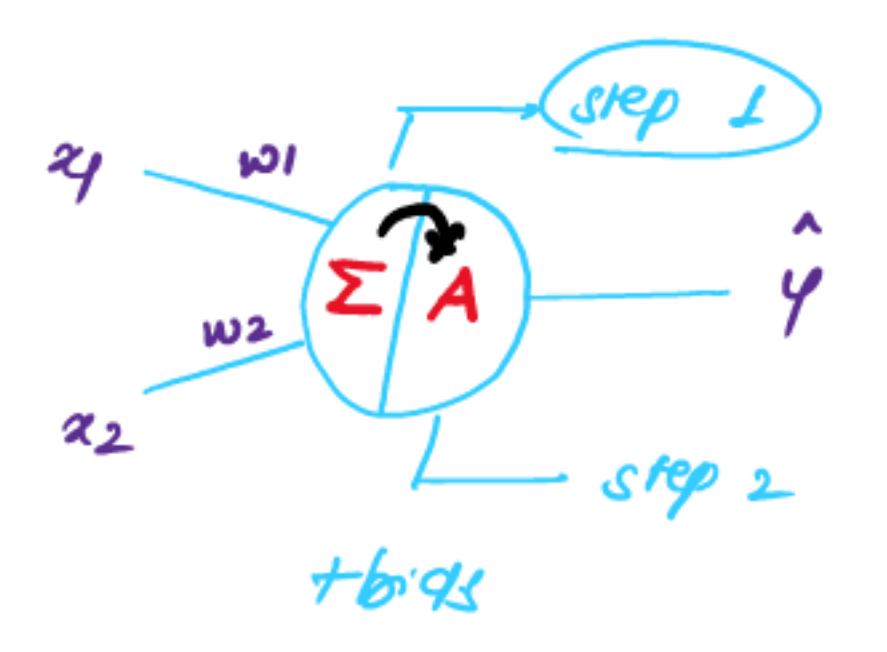
text Data ⇒ BERT

Object Detection ⇒ yolo.
↳ you only look once

History



Linearly separable Data.   non-linearly separable data.



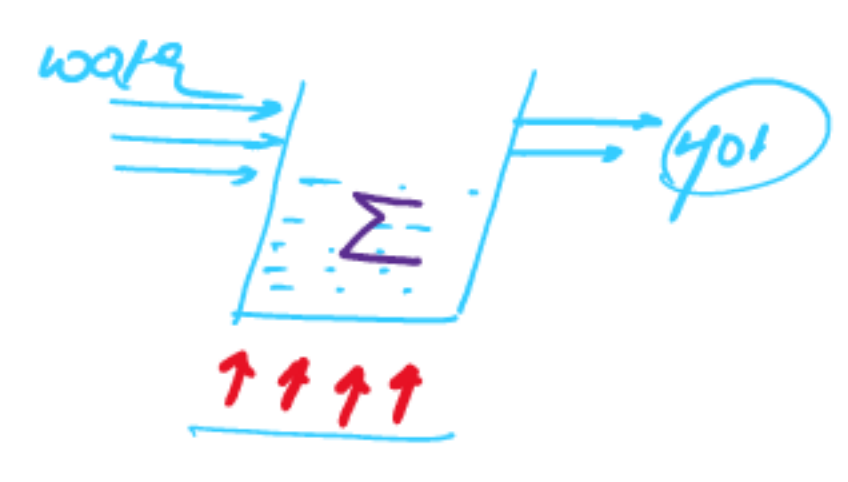
0.7 > 1

cell is body.

Input
$= x_1 w_1 + x_2 w_2 + bias$
$= mx + c$
= Result (10) ✓

[Σ] addition of features w.r.t. respect to weights.

