Gaurav Prajapati
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Agenda

- What is ANN?
- What is Neuron?
- Biological Neuron Model
- Artificial Neural Network
- Example
- Types of ANN
- Applications

What is ANN?

- "Neural" is an adjective for Neuron, and "Network" denotes a graph like structure.
- "Artificial Neural Network" or ANN is an artificial computing system inspired by biological neural network that constitute our brain.
- ANN intended to replicate the way that we human learns.
- They are excellent tool for finding patterns which are too complex or numerous for a human programmer to extract and teach the machine to recognize.

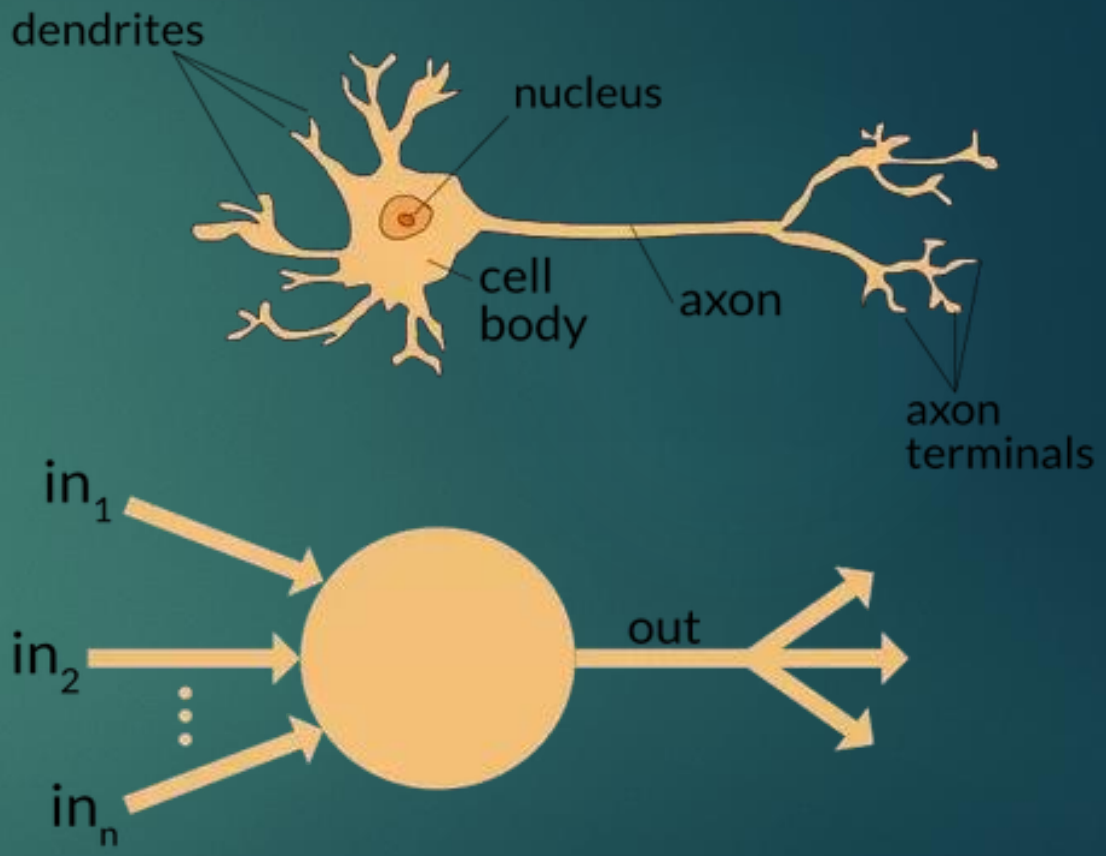
What is a Neuron?

- Neurons, (also know as nerve cells) are the fundamental units of the brain and nervous system responsible for sending and receiving signals between our muscles and external world.
- What does a Neuron looks like?

