ANN AND DEEP LEARNING (CS636)

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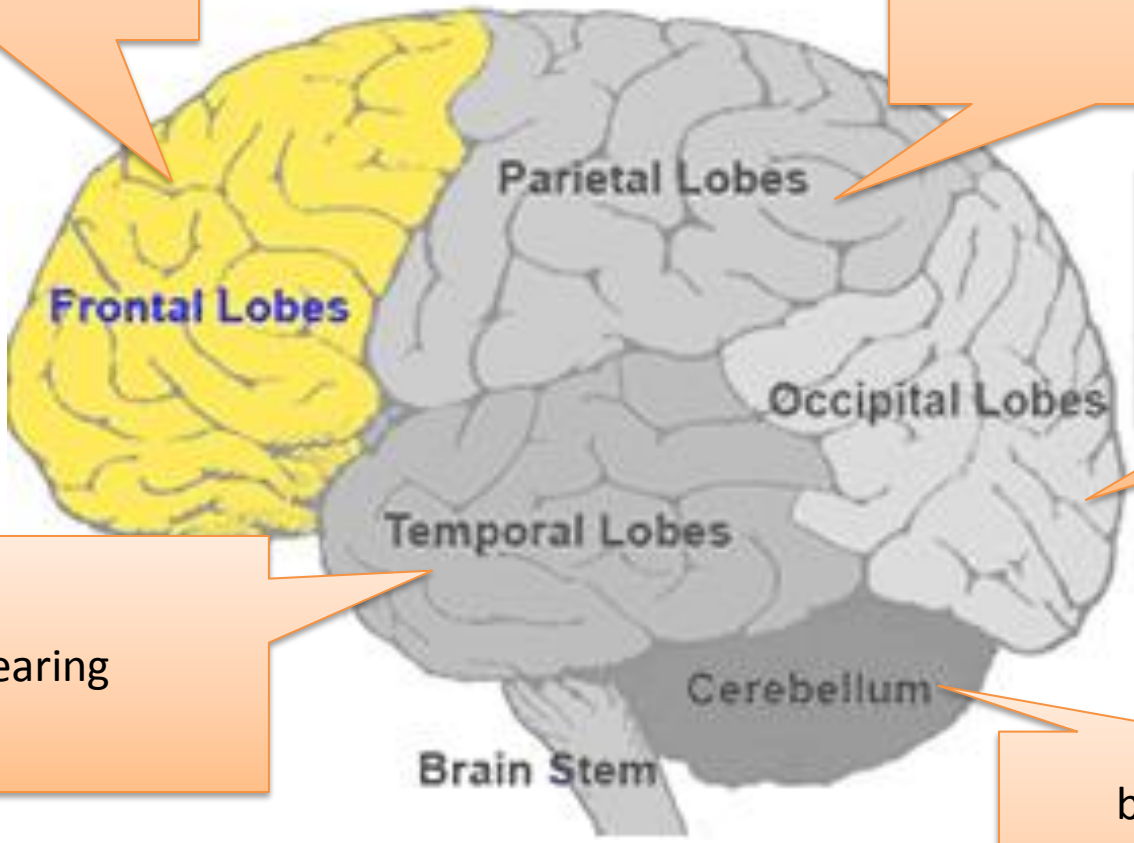
Fundamentals of NN

Human Brain

For Head & eye movements. Also For Emotion, behaviour, speech

Basic Movements like touch



Vision

Hearing

balance and equilibrium and muscle tone.

