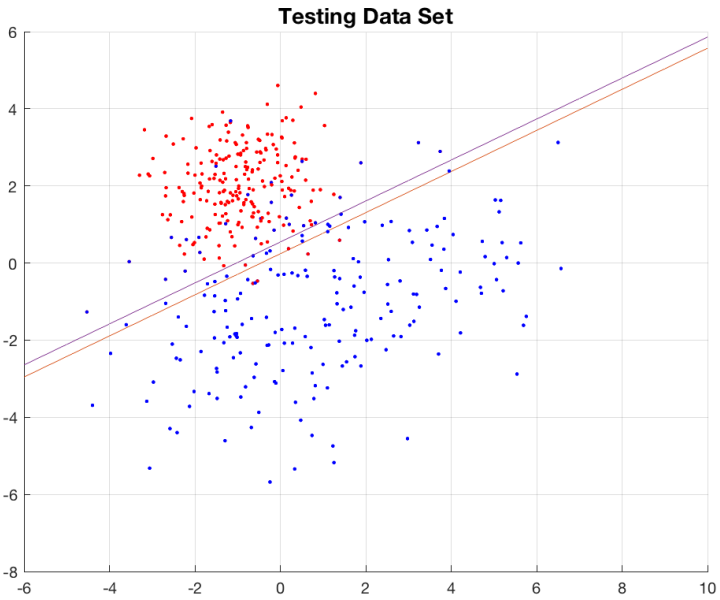

RSS:

By implemented with backslash method beta_hat = A\y, the value of beta_hat is calculated. The residual sum of the squares is 180.2041.

The line:

Since the value beta_hat is obtain by using the least-squares fitting and beta_hat is suppose to predict a value in y given the corresponding row. I think this line is likely to be a linear lest squares approximation that predict the value of x2 in terms of x1. In another word, this line is formed by taking the squares of the smallest distance between blue and red data set.

Testing phase:

Error value is 0.4425. This error is the average difference of z and z_hat. Since z_hat is obtain by the defined equation according to the predicted vector of v = B * beta_hat. z_hat has a relatively good prediction in general that is about 0.4425 away from the discriminant line defined in equation 1. As I implemented the same method in testing phase with z, the discriminant line is obtained. As shown in the figure, the red line under the blue one is by using z. We can see the beta_hat from previous training data works pretty good in predicting the testing dataset value.