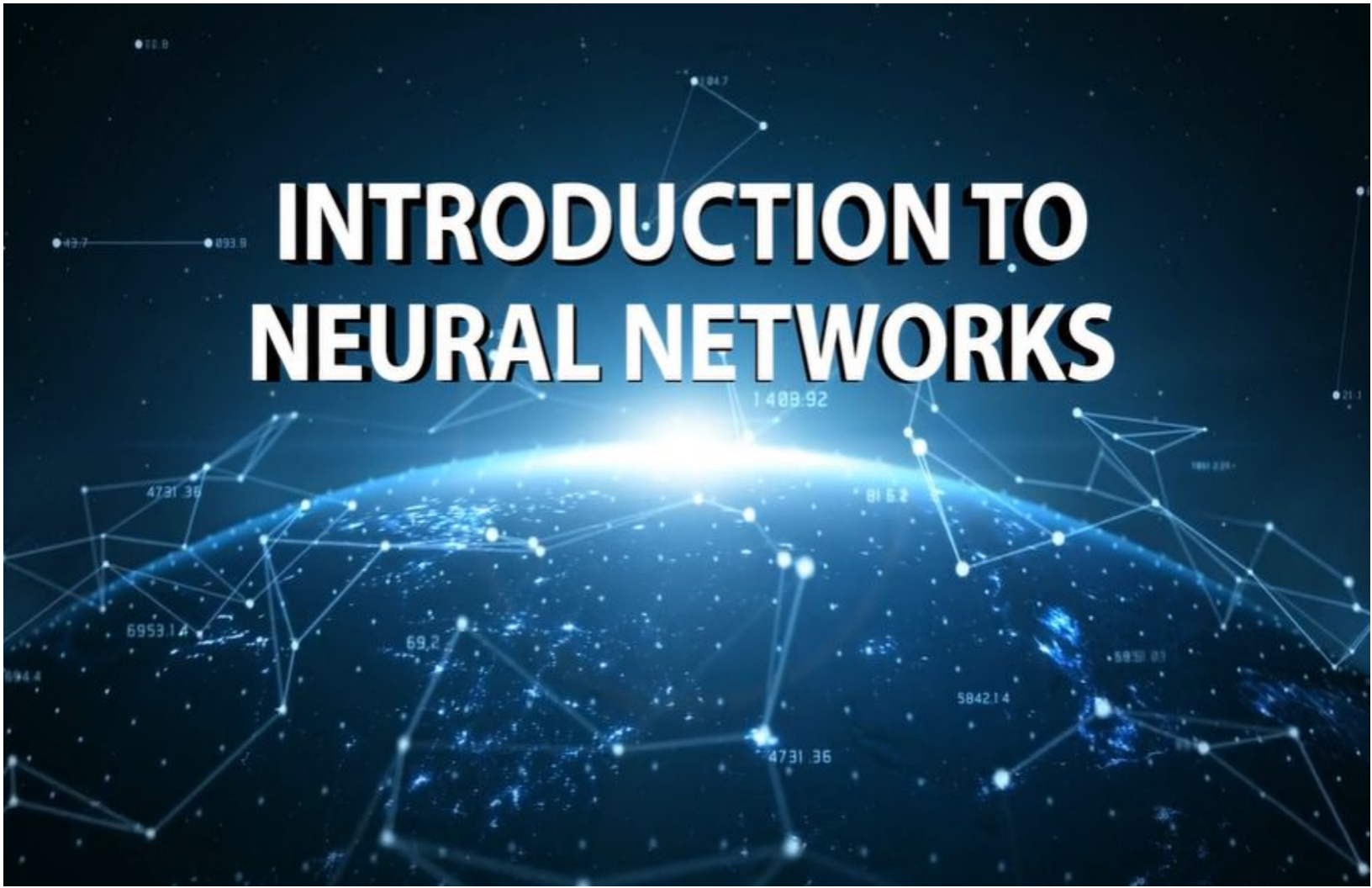
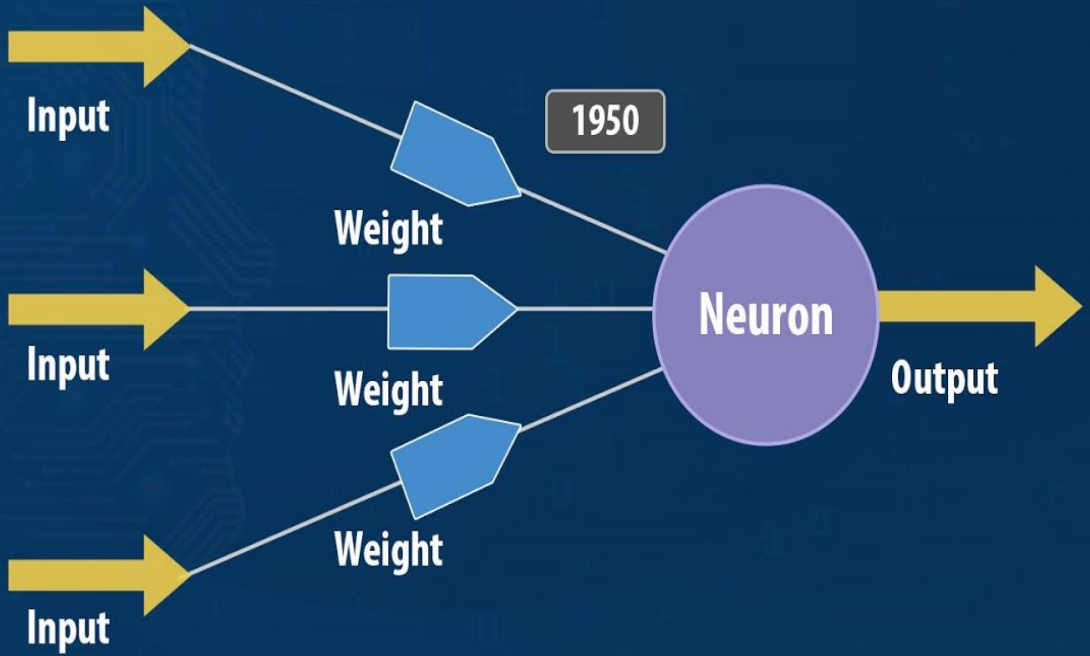

INTRODUCTION TO
NEURAL NETWORKS

INTRODUCTION TO NEURAL NETWORKS

- Perceptron
- Working of the human brain
- Working of Neuron
- Power of Billions of perceptions/ Neurons
- Significance of Weights

