Mertcan Aşgün 63948

I started to this assignment by creating appropriate matrices representing the means, covariance and the sizes of the data points that I will generate. By using Numpy, I generated sample data points with Gaussian distribution with the given parameters. After I generated the data points, I plotted them and labeled them. Then I calculated the sample means, sample covariance and class priors for the generated data points. Since I generated those points from given means and covariances; sample means and sample covariances were similar to them as expected.

To be able to make predictions, I needed a score function. So, I created a new method which calculates score function of a given data. To ease my work, I calculated required Wc, wc and wc0 matrices apart from the function. Following the creation of score function, I created a prediction function, which simply returns the index of maximum of score function, as we desired. Then using a for loop, I calculated predicted values for all sample size N=300 and computed corresponding confusion matrix. As we expected, most of the data points were predicted correctly, but a few of them were mislabeled by our score function.

To plot the decision boundaries regarding those data points, I followed the code in the lab sessions. For discriminant value, I calculated the required matrix multiplication, considering x1\_grid and x2\_grid values a column matrix and then placing this matrix in the score function.