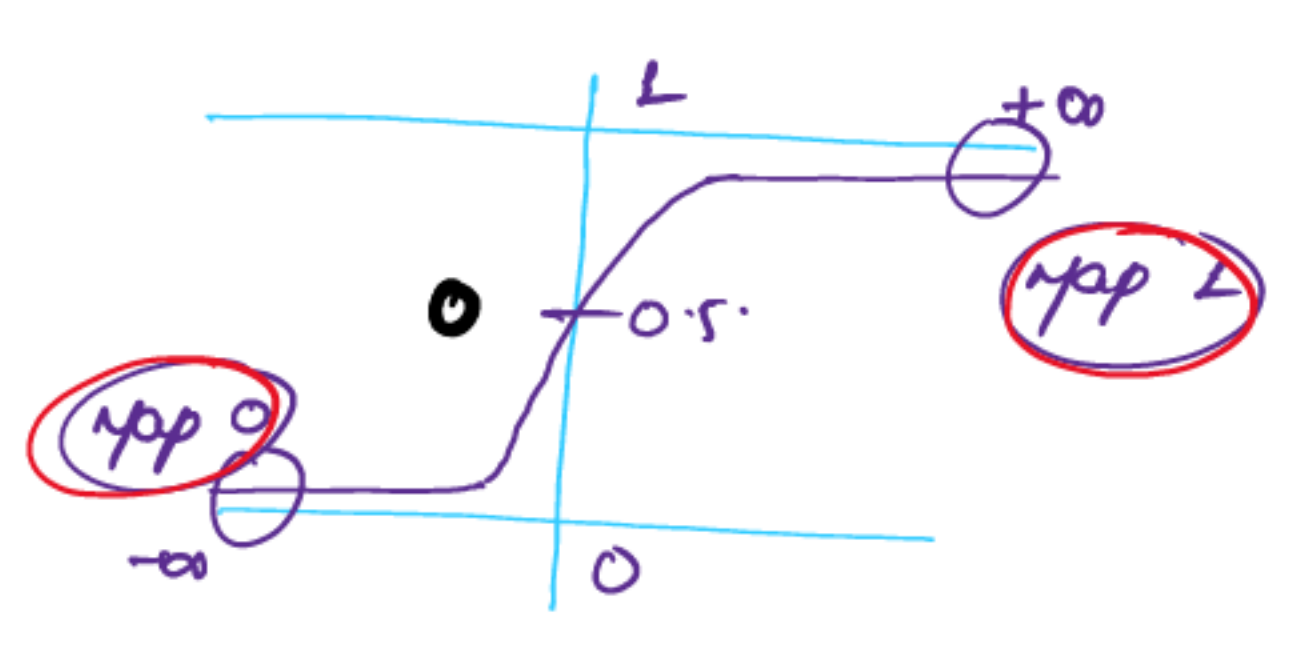
[A] Activation fn.
↳ sigmoid. $= \frac{1}{1+e^{-y}}$ ← input



$\frac{1}{1+e^{-y}}$ ← Result (10)

= 0 to 1

−∞ to ∞



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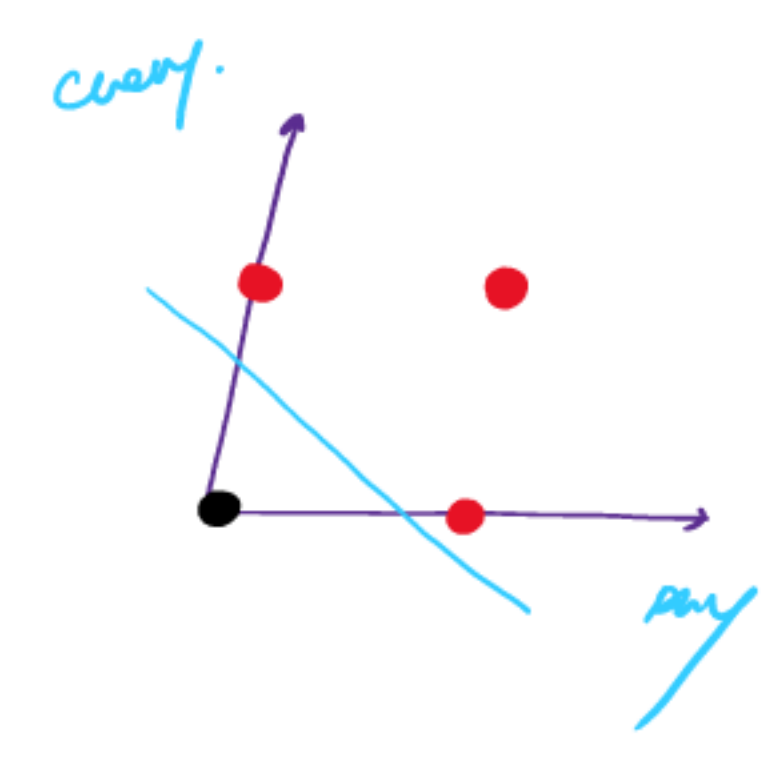
① Student [OR GATE]

