

Assignment

Artificial Neural Network for Machine Learning

- Aim: Creating and Visualizing Neural Network from the given data using Python
- Theory:

-Introduction of Neural Network

A neural network is a "series of algorithm that endeavors to recognize underlying relationships in a set of data through a process that mimics the way human brain operates".

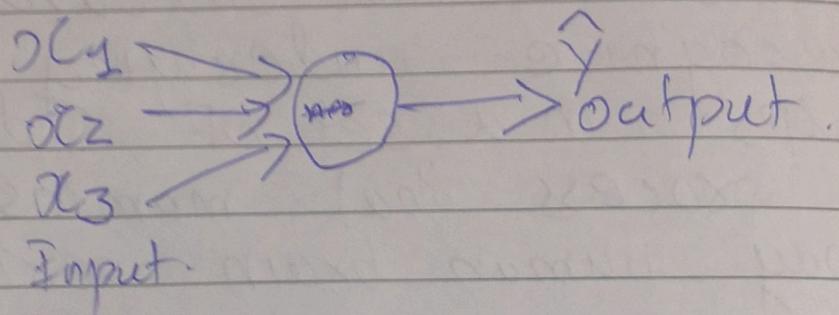
We try to minimize the weight/ values of neurons - those are contributing more to the error and then this happens while travelling back to the neurons of the neural network and finding where the error lies.

Weights are updated to minimize the error from each neuron with help of Gradient descent

• Perception

The basic forming unit of a neural network is a perception.

A perception can be understood as anything that takes multiple inputs & produces one output.



3 ways of creating input output relationships.

- By directly combining the input and computing the output based on a threshold
- Next add weight to the input.
- Add bias.

$$w_1x_1 + w_2x_2 + w_3x_3 + b.$$

* Activation function

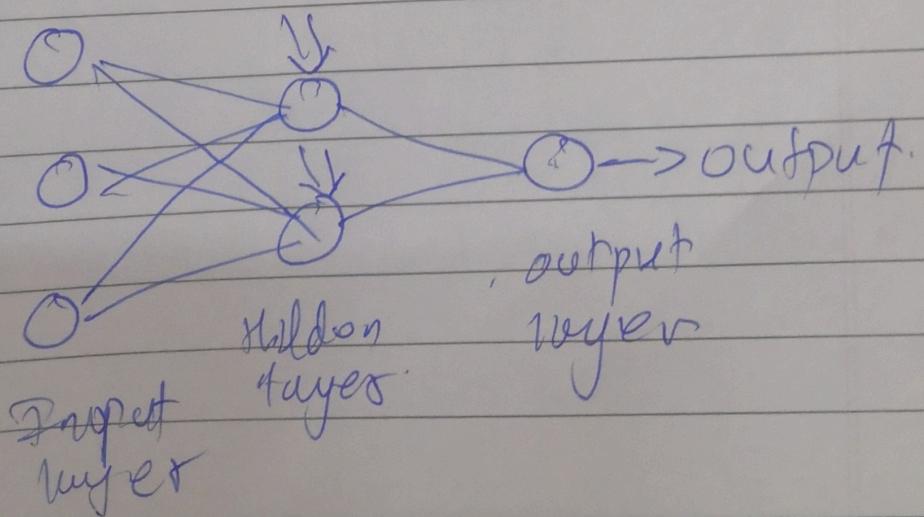
- Activation function takes the sum of input ($w_1x_1 + w_2x_2 + w_3x_3 + b$) as an argument & return the output of the neuron

$$a_k = f \left(\sum_{i=0}^{n-1} w_i x_i \right)$$

The activation function is mostly used to make a non-linear transformation which allows us to fit a non linear hypothesis on to estimate the complex function.

Epoch -

The one round of forward and back propagation



Conclusion

In this assignment we implemented and understood the concept of artificial neural networks by applying it on the cancer dataset.