$\eta = 0.1$

$\{w_1, w_2\} = [0.5, -0.5]$

$X = [1, 2]$

$b = 0.1$

$d = 0.8$

Activation function = Linear ($y = net$)

Q1) Update the wt till $O_i = d_i$

$z = g(x) \Rightarrow f'(g(x))$

$z = f'(z) \Rightarrow y = O_i$

$g(x) = \sum_{i=1}^{n} x_i w_i + b$

Iteration 1

$Q = -0.4$

$O_i = -0.4$

$O_i \neq d_i$

update weight

$\Delta w_1 = 0.12$

$\Delta w_2 = 0.24$

$\Delta b = 0.12$

update $w_1 = 0.62$

upated $w_2 = -0.26$

update $b = 0.22$

$b = \eta(t_i - o_i)$

Iteration 2

$g(x) = (1)(0.62) + (2) \times (-0.26) + 0.22$

$z_2 = 0.32$

$f'(z) = z$

$= z_2 = 0.32$

As $O_i \neq d_i$

update weight

$\Delta w_1 = 0.048$

$\Delta w_2 = 0.096$

$\Delta b = 0.048$

Updated $w_1 = 0.668$

Updated $w_2 = -0.164$

Updated $b = 0.268$

iteration 3

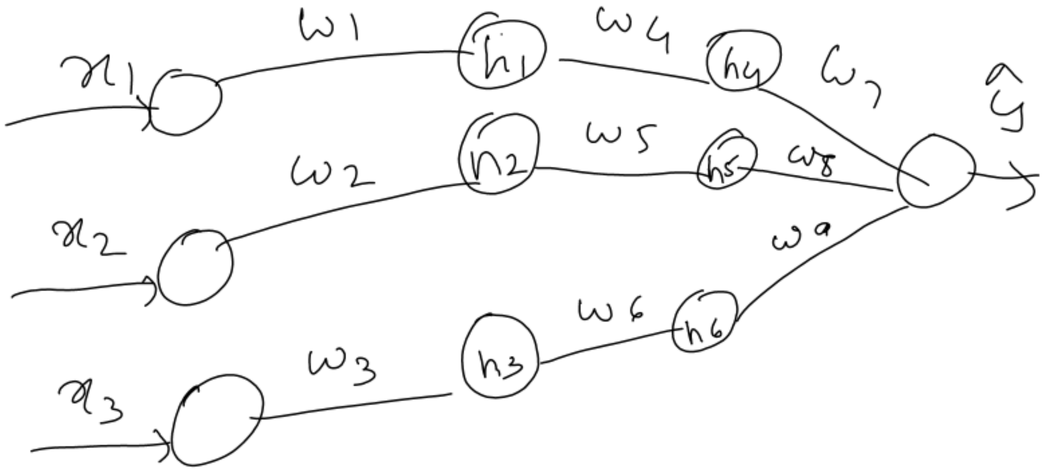
$z_3 = \sum_{i=1}^{n} x_i w_i + b$

$= 1 \times (0.668) + 2 \times (-0.164) + 0.268$

$z_3 = 0.608$

$d_i = 0.8$

$O_i \neq d_i$


x_1
x_2
x_3
w_1
w_2
w_3
h_1
h_2
h_3
w_4
w_5
w_6
h_4
h_5
h_6
w_7
w_8
w_9
$\hat{y}$

$W = [0.1 \quad 0.3 \quad -0.2]$

$X = [0.8, 0.6, 0.4]$

find the output of neuron by using activation function

(1) Sigmoid
(2) Relu
(3) Tanh
(4) Leaky Relu
(5) linear