

LP-4]
SCOA-4]

* Problem Statement:- Implement basic gates using Mc-Culloch Pitts or Hebbnet neural network.

* Objective:- i) To understand and implement Mc-Culloch Pitts basic logic gates using neural network.

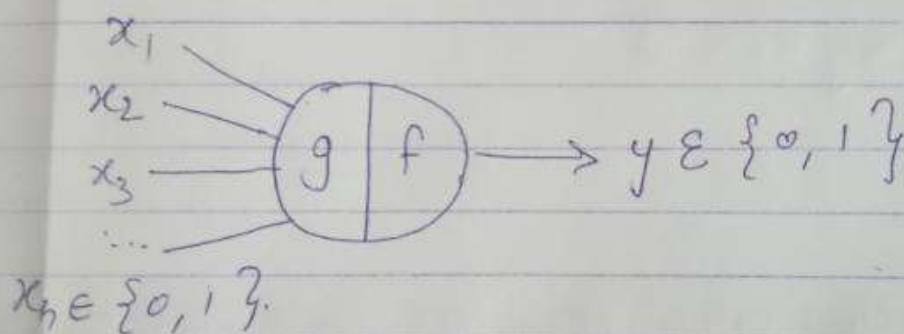
* Outcome:- I successfully implemented basic logic gates using Mc-Culloch Pitts.

* S/W and H/W requirement:- Open source OS, 64 bit OS, 8GB RAM, 4GB Jupyter notebook, python, keyboard, monitor.

* Theory:-

1. Fundamental unit of deep neural networks is called artificial neuron/perception.

2. First computational model of neuron was proposed by Warren McCulloch and Walter Pitts.

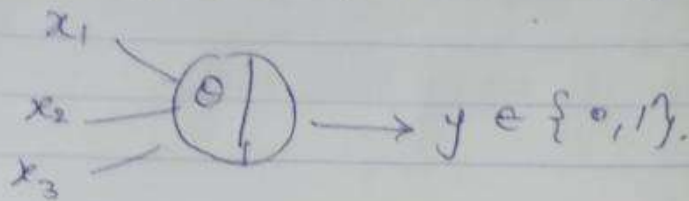


3. First part g takes an input and performs an aggregation and based on aggregated value second part, f makes decision.

4. Now using M-P neuron we can represent a boolean function.

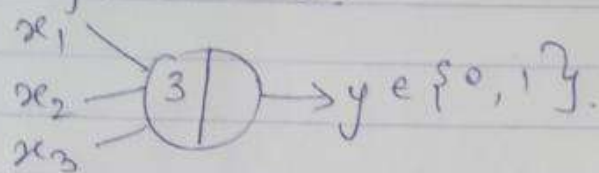
5. The neuron is trying to learn boolean function.

Let x_1, x_2, x_3 be boolean input functions.



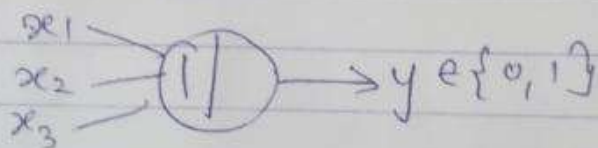
① AND :-

AND gives high output when all inputs are high.
i.e. $g(x) \geq 3$



② OR :-

OR gives high output if ANY input is ON. i.e.
 $g(x) \geq 1$



③ NOT :-

It gives opposite value of given input boolean function.



* Limitations of M.P neuron:-

1. cannot take non-boolean inputs.
2. Handling of threshold.

* Conclusion:- I successfully implemented and studied basic logic gates using Mc-Colluch Pitts neuron.