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K-Means and GDA

This exercise is abpout unsupervised classification with K-Means and the EM-algorithm using a mixture of gaussian model. With random initialized parameter as given in the exercise discussion section, we obtain final models with the following parameter:

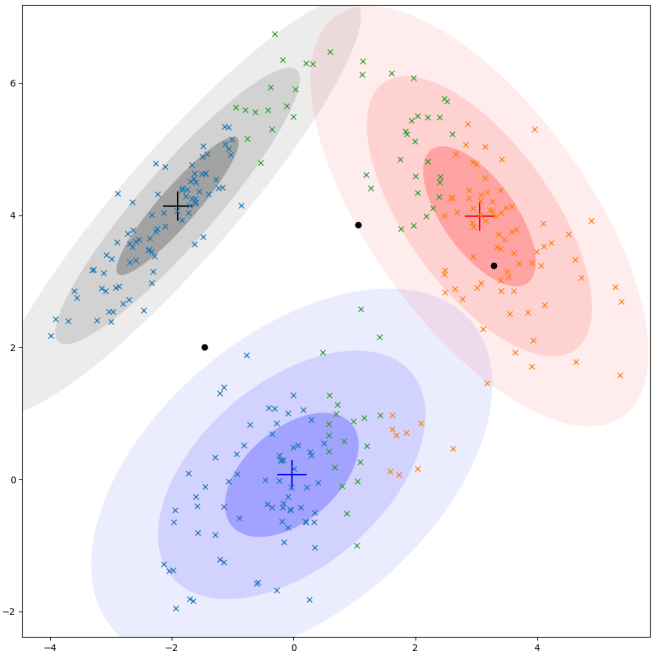

Figure 1: Resulting graph of the EM

Cluster	Phi	My	Sigma
1	0.33265	-0.02753, 0.06840	[[1.20495, 0.49881][0.49880 0.88341]],
2	0.33525	3.05502, 3.98327	[[0.85455, -0.63851],[-0.63851 1.12279]]
3	0.33210	-1.90212, 4.13922	[[1.00847, 0.96375], [0.96375 1.09545]]

Table 1: Parameter of the EM-Run

https://github.com/gitfabianmeyer/ml_ss20

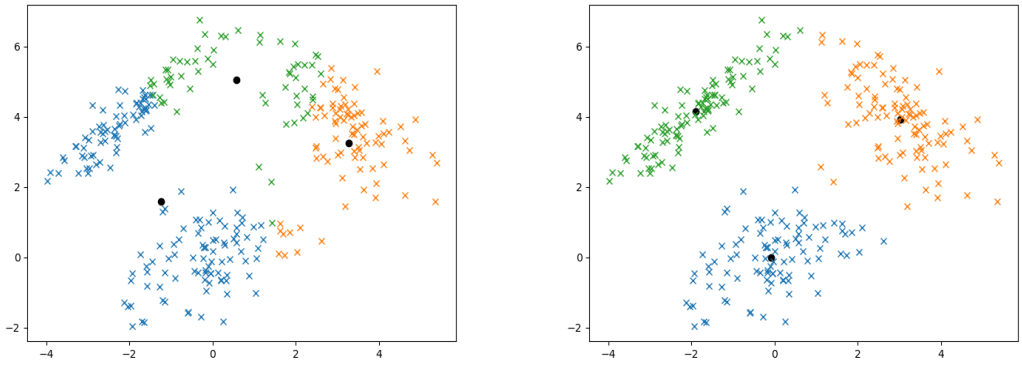

Figure 2: On the left you see the inital clusters, on the right side the final converged model with the params shown in Table 2

-0.08002533	0.00641307
3.03141955	3.92662538
-1.89468155	4.14767278

Table 2: Parameter for the k-means centroids

https://github.com/gitfabianmeyer/ml_ss20