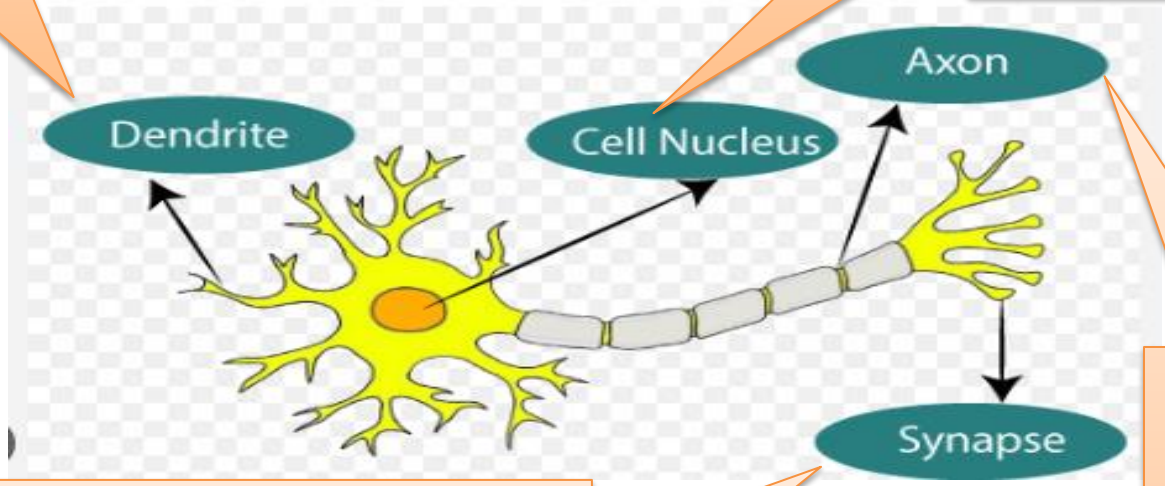
Biological Neuron

- Basic Structural as well as computational unit of brain.
- Able to receive, process, transmit information in form of signals.

Biological Neuron

Receive signals from neighbouring neuron and carry them towards cell body

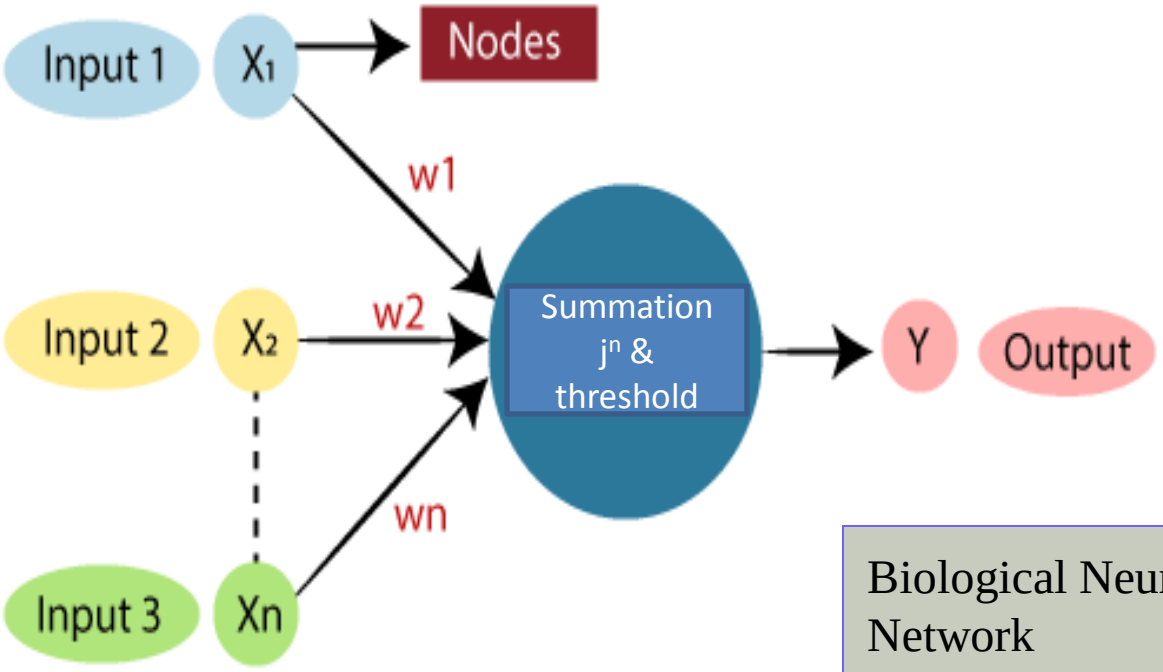
- Soma: Receive/ Accumulate signals from diff. dendrites.
- Fires-> when amt. of signal crosses threshold , sending a spike along its axon.



