**Exercise 1 (Nearest neighbors classification)**

The accuracy score on the test set is 0.9459930314 and the accuracy score on the train set is 1.0000000000

*discussion of the results.*

**Exercise 2 (Cross-validation)**

*short description on how you proceeded*

The best k is 3 with classification error of 0.0300000000

**Exercise 3 (Evaluation of classification performance)**

The accuracy score of classifier with k\_best on the test set is 0.9494773519 and on the train set is 1.0000000000

**Exercise 4 (Data normalization)**

*discussion of the three normalization variants including conceptual arguments why two of them are flawed;*

The best k found in cross validation procedure is 3 with classification error of 0.0250000000

The accuracy score of classifier with k\_best on the test set normalized is 0.9599303136 and the accuracy score on the train set normalized is 1.0000000000

*short discussion of results with and without normalization*