03.12.23

CSE461

Lecture -12

"Intro to Machine Learning and Neural Networks"

→ Mother Law of ML:

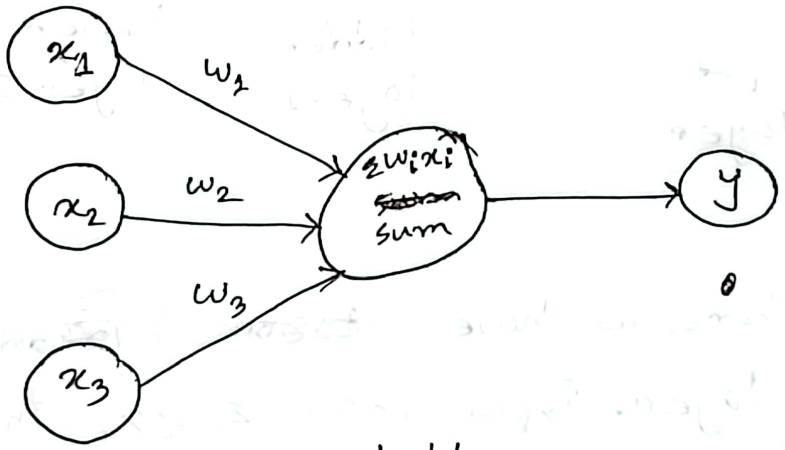
$$w_1 * x_1 + w_2 * x_2 + w_3 * x_3 = y$$

here,

w = weight

x = input

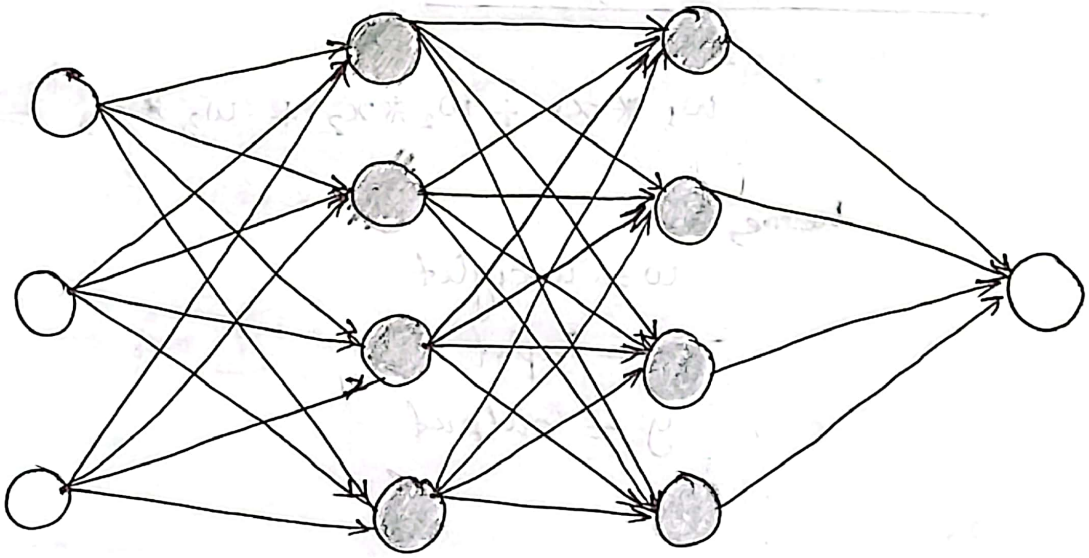
y = output



In ML, we have only one hidden layer. But from

here the concept of Neural Network comes where we can have multiple hidden layer.

→ Neural Network:



input layer | hidden layer 1 | hidden layer 2 | output layer

here, we have 4 নিউরন in each hidden layer. Input থেকে $\sum w_i x_i$ দিয়ে একটা value hidden layer-1 এ যাবে then from activation function we will get an output. Then again new weight দিয়ে sum

করে same ভাবে hidden layer-2 এ output পাবো। Then 4টা hidden layer-2 এর neuron এর output কে new 4টা weight দিয়ে multiply করে final output পাবো।

When we use NN for ~~out~~ our work then we are use Deep Learning (DL). So, difference between ML and DL is,

- ML has only one hidden layer.

  DL has many hidden layers.

- In ML, we give the input which is ~~our~~ the features of our robot. We extract the main features and then put those as input in ML. But in DL, we give all the values of the sensor directly and then DL extract the ~~fetu~~ features and use those to give the output.