- Small Gap between that one neuron dendrite & adj. dendrites of neighbouring neuron.
- They are places where neurons connect and communicate with each other

- The output of a neuron it transmits the signal to other neurons

ANN



Biological Neural Network	Artificial Neural Network
Dendrites	Inputs
Synapse	Weights
Axon	Output

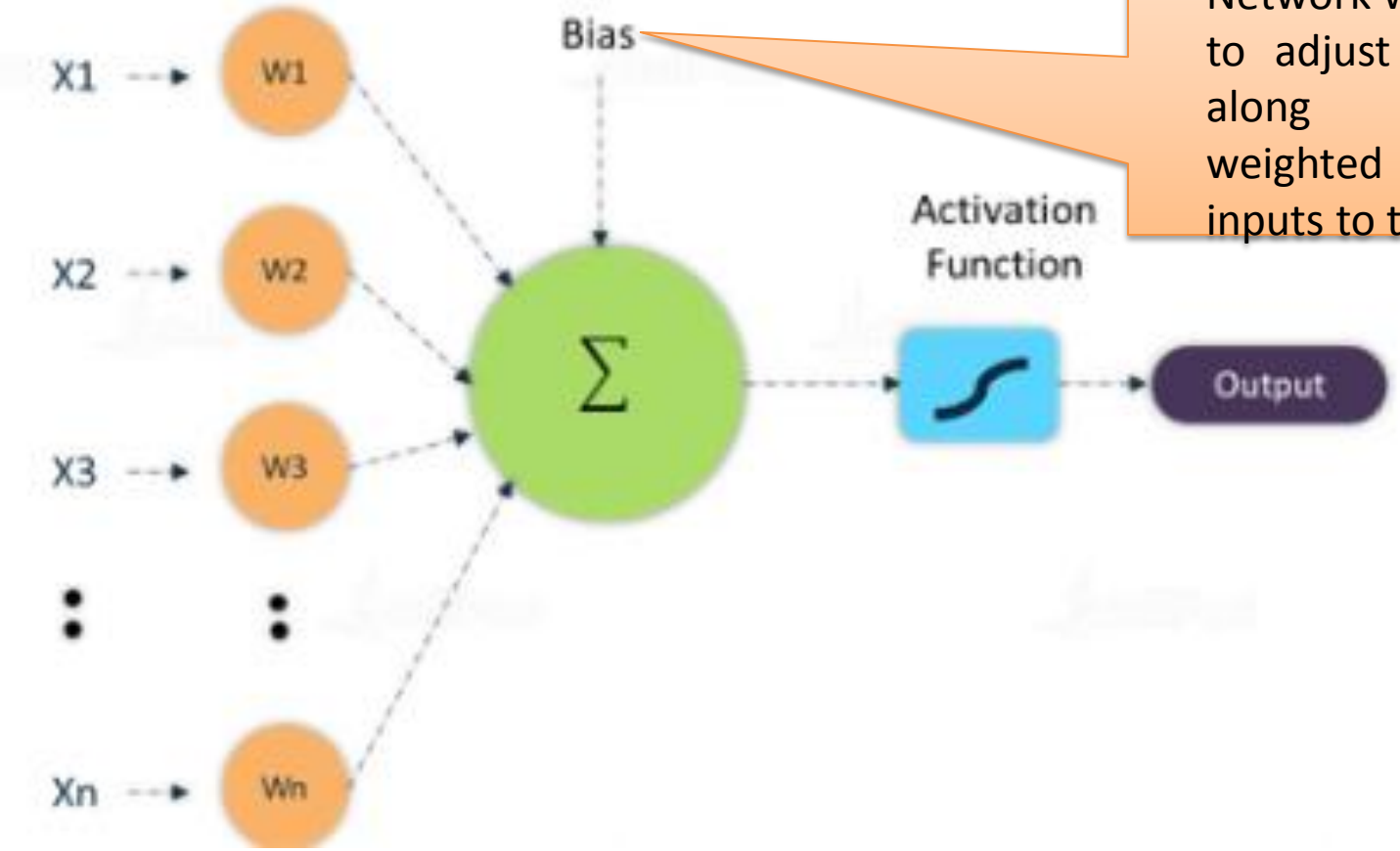
Application

- Consider a real estate problem, We need to predict whether a house (Flat) will get buyer or not. Need to make an ANN Model for same.

- Inputs: x_1, x_2 (Factors)
- Output: 0-> Will not get Buyer, 1-> Will get a buyer
- Goal: To learn Model f(x,w): where w= weight of vector, the value of which depends on relative influence of x_1, x_2

We need to find optimum value of weights

ANN



- It is an additional parameter in the Neural Network which is used to adjust the output along with the weighted sum of the inputs to the neuron

Thank You!