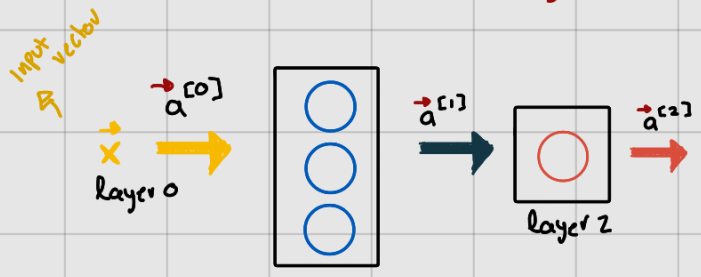
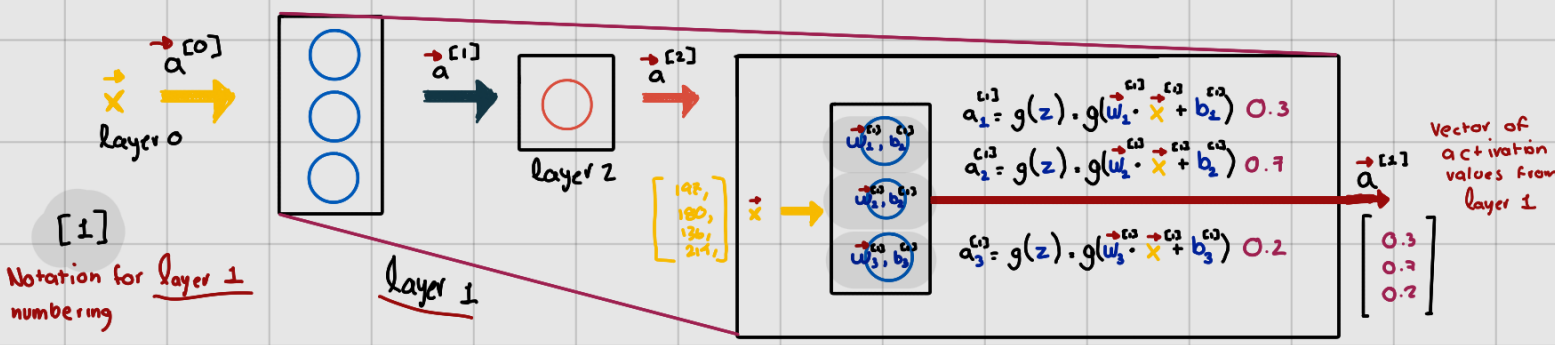
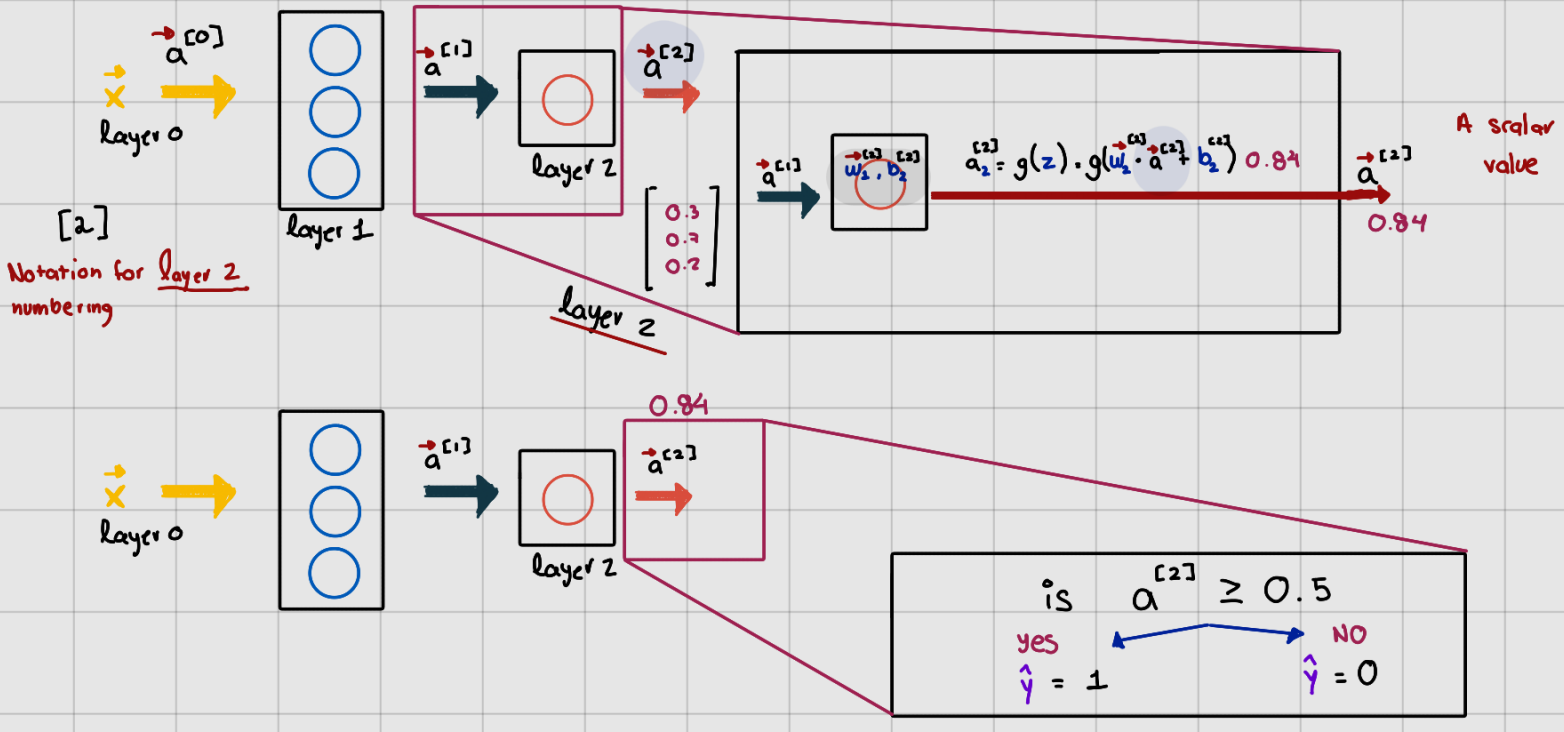
Neural Network Layer