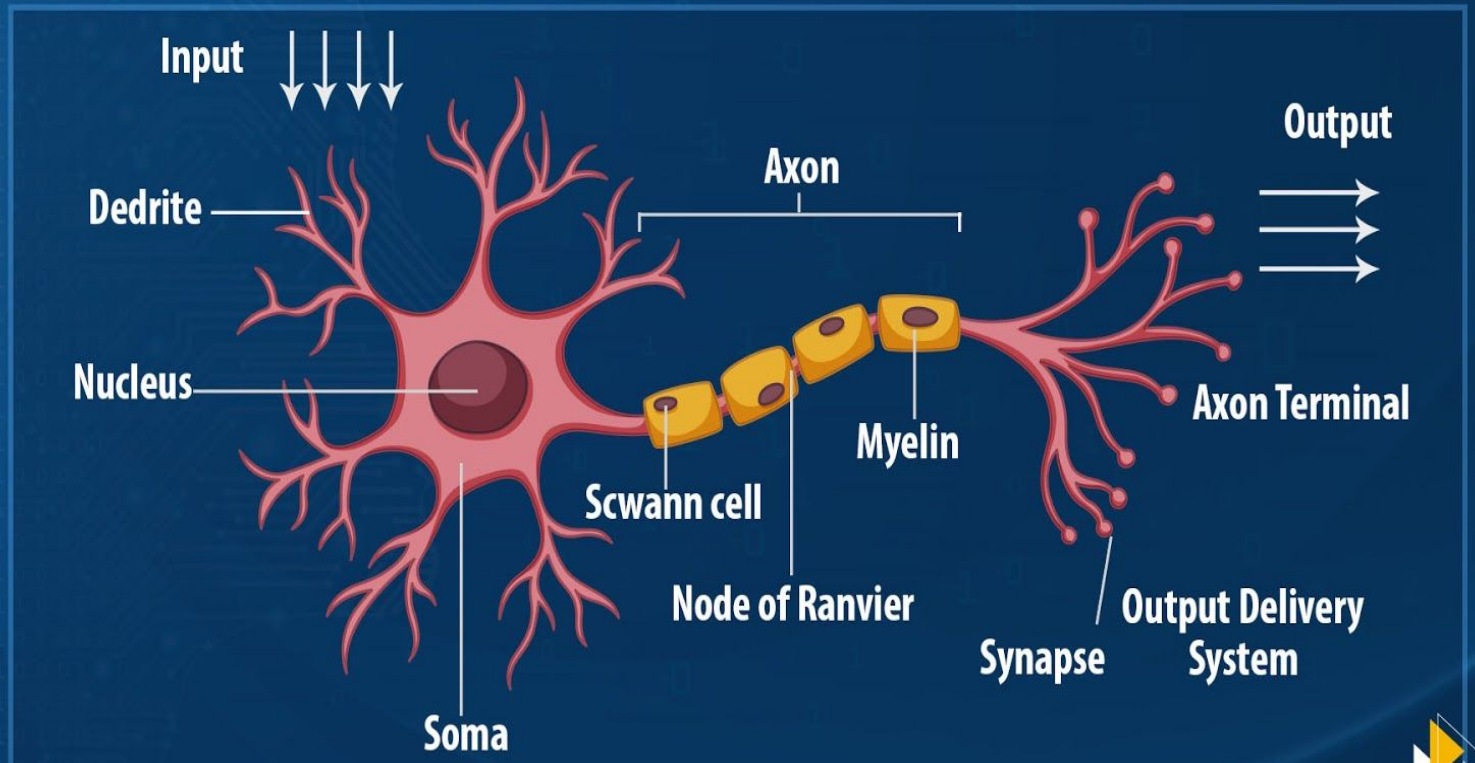
AMITY FUTURE ACADEMY

PERCEPTRON



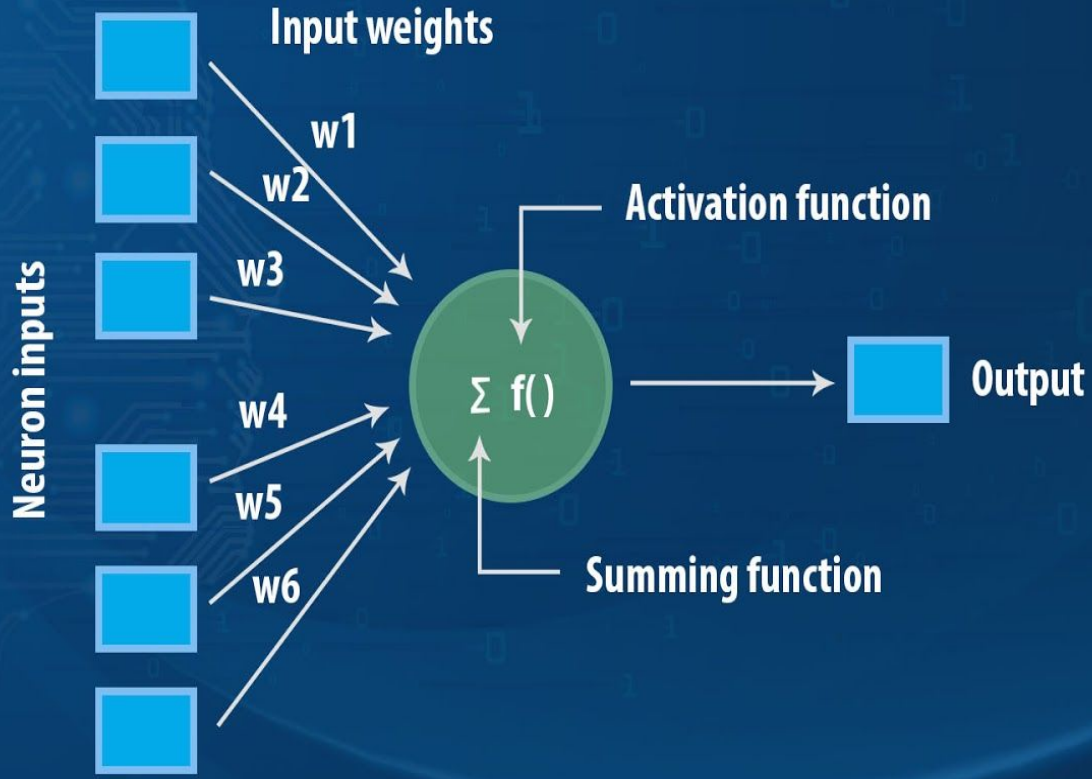
AMITY FUTURE ACADEMY

PERCEPTRON



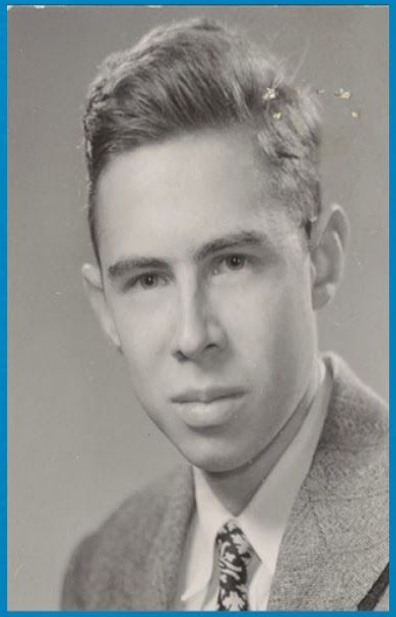
AMITY FUTURE ACADEMY

SINGLE NEURON

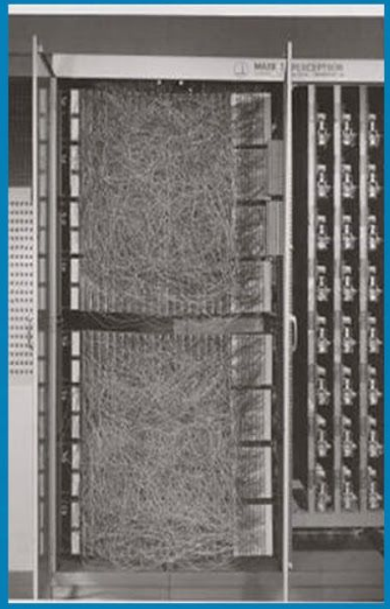


AMITY FUTURE ACADEMY

MODERN NEURAL NETWORK



Frank Rosenblatt

