

## Lab Report-Perceptrons

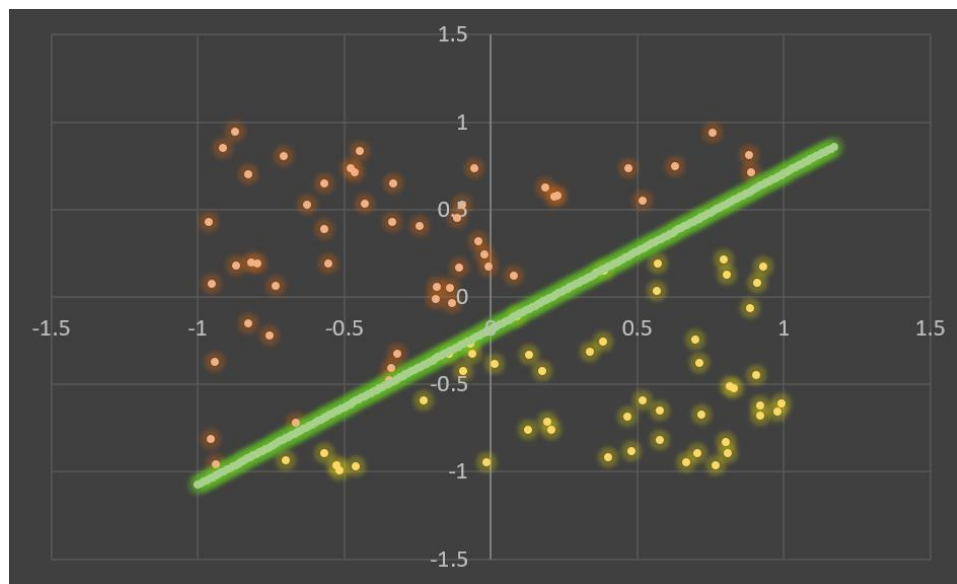
### Part 1

Weights[0]= 4.833989544411002

Weights[1]= -5.423713368621496

Bias=-1

The green Dotted line represents the line that the Perceptron algorithm found to separate the data. It's function is delimited as  $Y = -(-1 + 4.833989544411002X) / -5.423713368621496$  which is equivalent to  $Y = -(Bias + weight[0]X) / weight[1]$



### Part 2

Toggling different parameters for an ANN revealed some insights on how accurate they can be and how much time do they take to be trained. Adding more layers is definitely the most time consuming operation. The number of nodes in a layer doesn't matter so much as the number of layers in a network. Even though it has enough nodes and layers, data is not completely and correctly classified in a low range of epoch iterations. Layers with too many nodes seem to be completely useless. Having too many nodes makes data harder to classify and more and more iterations are needed to improve accuracy.

Adding new layers adds more time to training, but it improves accuracy and the number of iterations needed to train your ANN. The most important parameter by far is the number of epoch iterations. If this value is underestimated there is no guarantee the ANN will be error free and data can be easily misclassified.

