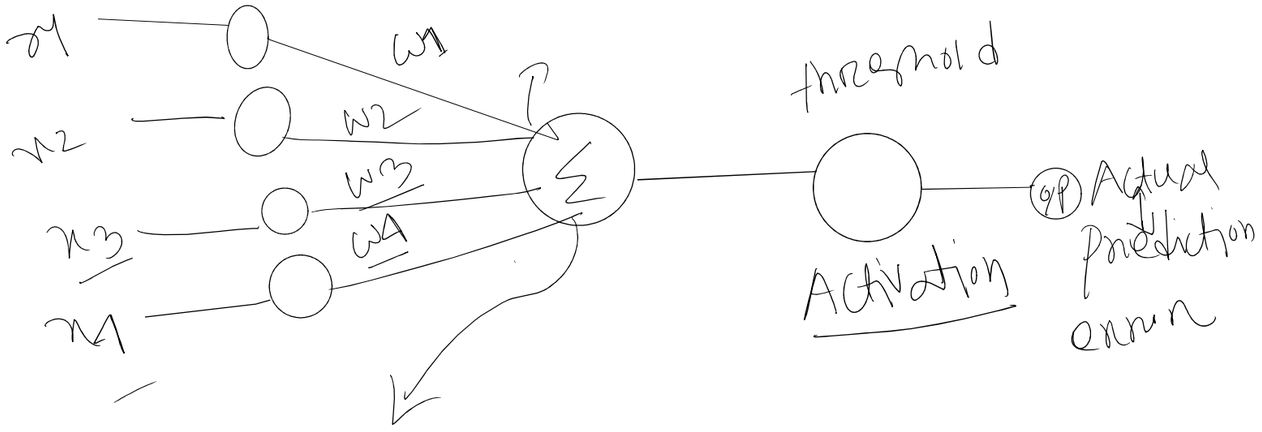
Solve and gate

Sunday, February 3, 2019 6:55 PM



$w_1x_1 + w_2x_2 + w_3x_3 + w_n * 1 + b$

$$\sum_{i=1}^{4} w_i x_i + b$$

weight update: $w_{new} = w_{old} + \eta(y - \hat{y})x_i$

Logical gate: AND, OR, XOR,

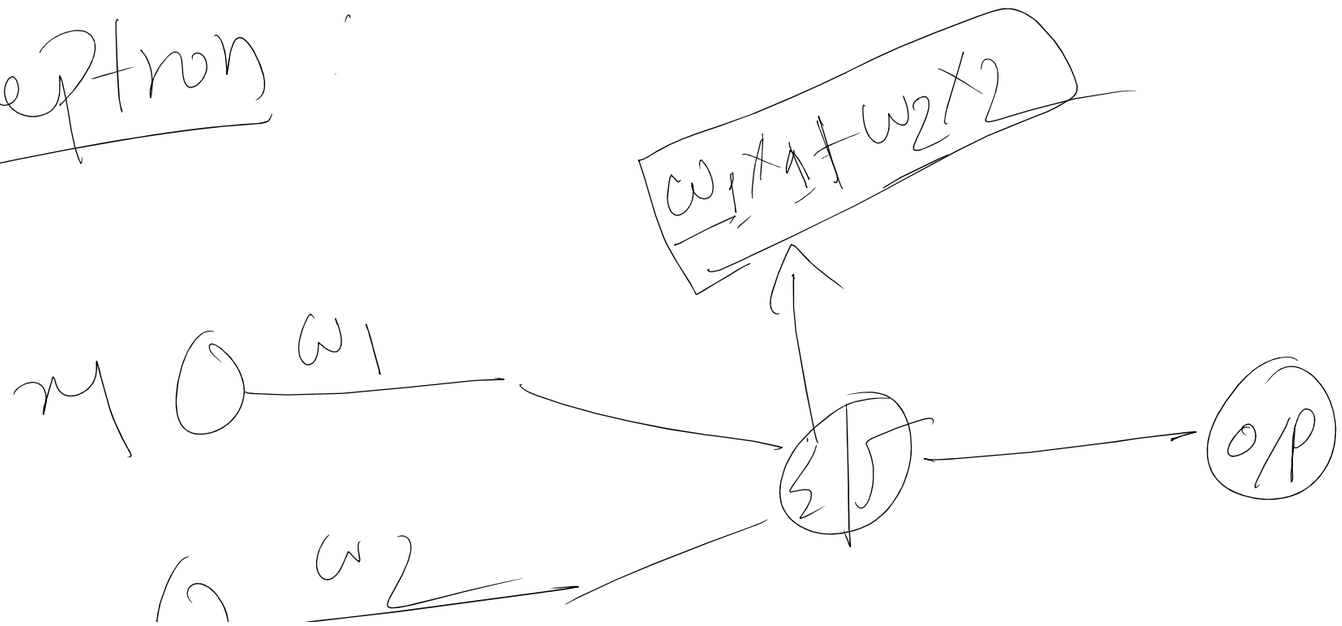
AND

AND

0, 1

	x_1	x_2	y
Case 1	0	0	0
Case 2	0	1	0
Case 3	1	0	0
Case 4	1	1	1

Perceptron



$\Rightarrow \quad w_1 = 1.2 \qquad w_2 = 0.6$

