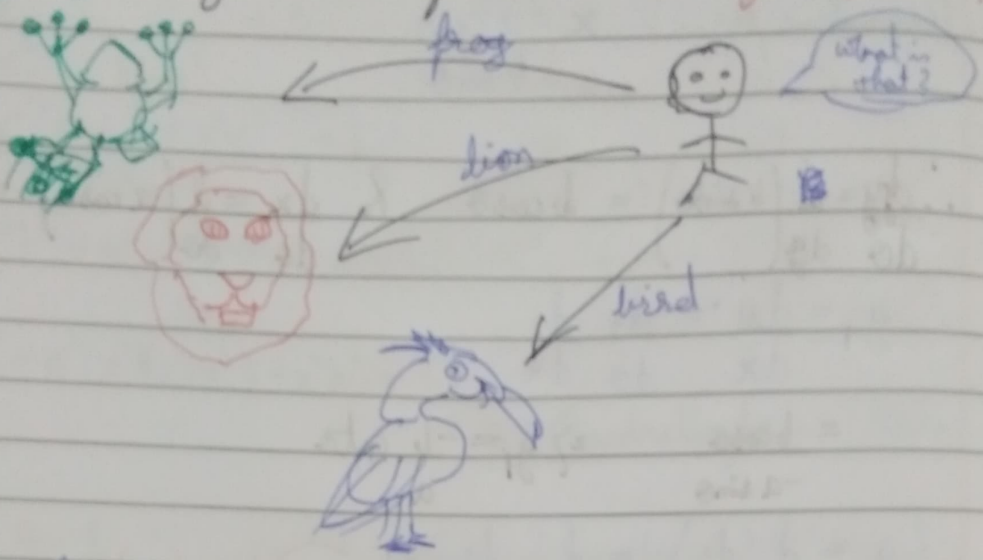
Neural Network :-

It learns the relationships between cause and effect or organize large volumes of data into orderly and informative patterns

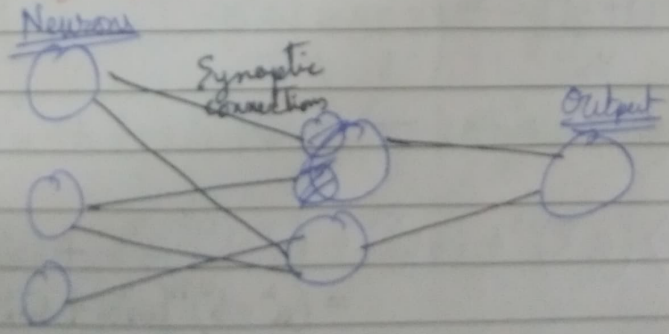


Neural network is an information processing paradigm (model) represented in brains as part of nervous system

Structure :- large number of interconnected neurons work together to represent the neural system in our body

Neural networks are configured for a specific applications :-
- pattern recognition
- data classification

In biological system, learning involves adjustments to synaptic connections between neurons.

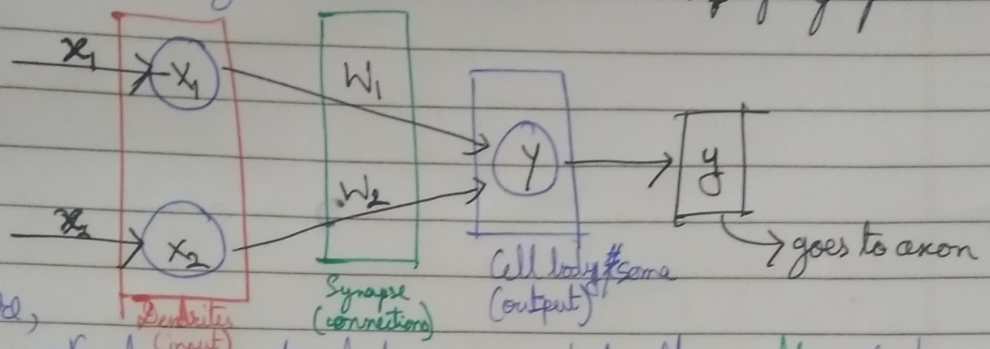


Artificial Neurons :-

Artificial Neural Network (ANN) is a computational paradigm that is inspired by the way biological nervous system, such as brains process information.

ANN can replicate only the basic functions of the brain.

It is composed of large number of processing units called neurons that work together in unison to solve specific problems



Here,

- Each connection link is associated with weights which contain information about the input signal → W_1 & W_2
- ANN's collective behaviour is characterized by their ability to learn, recall and generalise training patterns / data.
- Each neuron has its own internal state. This internal state is called the activation level of neuron.
  This activation signal is transmitted to several other neurons.
  But each neuron can send one signal at a time

In (Y) → y output, it performs Σ (summation) on the inputs

then it performs Activation function on the Σ

∴ 1st → $y_{in} = x_1 w_1 + x_2 w_2$ (Summation)

2nd → $y = f(y_{in})$ (Activation function)