phy	chem	yoal class	$x_1 w_1 + x_2 w_2 + bias$ Result	ŷ threshold >= 1
0	0	0 ✓	0×1+0×1+0 = 0	0 ✓
0	1	1 ✓	0×1+1×1+0 = 1	1 ✓
1	0	1 ✓	1×1+0×1+0 = 1	1 ✓
1	1	1 ✓	1×1+1×1+0 = 2	1 ✓

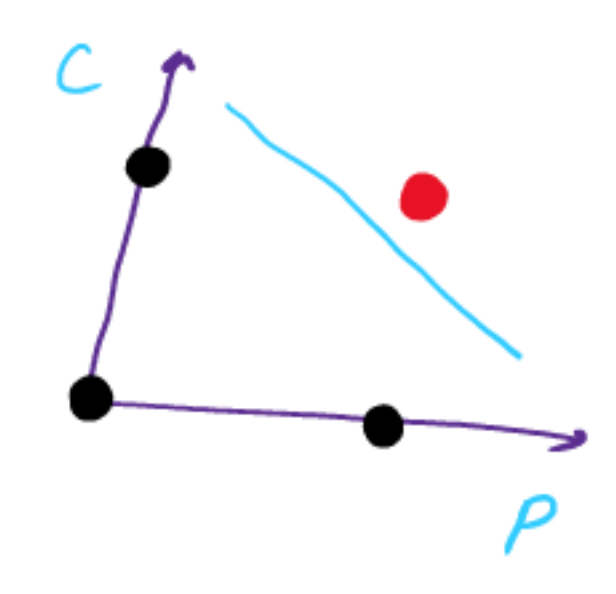
[BSF]   threshold.   bias = 0.
>10   w1 w2 = 1
0   1
>5
0   1

[4]



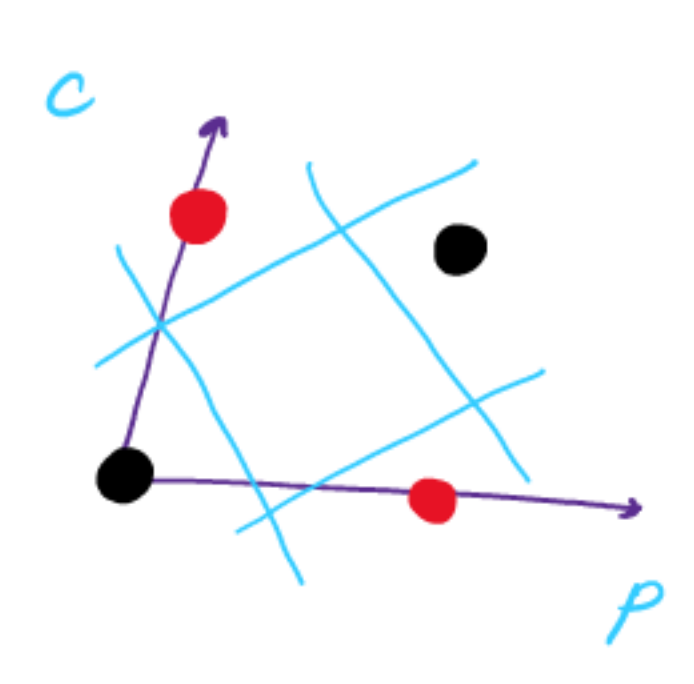
② Student [AND GATE]

phy	chem	class yoal	Result ŷ	>1 threshold
0	0	0 ✓	0	0 ✓
0	1	0 ✓	1	0 ✓
1	0	0 ✓	1	0 ✓
1	1	1 ✓	2	1 ✓