$\eta = 0.5$, threshold $= 1$

Case : 01 : $x_1 = 0 \quad x_2 = 0 \quad y = 0$

$w_1 x_1 + w_2 x_2 \mid \hat{y} = 0$ error $= 0$

Case : 02 : $x_1 = 0 \quad x_2 = 1 \; , \; y = 0 \; , \; \hat{y} = 0$

Case: 2

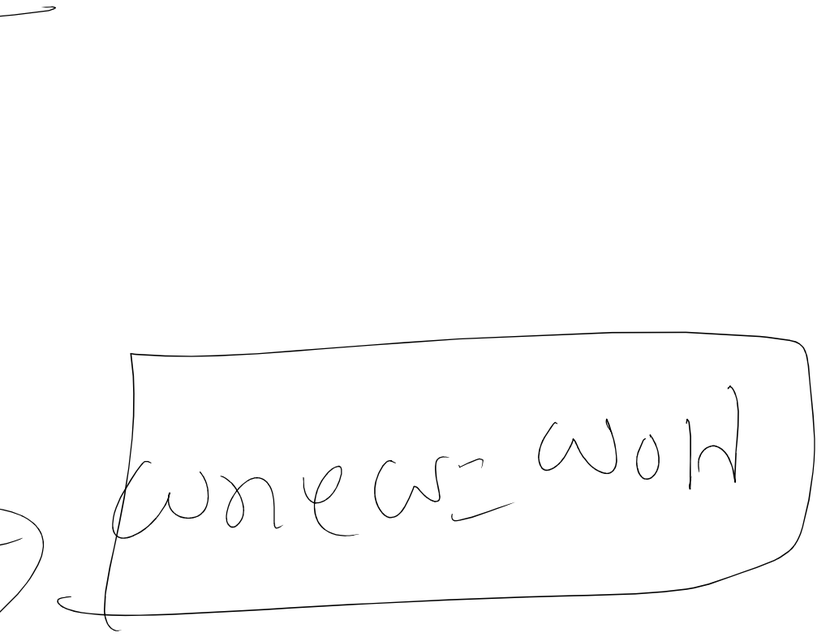
$\rightarrow w_1 x_1 + w_2 x_2 \rightarrow 0.6 \times 1 = 0.6$

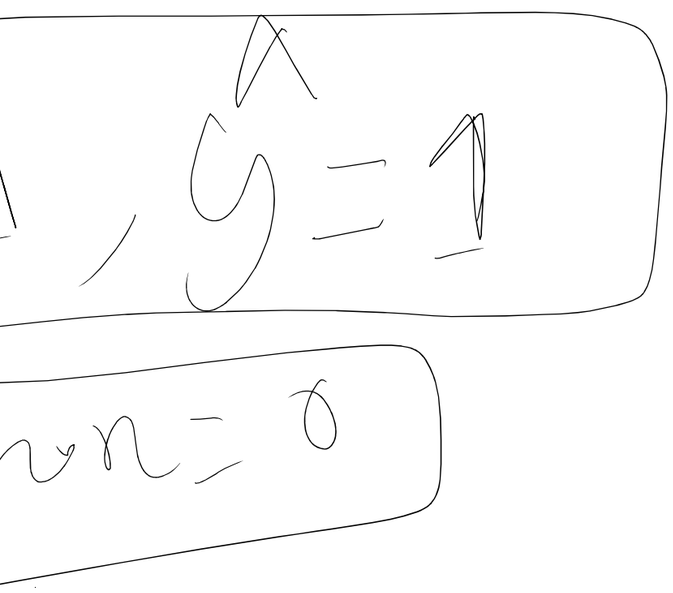
$\rightarrow w_{new} = w_{old} + \eta (y - \hat{y}) x_i$