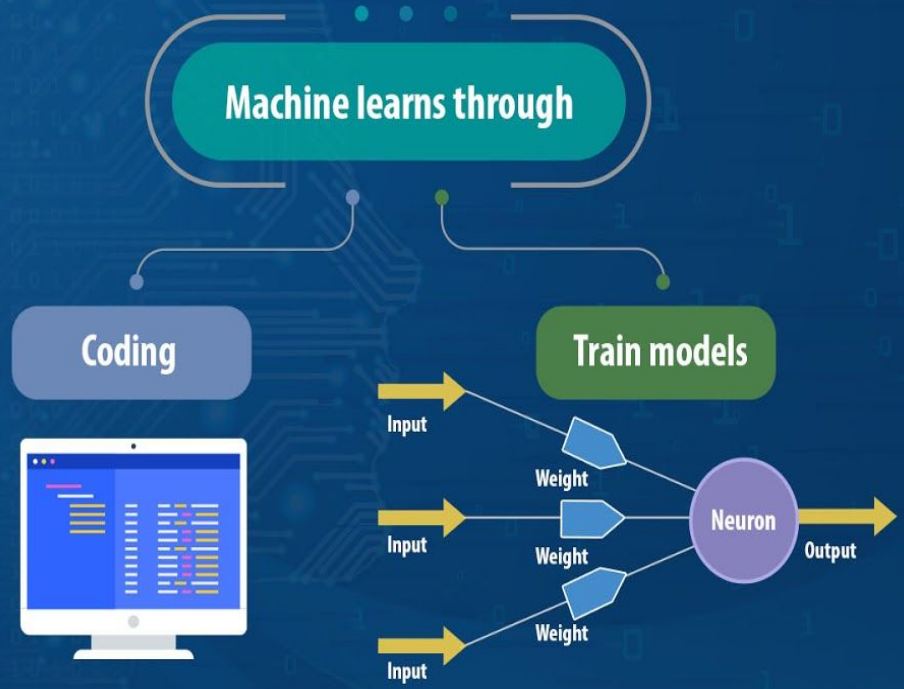


First Perceptron

Major problem : Use of single perceptron

AMITY FUTURE ACADEMY

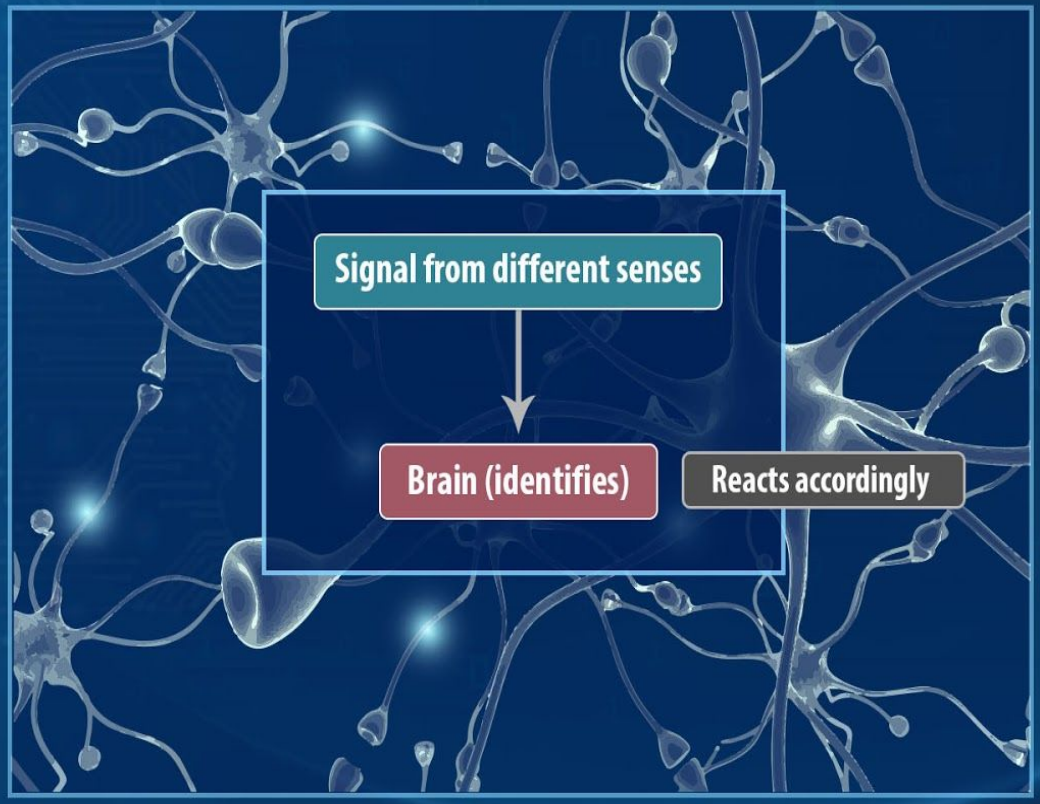
MODERN NEURAL NETWORK



Professor Geoffrey Hinton

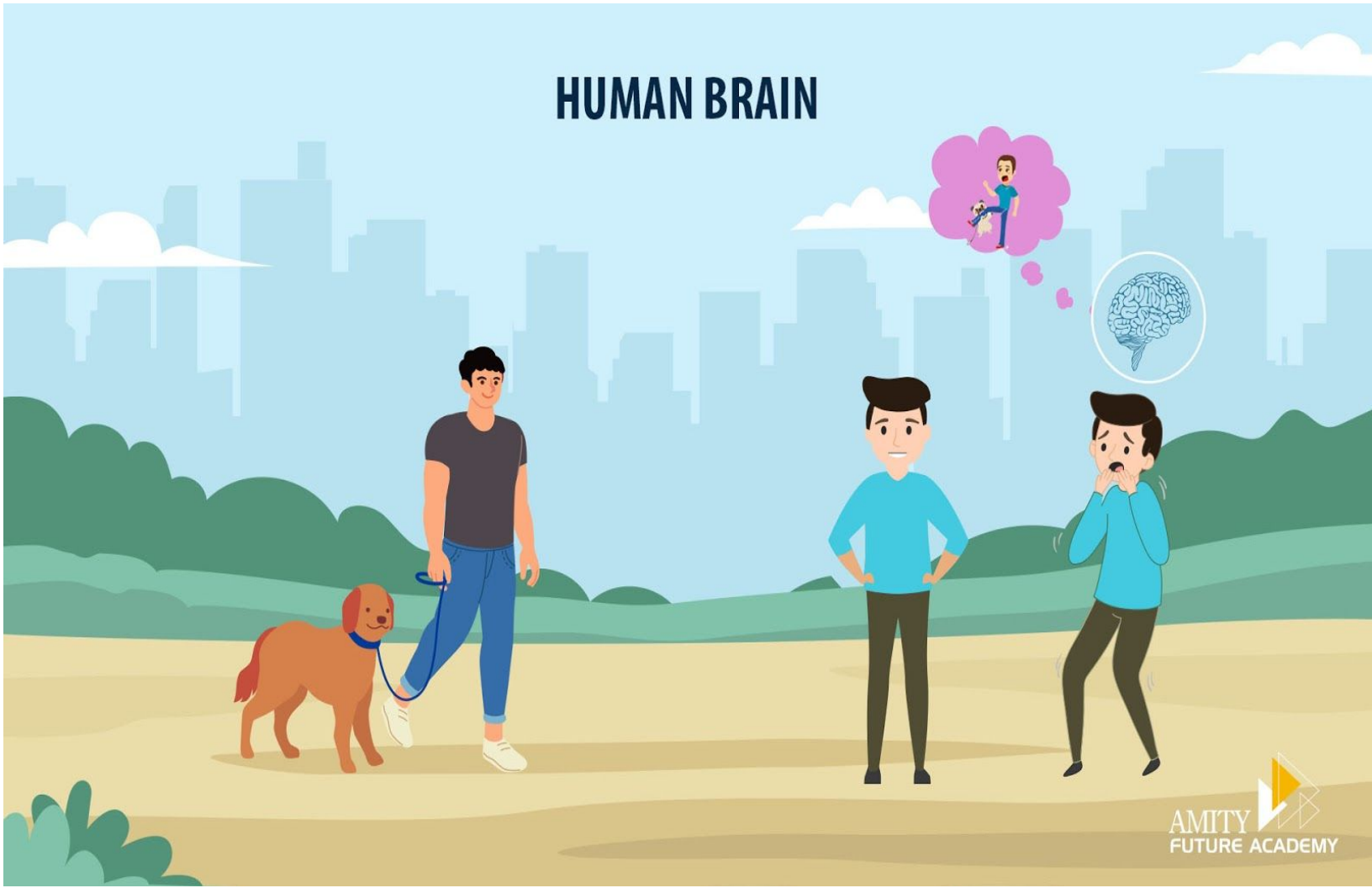
AMITY FUTURE ACADEMY

HUMAN BRAIN



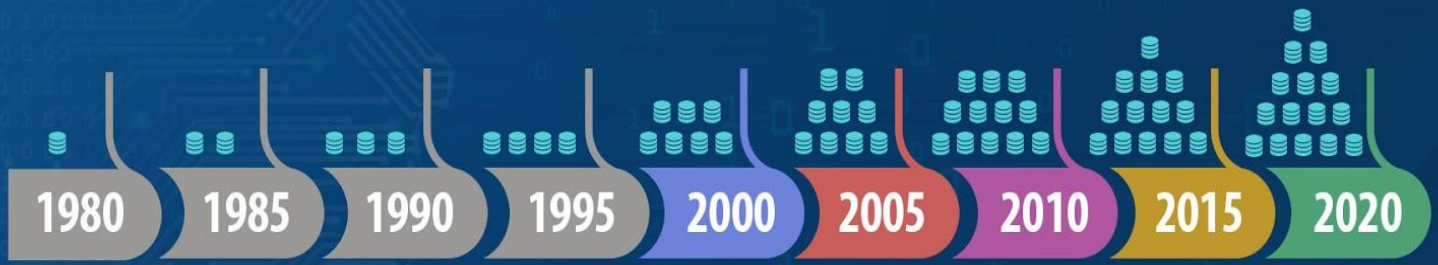
AMITY FUTURE ACADEMY