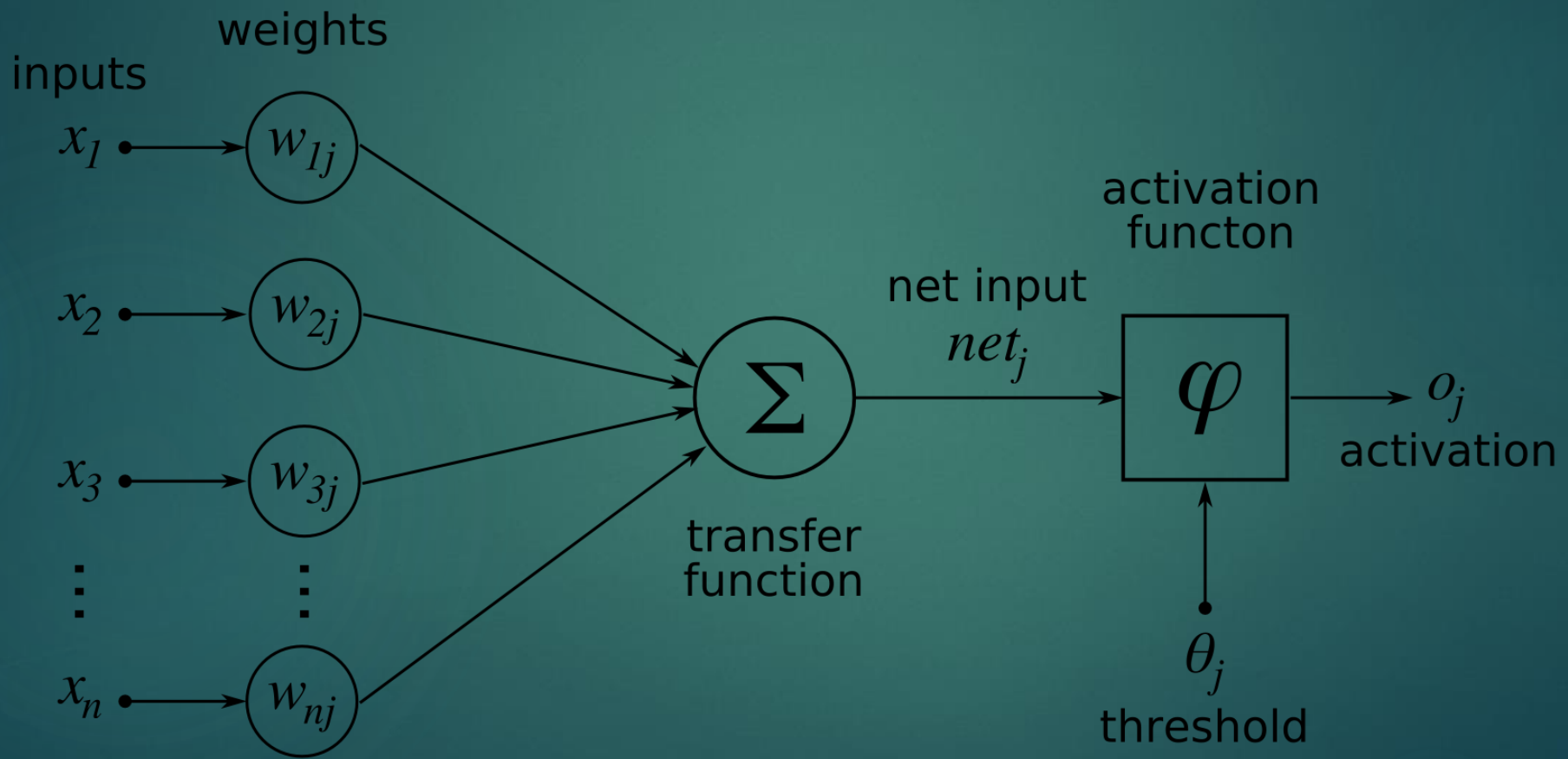
  A useful analogy is to think of a neuron as a Tree.

How does Human Brain Learns?

