1   Multi-Layer Perceptron

So far, we have seen that a perceptron can be understood as anything that takes multiple inputs and produces one output. For example, the figure 1 depicts a single layer perceptron consisting of layer of three input nodes i.e X_1, X_2 and X_3 and a layer of output node Y.
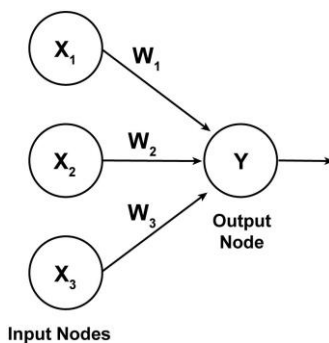

Figure 1

Single-layer perceptron can only learn linear functions. For non linear functions, multi-layer perceptron utilizes a nonlinear activation function (mainly hyperbolic tangent or logistic function) that lets it classify data that is not linearly separable. Every node in a layer connects to each node in the following layer making the network fully connected.

Multi-Layer Perceptron consists of multiple layers called layers of hidden nodes stacked in between the layer of input nodes and the layer of output nodes as shown below.
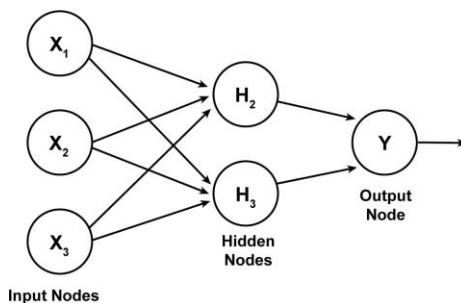

Figure 2

The figure on previous page shows just a single layer of hidden nodes but in practice can contain multiple output nodes and multiple hidden layers which is depicted in the below figure.
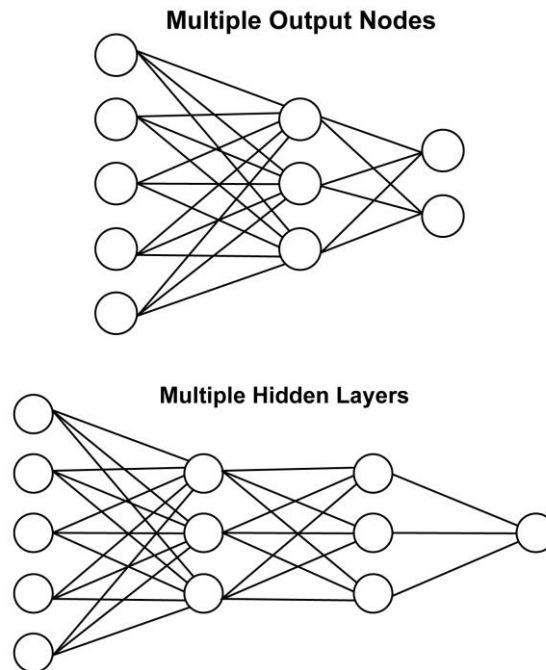
Multiple Output Nodes

Multiple Hidden Layers

Figure 3

References:

For more details on MLP,
https://en.wikipedia.org/wiki/Multilayer_perceptron