HUMAN BRAIN



AMITY FUTURE ACADEMY

AMITY
FUTURE ACADEMY

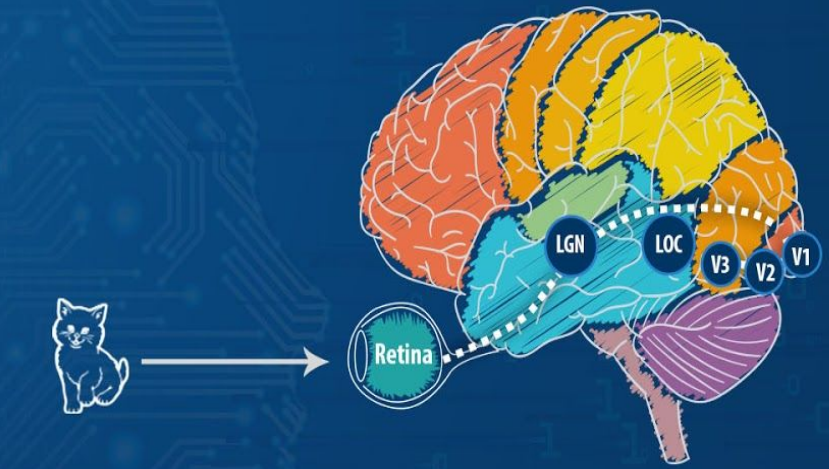


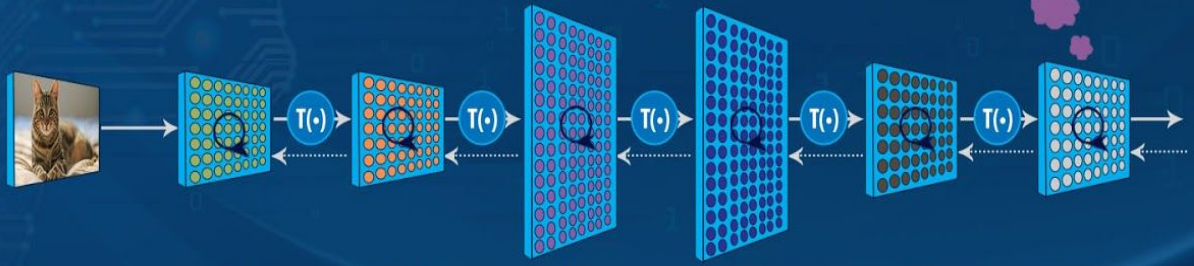
AMITY FUTURE ACADEMY

AMITY
FUTURE ACADEMY

Conntected to Internet
Internet Speed of
1000 mbps
1GBPS
Song Download 3 mb-1 sec
Fast
Slow
Song Download 3mb - 15 min
56 kbps
AMITY FUTURE ACADEMY

