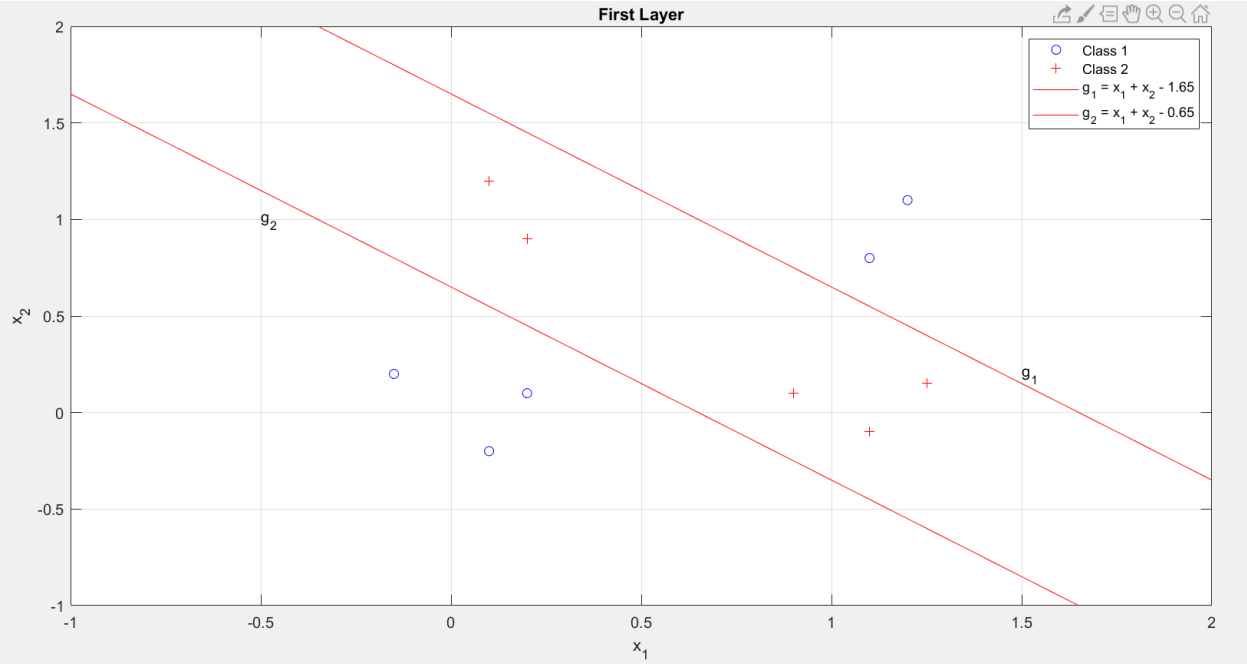
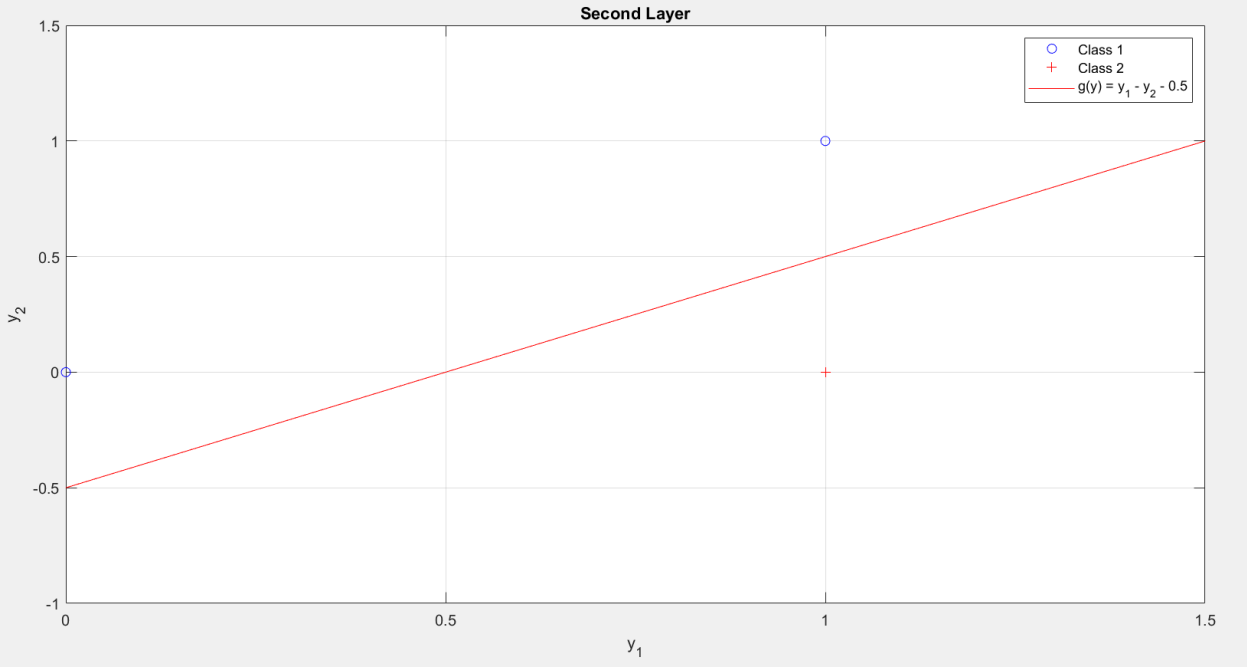
Problem 4.1

These data sets are not linearly separable thus multilayer perceptron is being used in this case. They're very similar to the XOR problem shown in the test book. It's a two-layer with two neurons perceptron. There are two discriminate lines g1 = (x1 + x2 – 1.65) and g2 = (x1 + x2 – 0.65). They're shown in the first figure below. The second figure is the linear hyperplane that will separate the point (0,1) from the two points (0,0) and (1,1) which the function is 0 = y1 – y2 – 0.5.





Problem 4.2

The learning parameter being used in the following two figures is 0.1 and the percentage classification error is about 0.5387% for a total of 600 vectors from 150 vectors from each distribution.