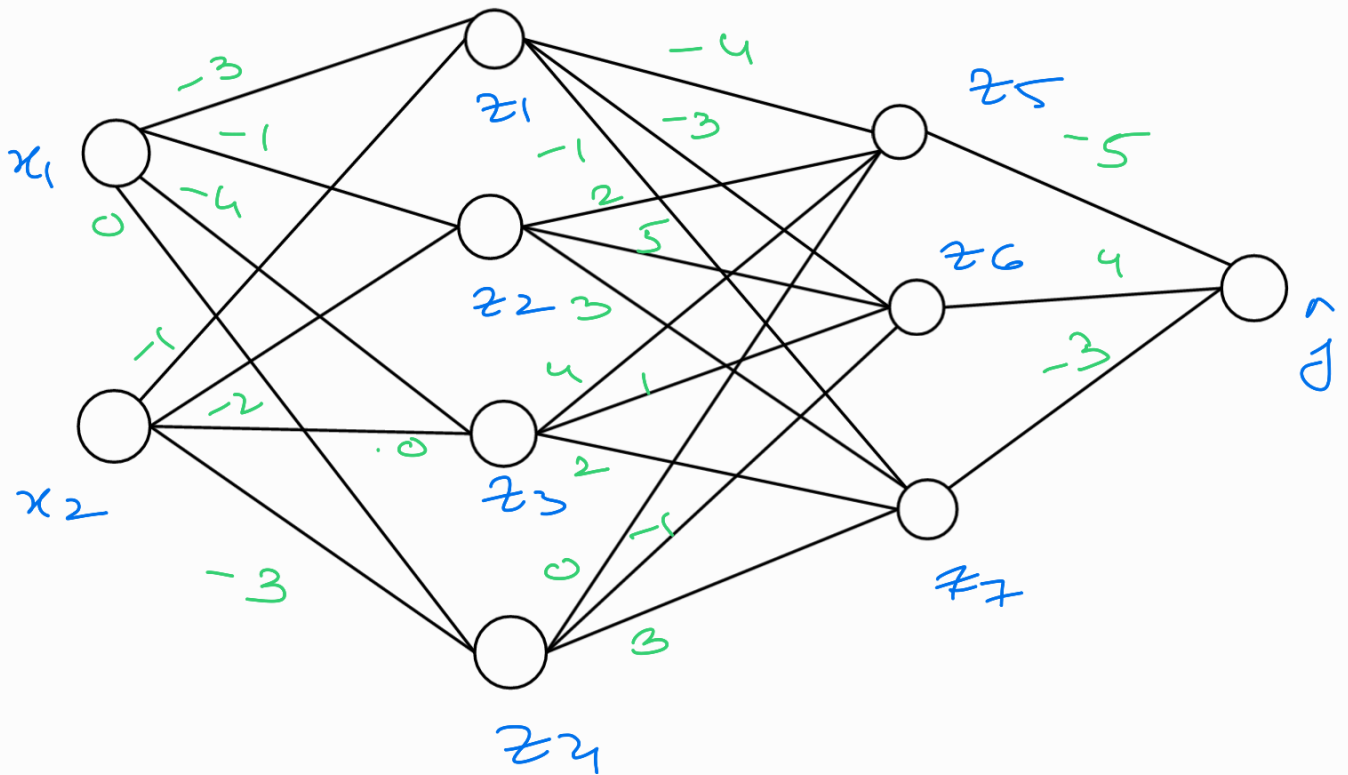


Assignment - 01



$$z_1 = w_0 + \sum_{i=1}^n w_i x_i$$

Hidden layer 1

$$z_1 = 3 + (3 \times (-3)) + 2 \times (-1)$$

$$= 3 + (-9) + (-2)$$

$$z_1 = -8$$

$$z_2 = 3 + (2 \times (-2)) + (3 \times (-1))$$

$$= 3 - 4 - 3$$

$$\underline{\underline{z_2 = -4}}$$

$$z_3 = 3 + (3 \times (-4)) + (2 \times 0)$$

$$= 3 - 12$$

$$\underline{\underline{z_3 = 9}}$$

$$z_4 = 3 + (3 + 0) + (2 \times (-3))$$

$$= 3 - 6$$

$$z_4 = -3$$

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Here apply activation funcⁿ
to the each neuron.

$$\text{Relu} = \max(0, 2)$$

$$z_1 = \text{Relu}(0, -8) = \max(0, -8) = 0$$

$$z_2 = \text{Relu}(0, -4) = \max(0, -4) = 0$$

$$z_3 = \text{Relu}(0, -9) = \max(0, -9) = 0$$

$$z_4 = \text{Relu}(0, -3) = \max(0, -3) = 0$$

Hidden Layer 2:

$$z_5 = 3 + (0 \times (-4)) + (0 \times 2) + (0 \times 4) + (0 \times 0)$$

$$z_5 = 3$$

$$z_6 = 3 + (0 + -3) + (0 + -5) + (0 + -1) + (0 + -1)$$

$$z_6 = 3$$

$$z_7 = 3 + (0 + -1) + (0 + 3) + (0 + 1) + (0 + -3)$$

$$z_7 = 3$$

Activation funcⁿ:

$$z_5 = \text{Relu}(0, 3) = \max(0, 3) = 3$$

$$z_6 = \text{Relu}(0, 3) = \max(0, 3) = 3$$

$$z_7 = \text{Relu}(0, 3) = \max(0, 3) = 3$$

$$\hat{y} = 3 + (3 \times -5) + (3 \times -4) + (3 \times -3)$$

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

apply activation funⁿ:

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

$$= \frac{1}{1 + e^7}$$

$$\hat{y} = 0.00012339$$