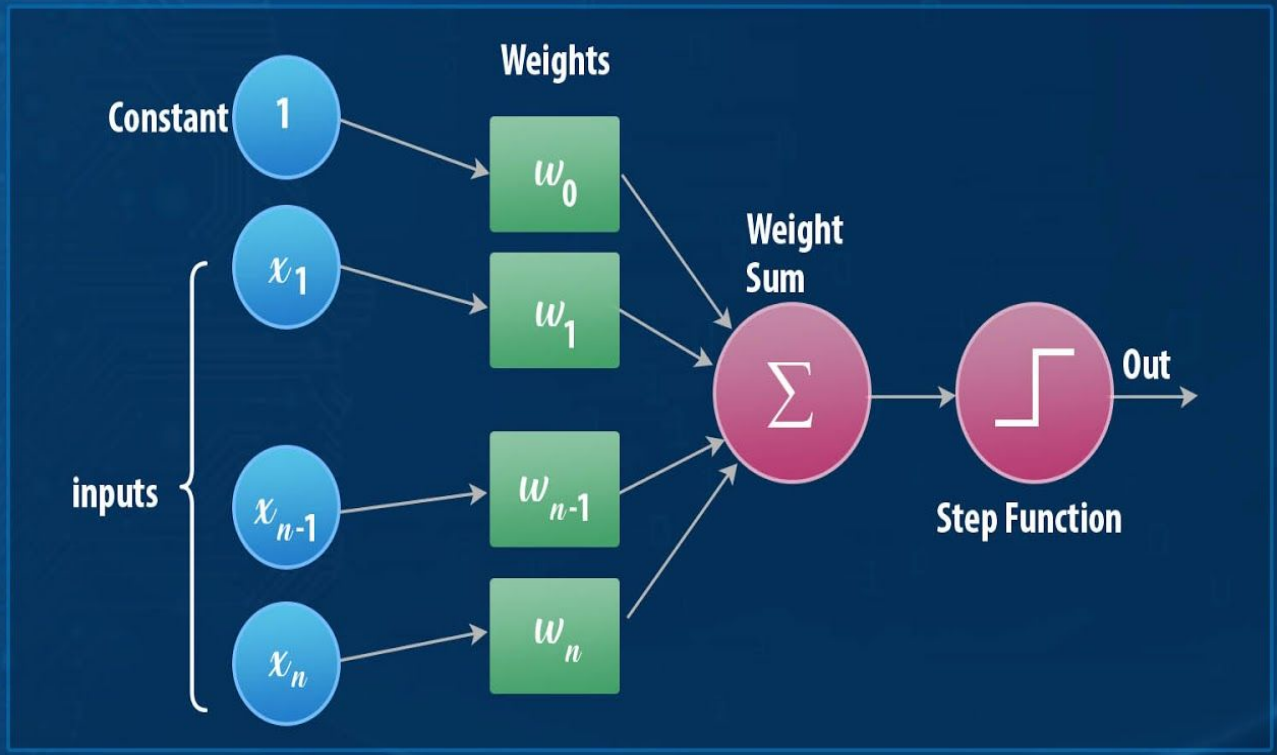
HOW BRAIN RECOGNISES?