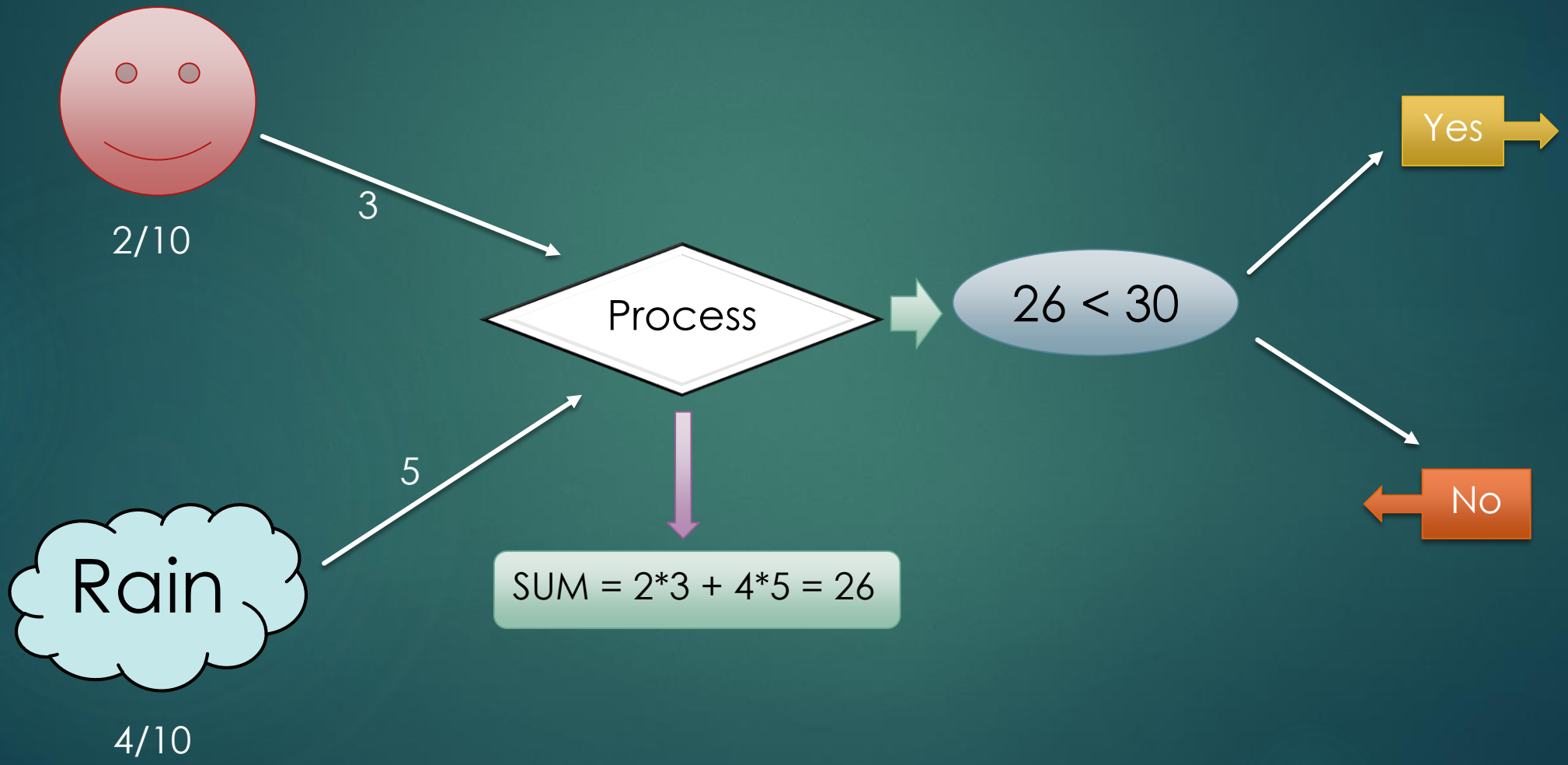
- Brain Made up of large number of neurons.
- Each neuron connected to thousands of neurons, communicating by electrochemical signals.
- Signals coming are received via SYNAPSES, located at the end of DENTRITES.
- A Neuron sum up the inputs and if THRESHOLD VALUE is reached then it generates an output signal, along the AXON.