Case: 04

$x_1 = 1, \; x_2 = 1, \; y = 1$

↳ ex





$\Rightarrow \omega_1 x_1 + \omega_2 x_2 \rightarrow$

$\Rightarrow 1.2 \times 1 + 0.6 \times 1$

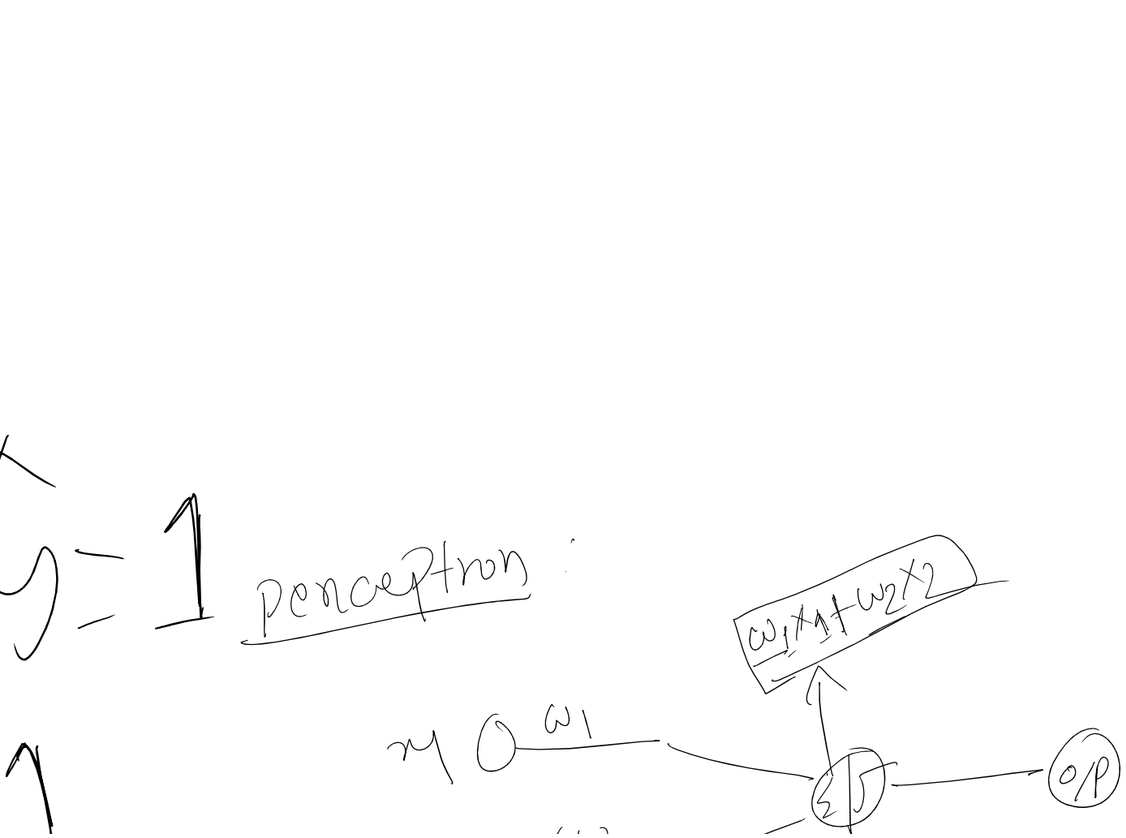
$= 1.8 > 1$

$x_1 = 1, x_2 = 0, y = 0$

$w_1 = 1.2$ $w_2 = 0.6$

$\eta = 0.5$, threshold $= 1$

$y = 1$ perceptron

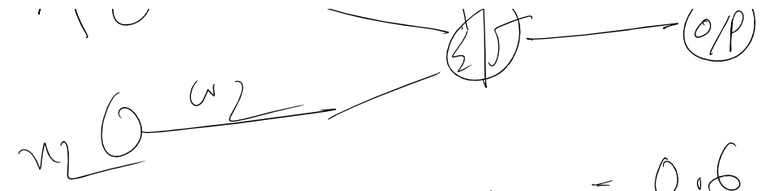


error $= 0 - 1 = -$

$$\Rightarrow \underline{w_1 x_1} + \underline{w_2 \cancel{x_2}}$$

$$\Rightarrow \underline{1.2} \times \underline{1}$$

$$\Rightarrow \underline{1.2} > 1 \rightarrow \hat{y} = 1$$



$\Rightarrow$ $w_1 = 1.2$ $w_2 = 0.6$