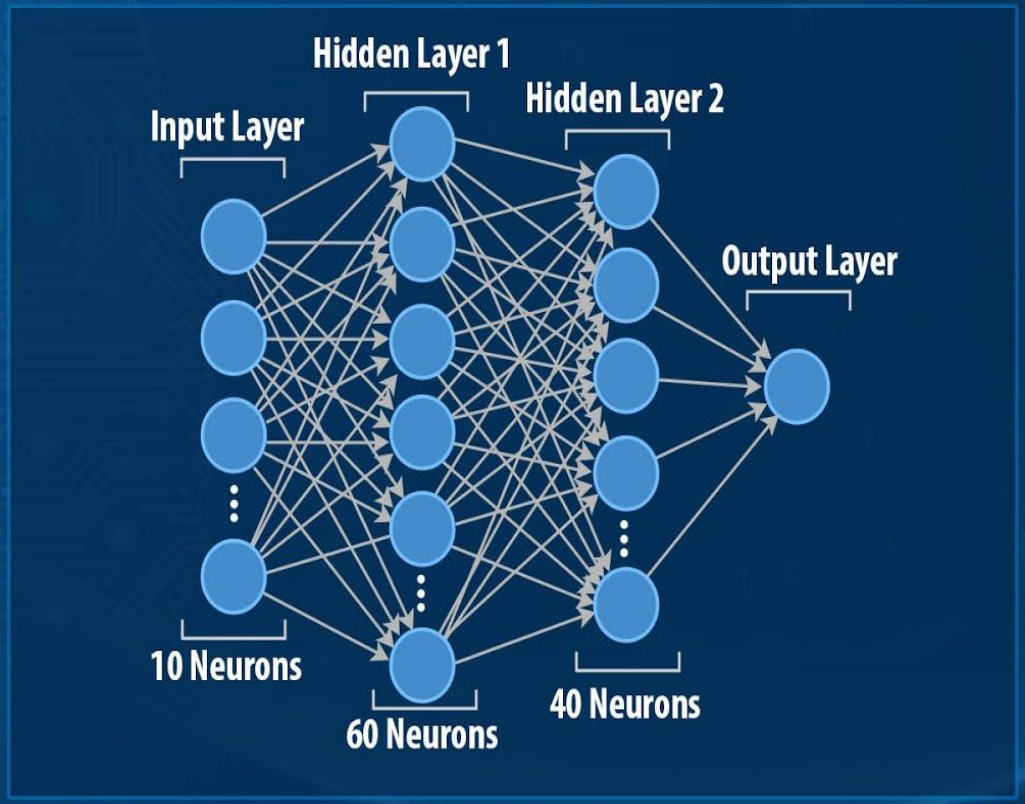
AMITY FUTURE ACADEMY

SINGLE PERCEPTRON



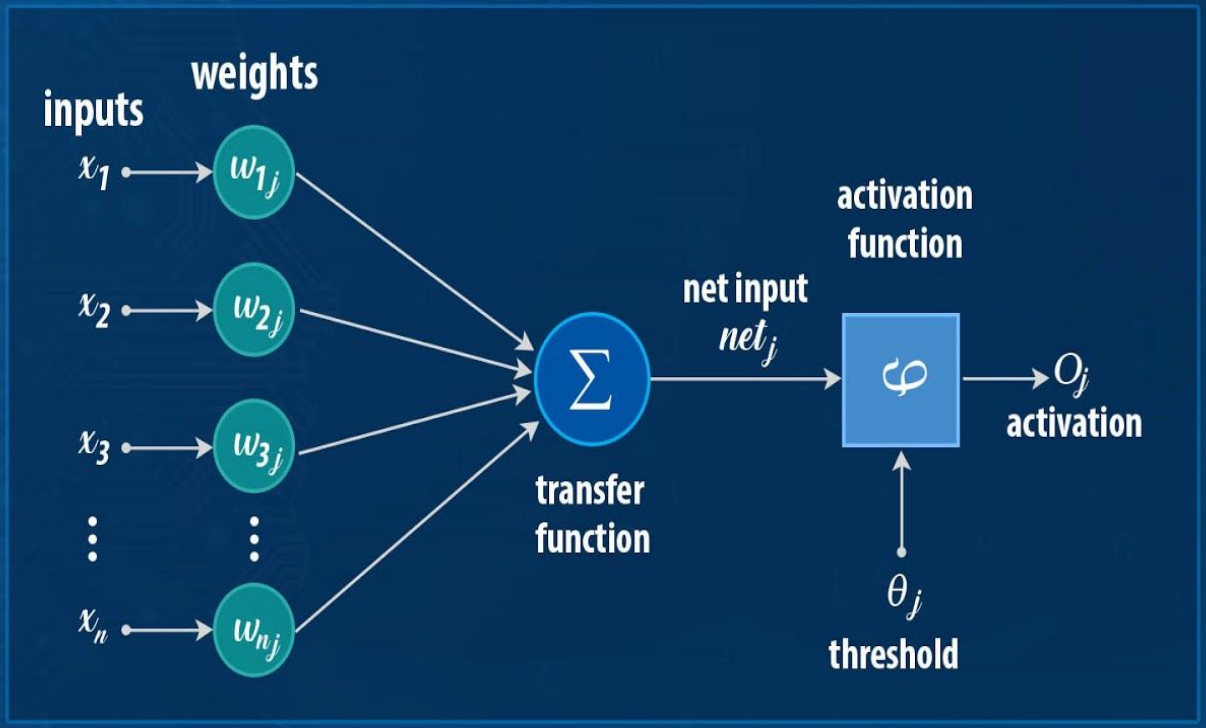
AMITY FUTURE ACADEMY

MULTI LAYER PERCEPTRONS



AMITY FUTURE ACADEMY

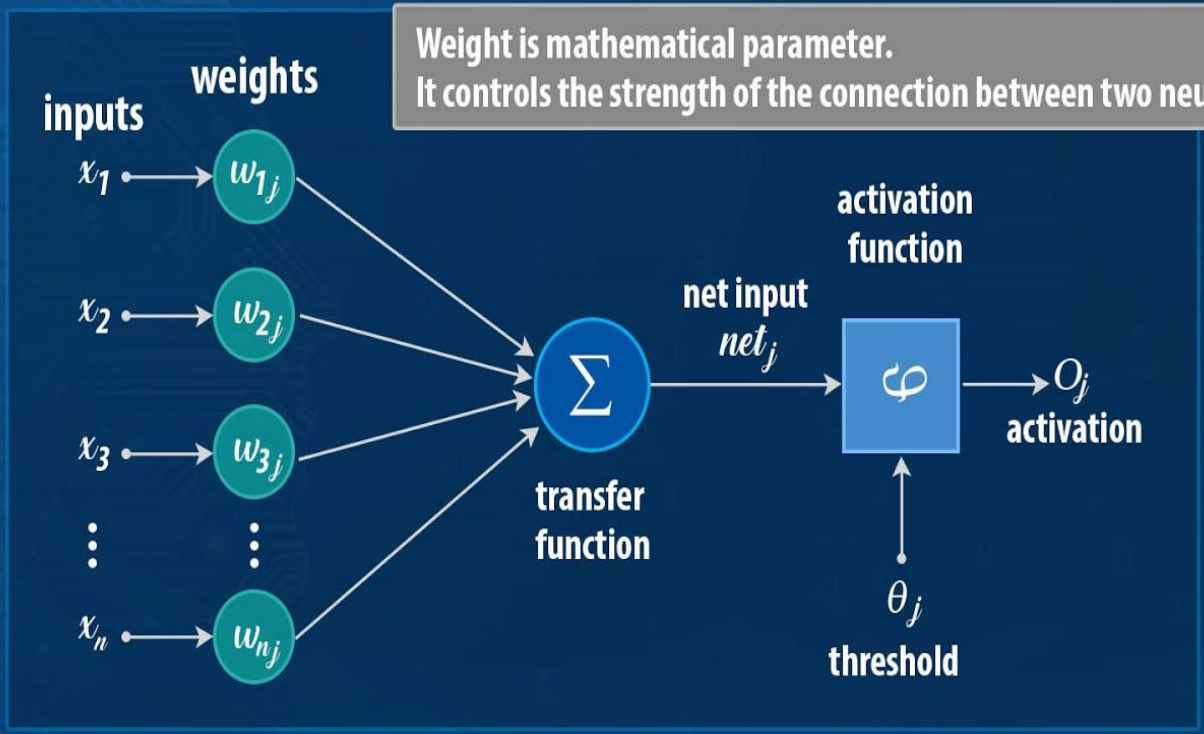
WORKING OF A NEURON



AMITY FUTURE ACADEMY

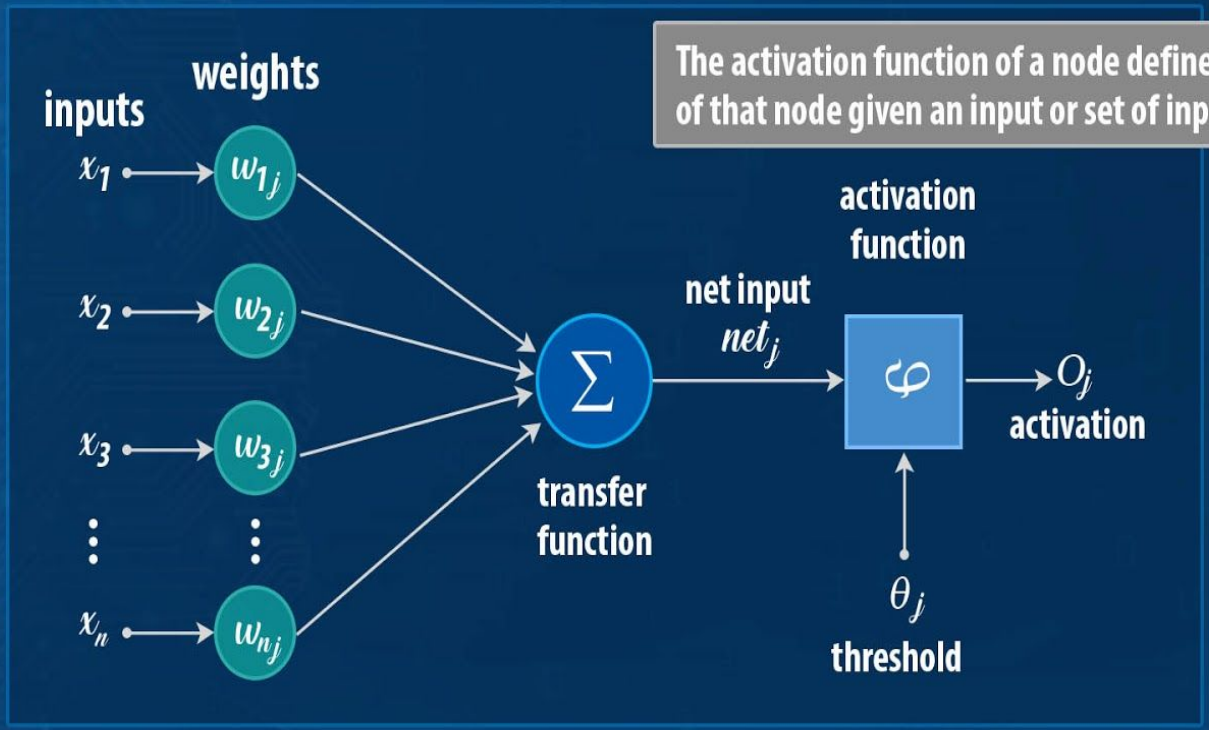
WORKING OF A NEURON

Weight is mathematical parameter.
It controls the strength of the connection between two neurons.



