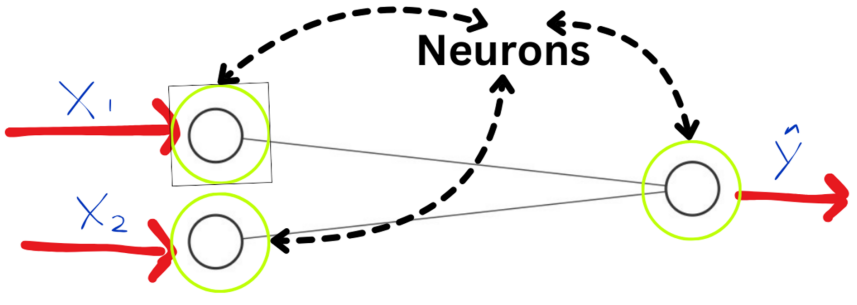
Neural networks & Deep learning

What is a neuron? in Deep learning :



A neuron refers to a fundamental computational unit that forms the building block of artificial neural networks, which are the core components of deep learning models.

What operation does a neuron perform?

- It performs two main operation

  1) The summation of the “**Weights**” and “**inputs (X)**” and addition with a“**Bias**”

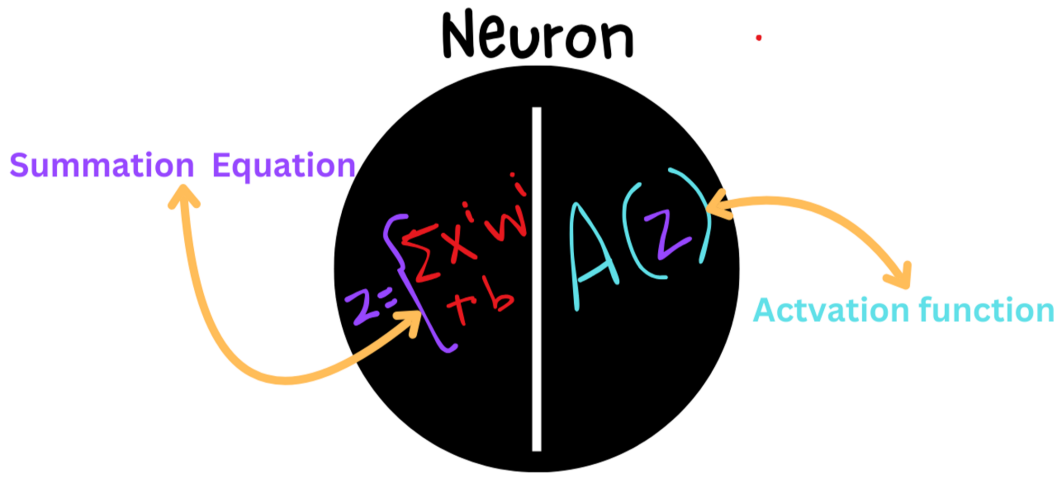
  Equation will be : `Z= Σ (x_i * w_i) + b`

- `x_i` represents the i-th input to the neuron.
- `w_i` represents the weight associated with the i-th input.
- `b` is the bias term associated with the neuron.

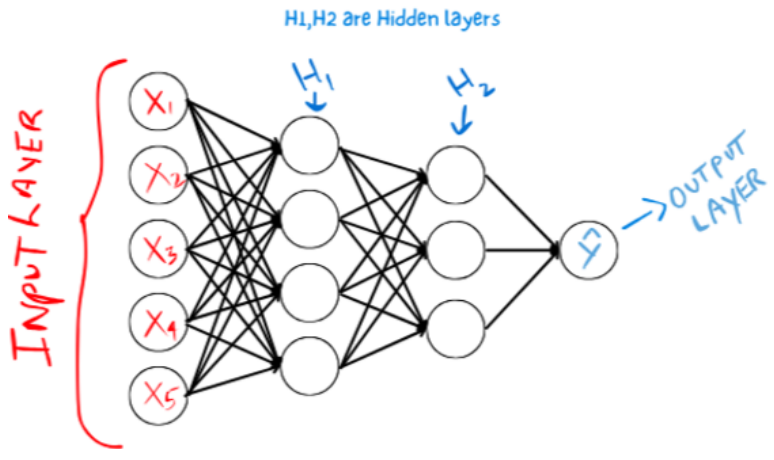
  2) And applying an **“Activation function”** to that equation.

  Equation : `y = A(z)`

- `y` is the output of the neuron after applying the activation function.
- `A` is the chosen activation function.
- `z` is the weighted sum of inputs plus the bias.(In the first step)



and also this is how an typical NN looks like



How does this equation is formed?