Problem 2

Part(a)

The classification accuracy for training dataset is 74.157%. The error-rate for training data is 25.842%. The number of misclassified samples for the training data is 23.

The classification accuracy for training dataset is 70.7865%. The error-rate for training data is 29.2134%. The number of misclassified samples for the training data is 26.

Part (b)

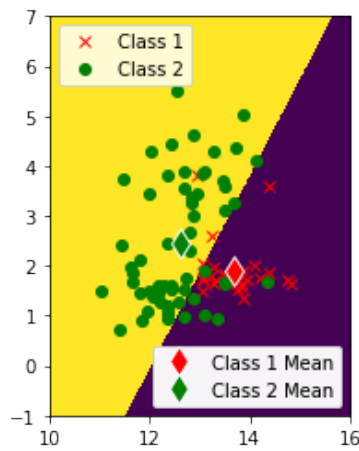Plots for each individual 2 class decision boundary based on one vs rest method.

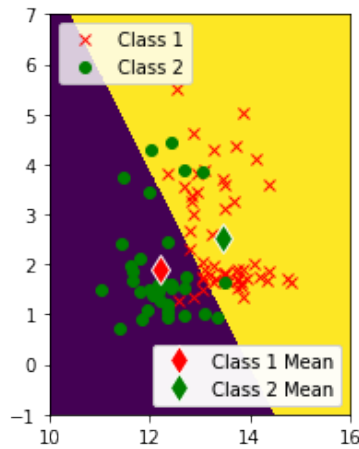Figure 1: Plot showing classification of S1 and S1'

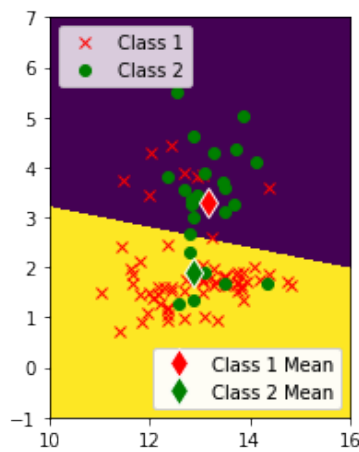Figure 2: Plot showing classification of S2 and S2'

Figure 3: Plot showing classification of S3 and S3'

Part (c)

Shown below is a plot showing final decision boundaries and the decision regions for the three class problem set, including the indeterminate regions. The yellow color in the plot defines the indeterminate regions which are four in number.
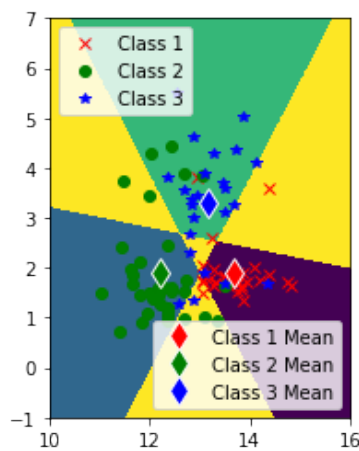
Figure 4: Plot showing Final decision boundaries, decision regions and indeterminate regions