$$g(z) = \frac{1}{1 + e^{(-z)}}$$





Example

Complex Neural Network Layer

$$a_2^{[3]} = g(\vec{w}_2^{[3]} \cdot a^{[2]} + b_2^{[3]})$$

$$a_j^{[l]} = g(\vec{w}_j^{[l]} \cdot a^{[l-1]} + b_j^{[l]})$$

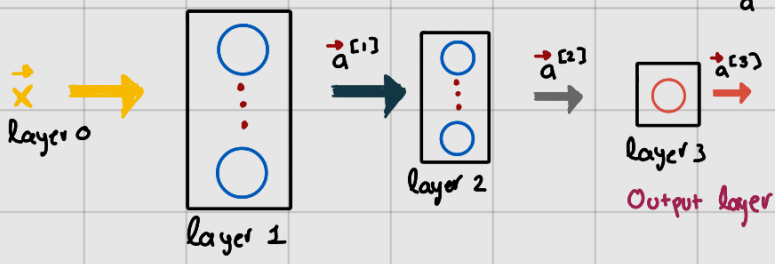
Parameters w & b of layer l, unit j

Activation value of layer l, unit (neuron) j

activation function sigmoid

Output of layer $l-1$ (Previous layer)

All of this process is a foward propagation



$\vec{a}^{[3]} = f(x)$

Probability of being a handwritten "1"

is $a^{[3]} \geq 0.5$

yes $\hat{y} = 1$

NO $\hat{y} = 0$