Project 4: Mixture Discriminant Analysis

The aim of this project is to practice the EM algorithm for estimating mixture models and its application in classification. You are strongly encouraged to use datasets related to your research. You only need to choose one dataset to work on. Six datasets are available at `http://www.stat.psu.edu/~jiali/stat557/material.html`.

Requirements for the project are listed below.

1. Implement the EM algorithm for estimating a mixture of normals.

2. Use mixture discriminant analysis for classification. Try different numbers of components in the mixture distributions. Compare MDA with QDA. (quadratic discriminant analysis).

3. Write a report. Provide pseudo-code of your algorithm. As usual, you are required to explain the contribution of each individual group member.