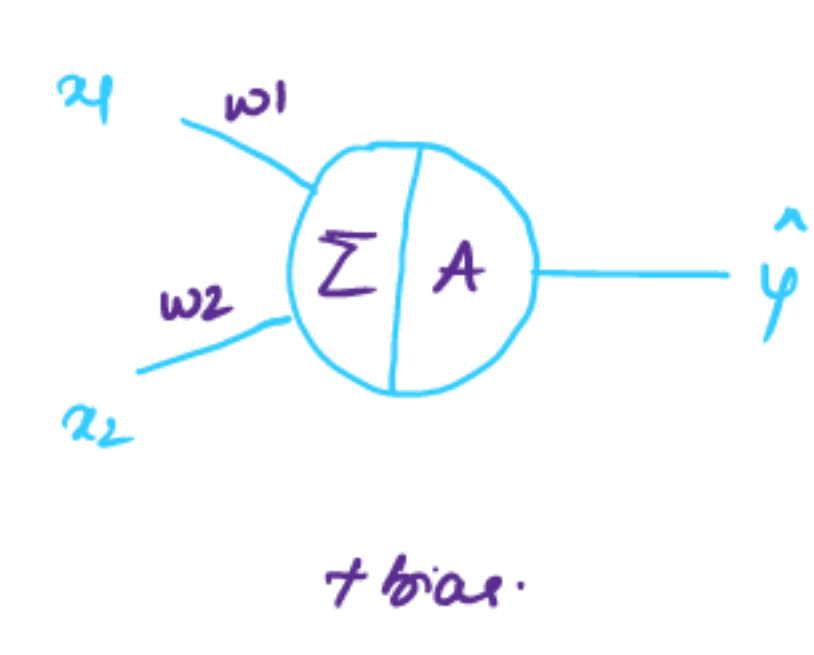
③ Student [XOR GATE]

phy	chem	class yoal	Result ŷ	threshold
0	0	0 ✓	0	.
0	1	1	1	
1	0	1	1	
1	1	0	2	



XOR non linearity of data.
OR AND linearity of data.

from this we can understand the neuron was able to classify linearly separable data but unable to classify non linearly separable data.

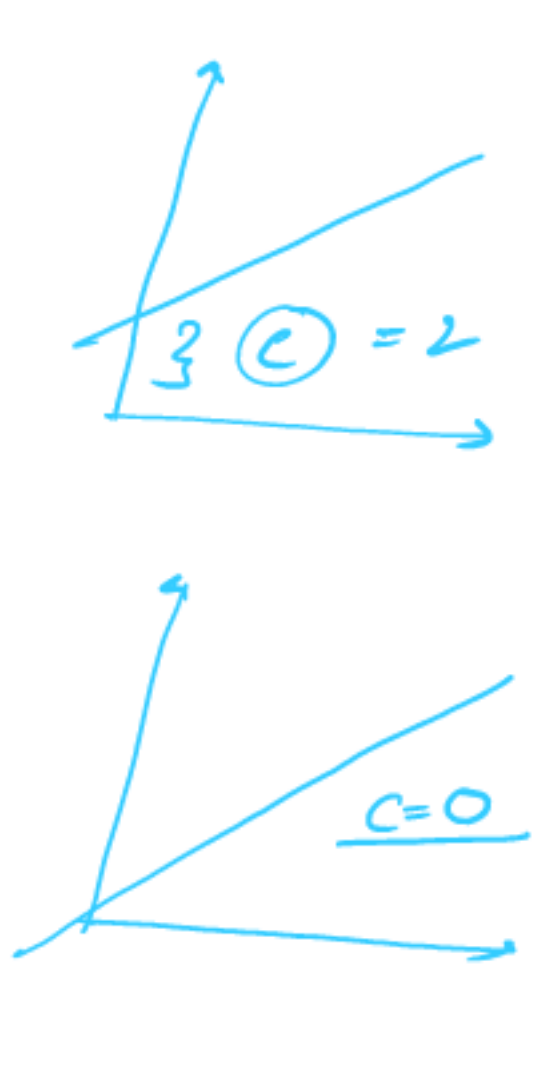


+bias.