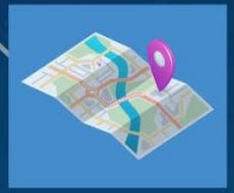
AMITY FUTURE ACADEMY

WORKING OF A NEURON



AMITY FUTURE ACADEMY

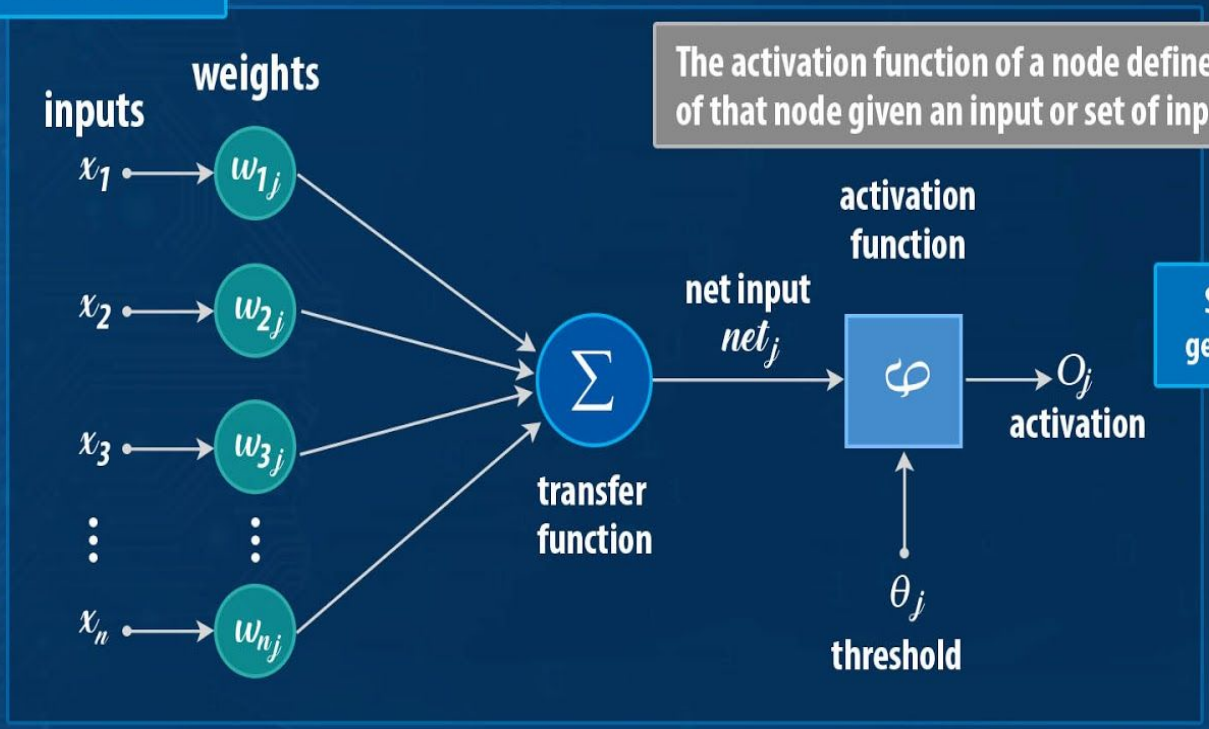
WORKING OF A NEURON



AMITY FUTURE ACADEMY

Case 1: Threshold of signal is higher neuron is activated

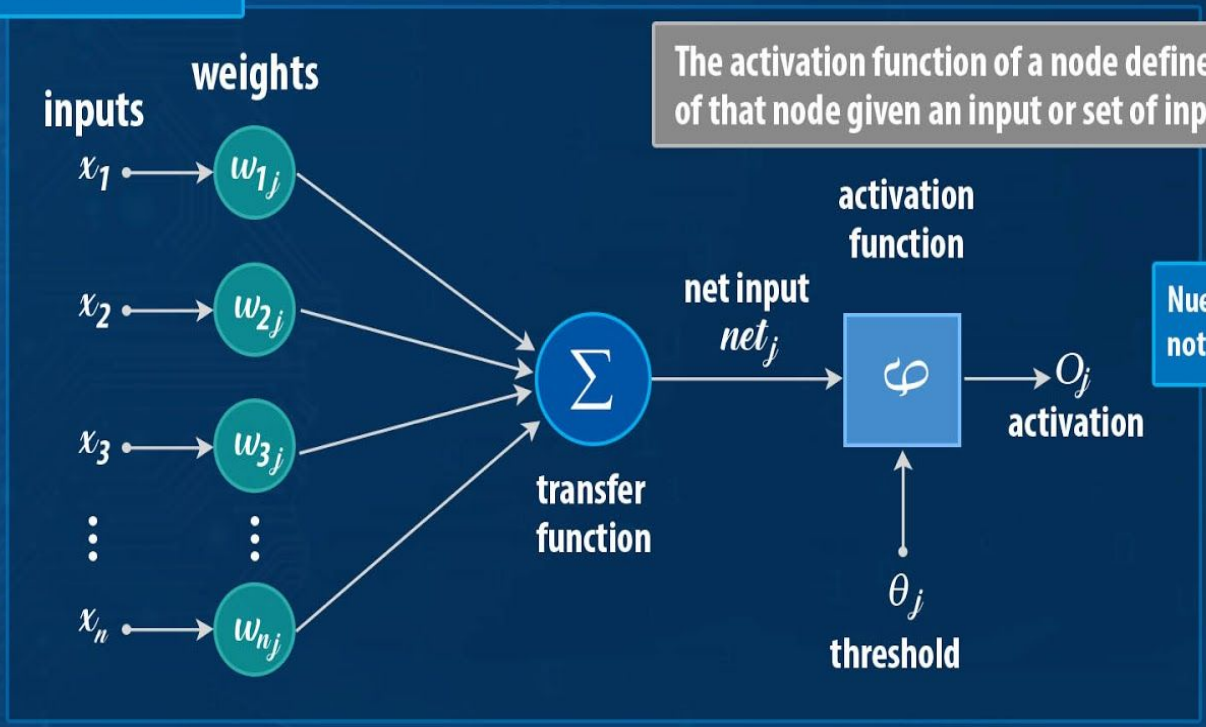
WORKING OF A NEURON



AMITY FUTURE ACADEMY

Case 2: Threshold of signal is lower neuron is not activated

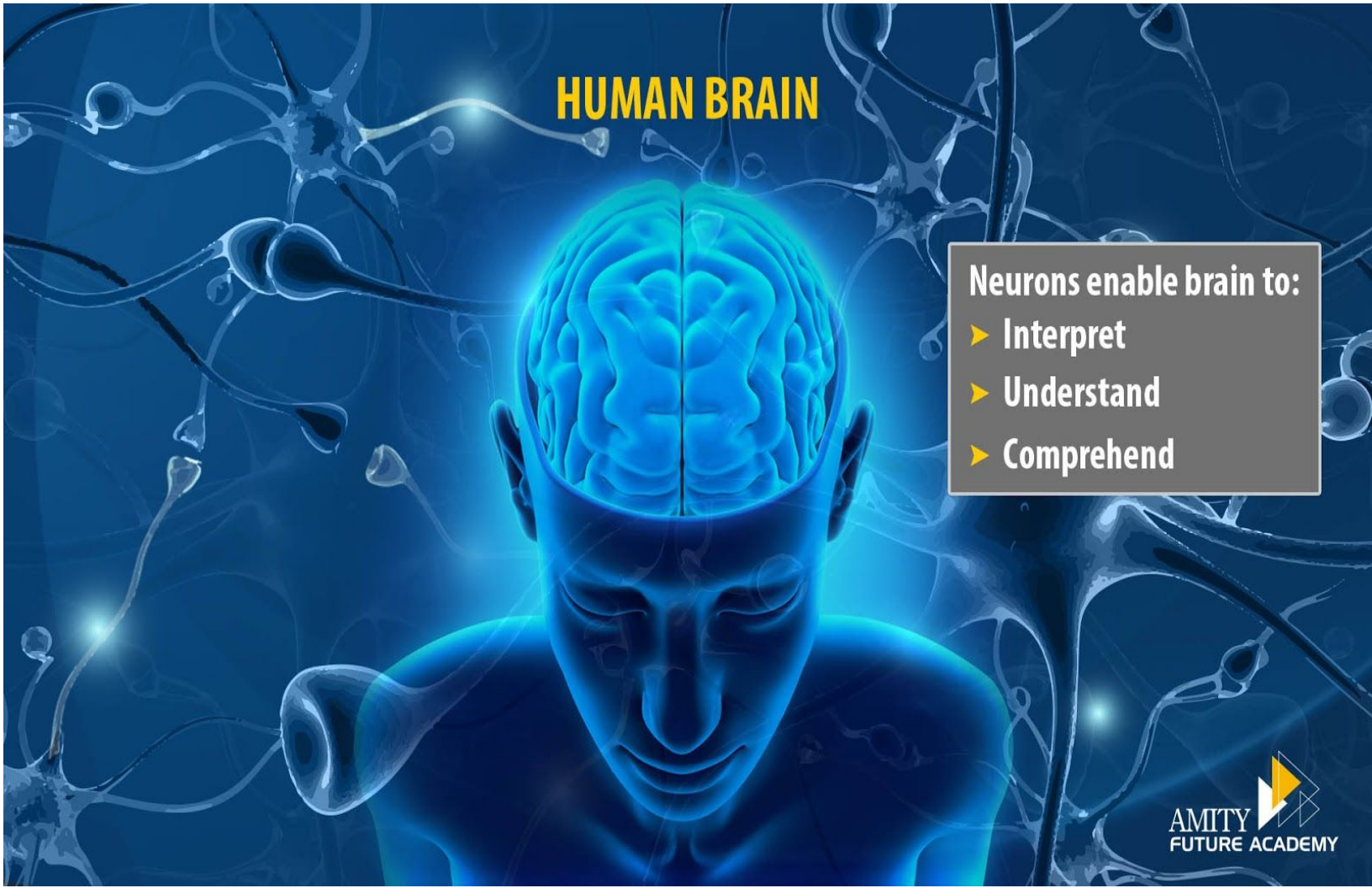
WORKING OF A NEURON



The activation function of a node defines the output of that node given an input or set of inputs.

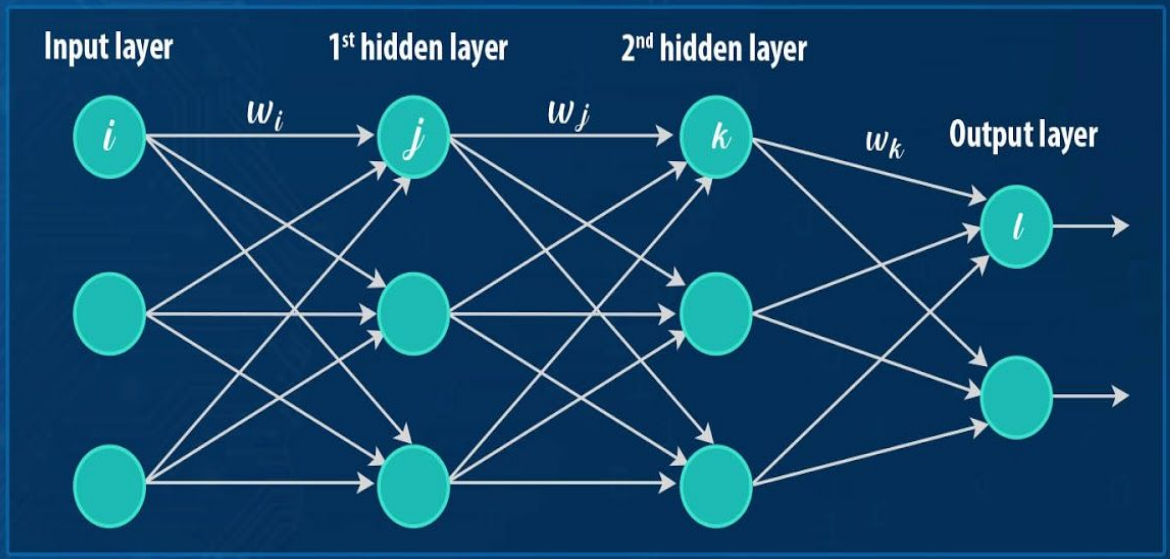
Nueron does not get fired

AMITY FUTURE ACADEMY


HUMAN BRAIN
Neurons enable brain to:
Interpret
Understand
