

Exercise 2: Applying and Evaluating kNN



Image source: <https://cmci.colorado.edu/classes/INFO-4604/fa17/>

Try in - Applying and Evaluating kNN

```
##### K-Nearest Neighbors #####

# Convert training and test data to k-NN specific format
training.data.predictors <- cbind(training.data$balance,training.data$income)
test.data.predictors <- cbind(test.data$balance,test.data$income)
training.data.class <- training.data$default

# Fit the k-NN model with k=1
set.seed(1)
knn.pred <- knn(training.data.predictors,test.data.predictors, training.data.class,k=1)

# Confusion Matrix
table(knn.pred, test.data$default)

# Estimate the test error rate
mean(knn.pred != test.data$default)
```

1. Try the code for yourself.
2. The Confusion Matrix gives you the False Positives and False Negatives. Try to interpret it! Look at the graphs you produced before to aid you with the interpretation.
3. Then fit the k-NN model for $k = 3$ and $k = 100$.
4. Compare and interpret the results of the three different models.