$y = mx + c$

$y = mx + c$ (C)
100 = 15×5 + (5) ✓
100 = 75 + 5
100 = 80
Loss 20. ✓

0 1
$y = mx + c$
100 = 15×6 + (5) ✓
100 = 90 + 5
100 = 95.
5 Loss. ✓

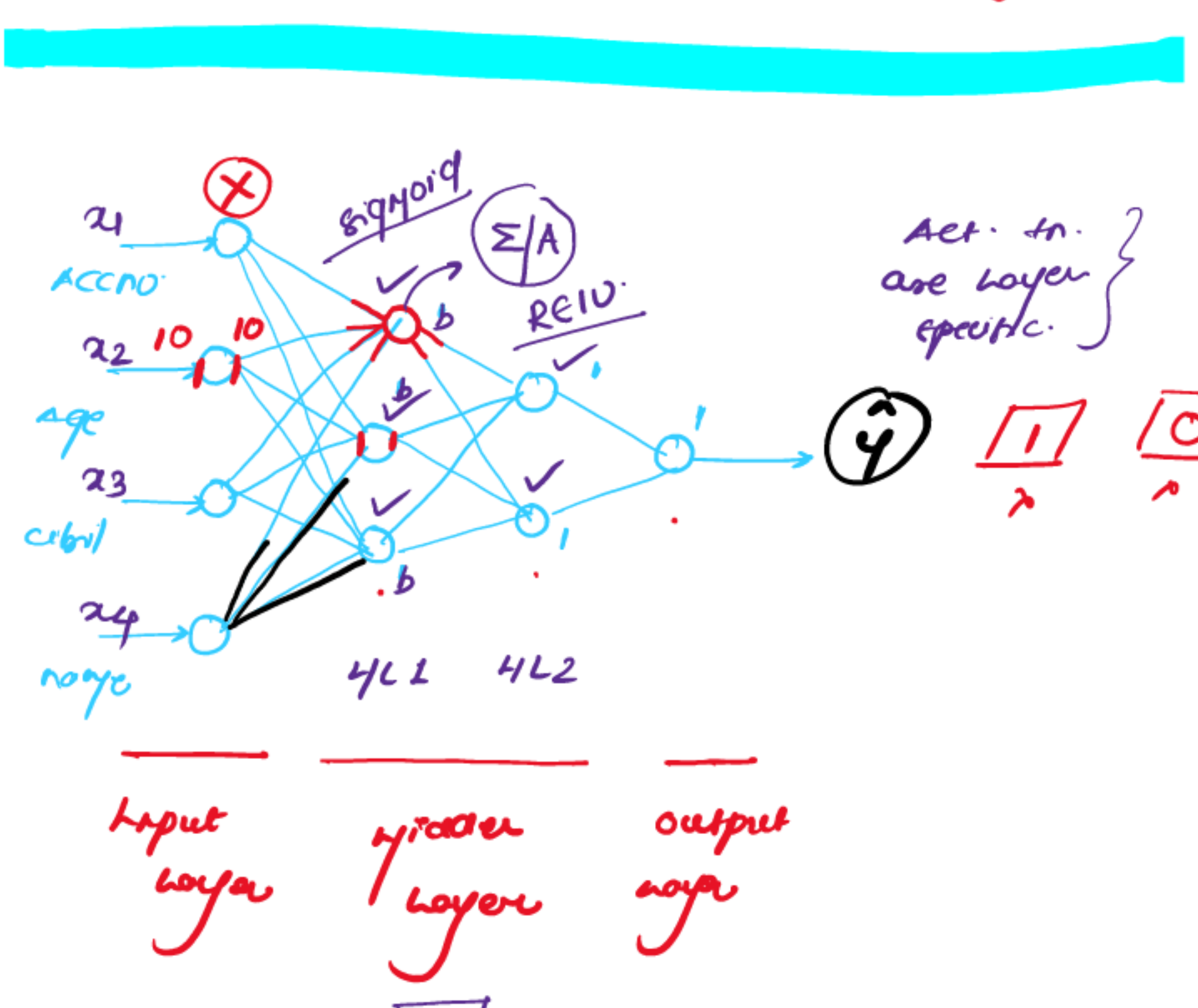


① all inputs are being multiplied with their respective weights.

② Summation of all values.

③ Apply activation fn.

weight (−∞ to ∞) shows importance of particular feature
↦ feature
↳ strength



Act. fn. are layer specific.

[Bias]
↳ adjusting factor.

Loss 20
Loss 5

(Momentum) $w_{new} = w_{old} - \alpha \frac{\partial L}{\partial w_{old}}$

(Intercept) $b_{new} = b_{old} - \alpha \frac{\partial L}{\partial b_{old}}$

(GD)
