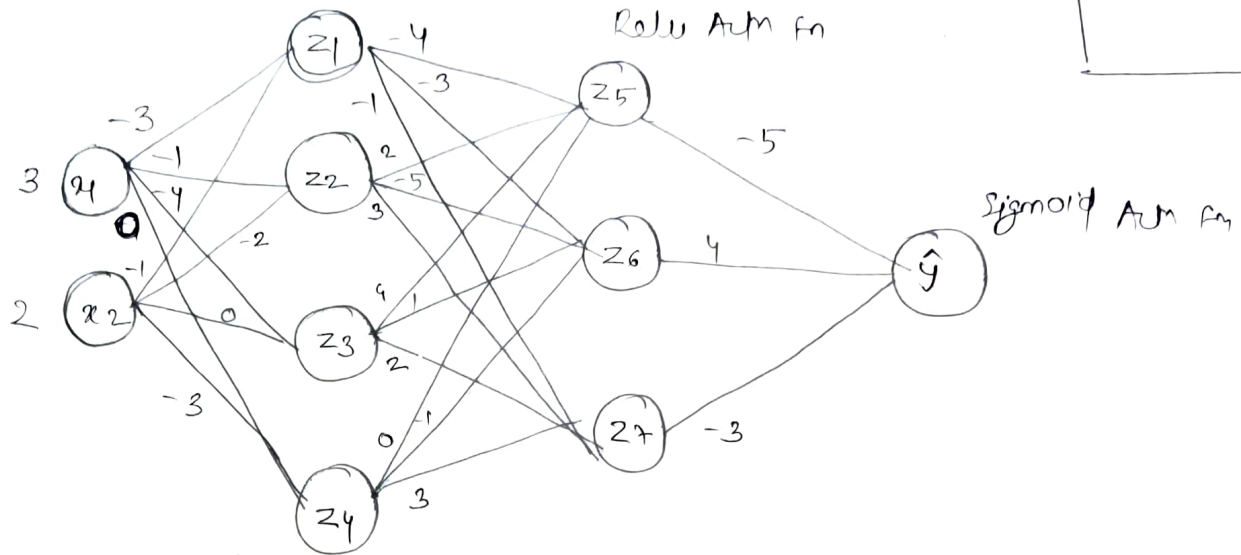


Relu Actn fn

$$w_0 = 3$$

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$$Z = w_0 + \sum_{i=0}^n w_i x_i, \text{ Relu} = \max(0, Z), \text{ Sigmoid} = \frac{1}{1 + e^{-Z}}$$

Iteration for hidden layer 1

$$\begin{aligned} Z_1 &= 3 + (3 \times -3) + (2 \times -1) \\ &= 3 + (-9) + (-2) \end{aligned}$$

$$Z_1 = -8$$

$$\begin{aligned} Z_2 &= 3 + (2 \times -2) + (3 \times -1) \\ &= 3 - 4 - 3 \end{aligned}$$

$$Z_2 = -4$$

$$\begin{aligned} Z_3 &= 3 + (3 \times -4) + (2 \times 0) \\ &= 3 - 12 \end{aligned}$$

$$Z_3 = -9$$

$$\begin{aligned} Z_4 &= 3 + (3 \times 0) + (2 \times -3) \\ &= 3 - 6 \end{aligned}$$

$$Z_4 = -3$$

Applying activation fn

$$Z_1 = \text{Relu}(0, -8) = \max(0, -8) = 0$$

$$Z_2 = \text{Relu}(0, -4) = \max(0, -4) = 0$$

$$Z_3 = \text{Relu}(0, -9) = \max(0, -9) = 0$$

$$Z_4 = \text{Relu}(0, -3) = \max(0, -3) = 0$$

Iterate for hidden layer 2

$$Z_5 = 3 + (0 \times -4) + (0 \times 2) + (0 \times 4) + (0 \times 0)$$

$$\boxed{Z_5 = 3}$$

$$Z_6 = 3 + (0 \times -3) + (0 \times -5) + (0 \times 1) + (0 \times -1)$$

$$\boxed{Z_6 = 3}$$

$$Z_7 = 3 \times (0 \times -1) + 1 \times (0 \times 3) + (0 \times 2) + (0 \times -3)$$

$$\boxed{Z_7 = 3}$$

Applying activation fn

$$Z_5 = \text{Relu}(0, 3) = \max(0, 3) = 3$$

$$Z_6 = \text{Relu}(0, 3) = \max(0, 3) = 3$$

$$Z_7 = \text{Relu}(0, 3) = \max(0, 3) = 3$$

Now

$$\begin{aligned}\hat{y} &= 3 + (3 \times -5) + (3 \times 4) + (3 \times -3) \\ &= 3 - 15 + 12 - 9 \\ &= -12 + 12 - 9\end{aligned}$$

$$\boxed{\hat{y} = -9}$$

Applying our fn

$$\hat{y} = \frac{1}{1 + e^{-(9)}} = \frac{1}{1 + e^9} = \underline{\underline{0.0001234}}$$