Artificial Neural Network

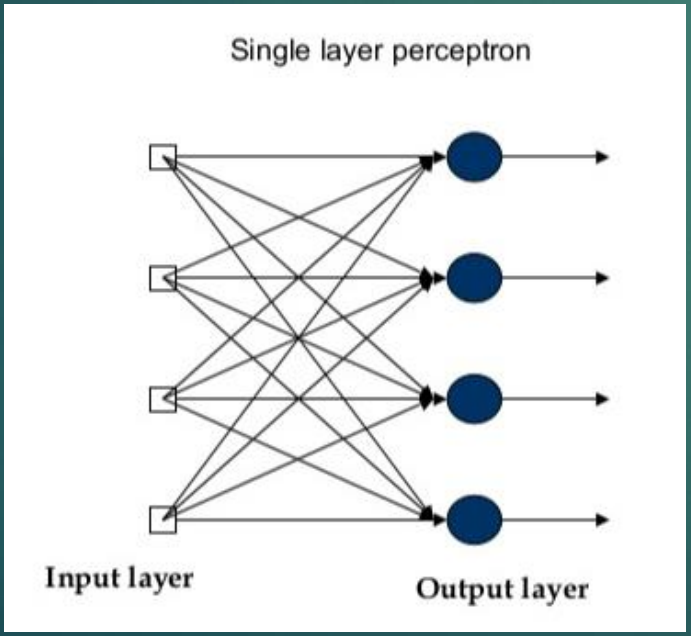


Example:

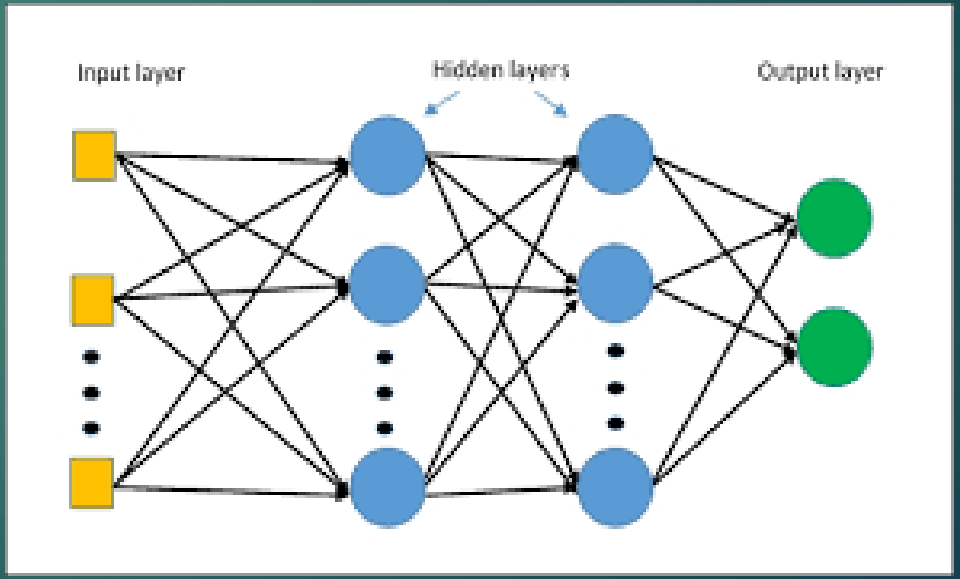


Types of ANN

- SINGLE LAYER PERCEPTRON
  - → consist of single layer of output nodes
  - → inputs are fed directly to the output via series of weights



- MULTI-LAYER PERCEPTRON
  - → consist of at multiple layers of output nodes
  - → inputs are processed through multiple hidden-layers.



Applications

- Speech Recognition
- Character Recognition
- Signature Verification Application
- Human Face Recognition
- Image Processing
- Forecasting


THANK YOU FOR LISTENING
ANY QUESTIONS?