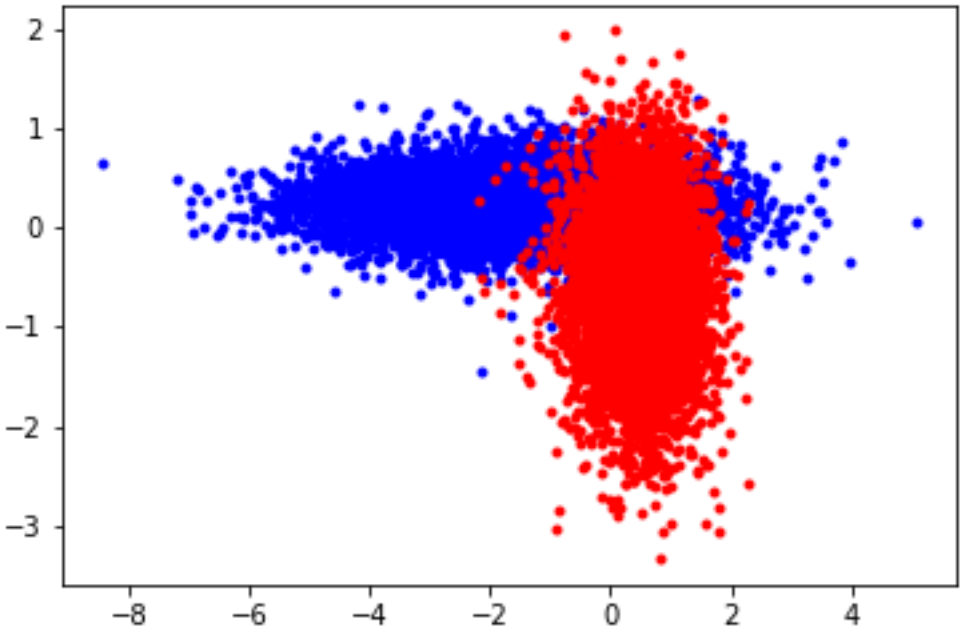
Lecture 2 – Bayesian Decision Theory

The traning data have been plotted below.



This is used to compute parameters for the likelihood function.

In exercise a) we have found prior probabilities – 55.4% for belonging to the blue group and 44.6% for belonging to the red. These, along with the found mean and covariance matrix of the likelihood function are now used to compute posterior probabilities for the test data. We found that the test data was correctly classified in 90.9% of the instances.

In exercise b) we assumed uniform priors and computed the posteriors, which in this case is equal to the likelihood, for new test data and found this yielded a correct classification in 88.8% of the instances.

In exercise c) we were asked to do the same as in b), but now assuming priors 90% and 10%. This yielding correct classifications in 96.3% of the instances, that is, an increase of 8.4% compared to the assumed uniform priors.