Comprehend
AMITY
FUTURE ACADEMY

MULTILAYER NEURONS

Working of Multi layer Neurons

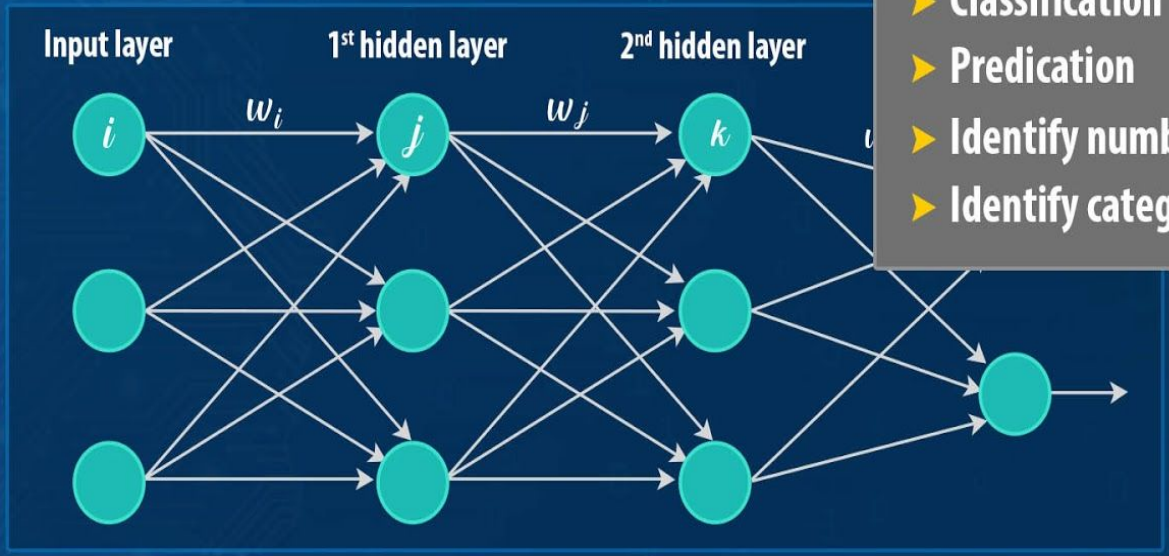


$$y_i = f\left(\sum x_i w_i\right) \qquad y_k = f\left(\sum x_j w_j\right) \qquad y_l = f\left(\sum x_k w_k\right)$$

AMITY FUTURE ACADEMY

MULTILAYER NEURONS

Working of Multi layer Neurons



Application:

- Classification
- Predication
- Identify number
- Identify category

$$y_i = f\left(\sum x_i w_i\right)$$

$$y_k = f\left(\sum x_j w_j\right)$$

$$y_l = f\left(\sum x_k w_k\right)$$

AMITY FUTURE ACADEMY

SUMMARY

- Understanding Neuron
- Working of neural network
- Understanding Weights, Activation Function
- Role of Multilayer Neurons in deep Learning

AMITY FUTURE ACADEMY