$\eta = 0.5$, threshold $= 1$

weight updation

$$w_{new} = w_{old} + \eta(y - \hat{y})x$$

$$w_{new} = w_{old} + \eta x$$

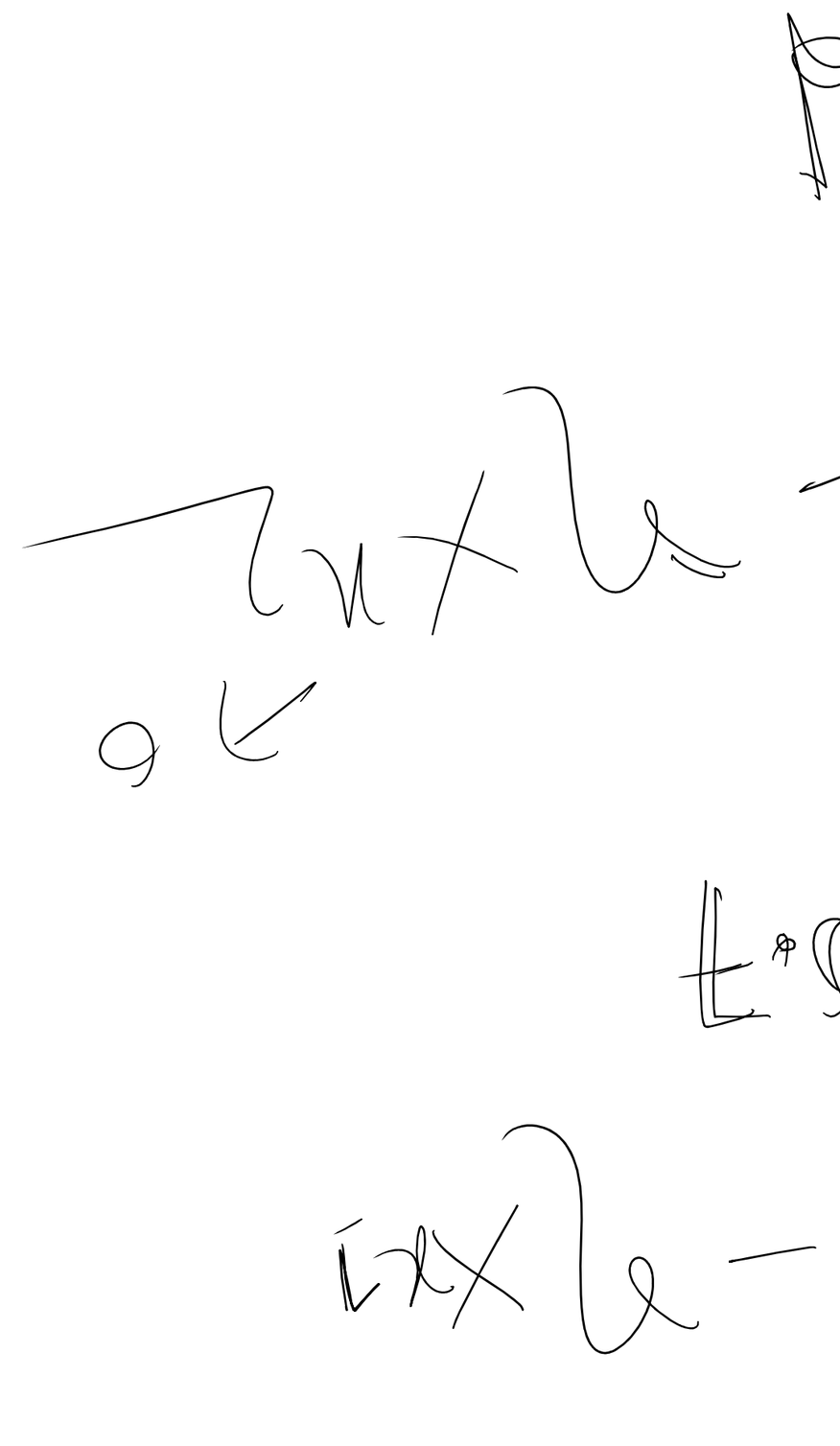
$$(-1) \rightarrow \boxed{w_{new} = w_{old}}$$

w_1 // $w_{1new} = w_{1old}$

$w_{1new} = 1.2 - 0.5 = 0$

w_2 // $w_{2new} = w_{2old}$

$w_{2new} = w_{2old}$



$$\bar{x} = \frac{\sum x_i}{n}$$

$$+ \bar{x} = \frac{\sum x_i}{n}$$

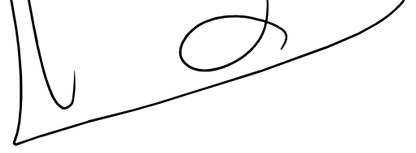
$$\text{Eg} = \frac{\sum x_i}{\text{new value}}$$

$w_2 new = 0.6$

$w_2 new \times x_2$

$\Rightarrow 07$

2nd:

$\bar{y} =$

$\boxed{\text{error} =}$