Prob. 1

Plots for the code GMM_intro.m are shown in Fig. 1. The code generates samples from a GMM with parameters: weights, 0.5, 0.5; mean vectors, $[1\ 2]^T$, $[-3\ -5]^T$; and covariance matrices $\begin{bmatrix} 2 & 0 \\ 0 & 0.5 \end{bmatrix}$, $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$. The estimate of the GMM parameters for the given data is: weights, 0.51, 0.49; mean vectors, $[0.89\ 1.94]^T$, $[-3.00\ -4.97]^T$; and covariance matrices $\begin{bmatrix} 1.92 & 0.15 \\ 0.15 & 0.46 \end{bmatrix}$, $\begin{bmatrix} 0.76 & -0.00 \\ -0.00 & 0.92 \end{bmatrix}$

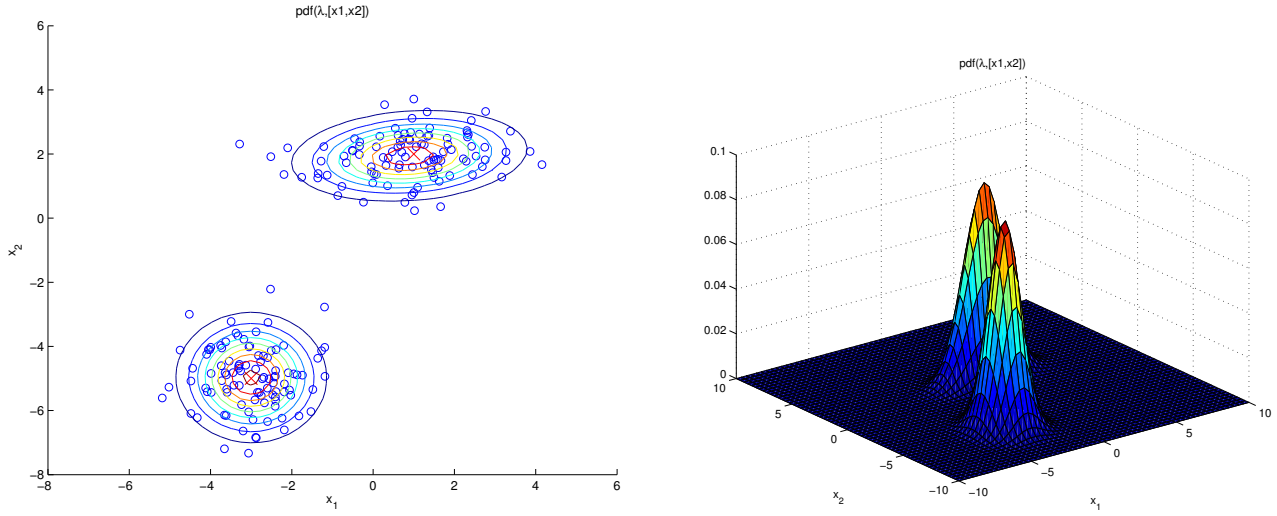

Figure 1: Plots for problem 1.

Prob. 2

The recreation of textbook p. 437 Figure 9.8 is shown in Fig. 2

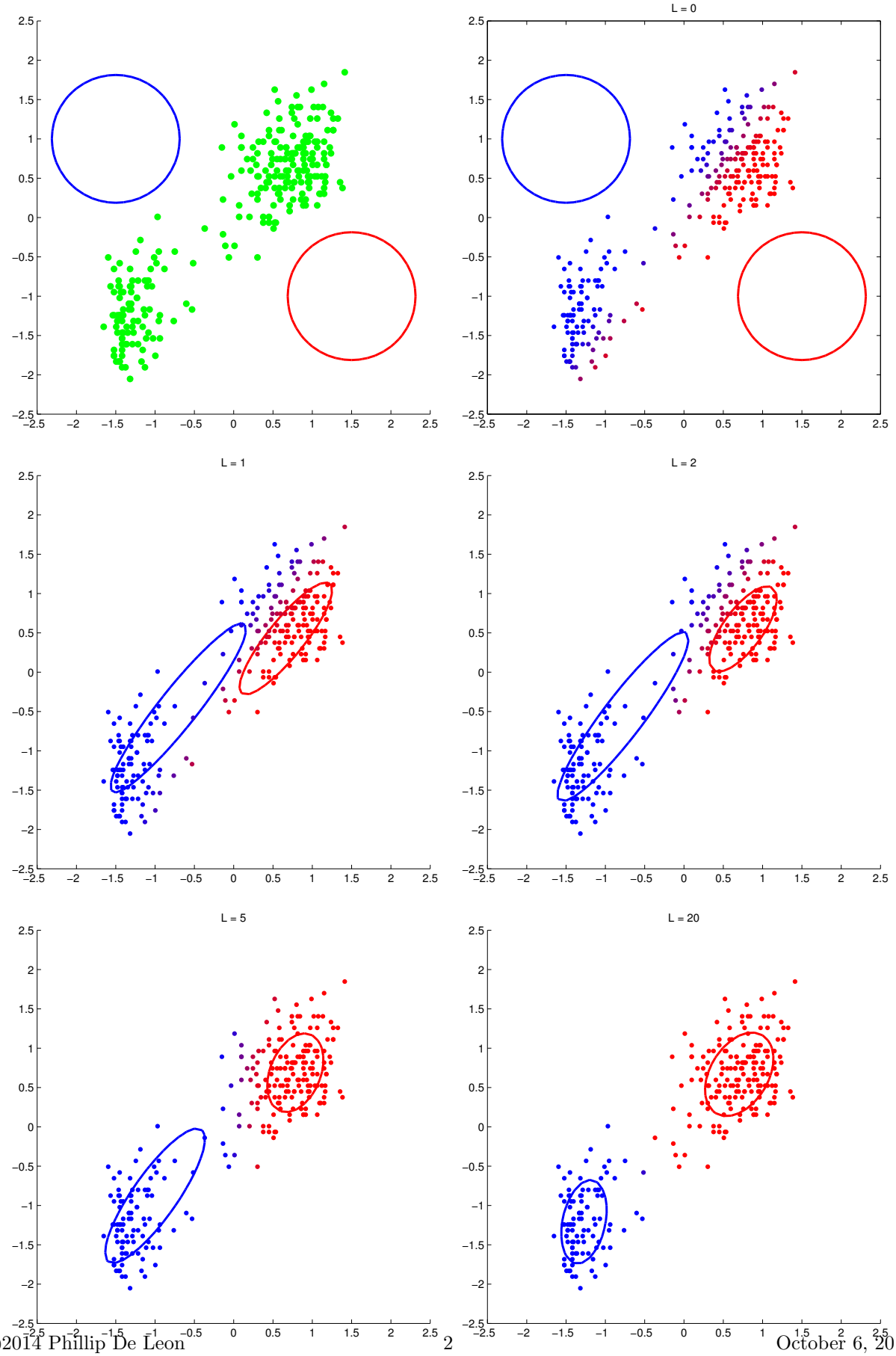

Figure 2: Recreation of Figure 9.8