**WEEKLY STOCK MARKET DATA**

(a)

Table 1. Summary

Table

Description automatically generated

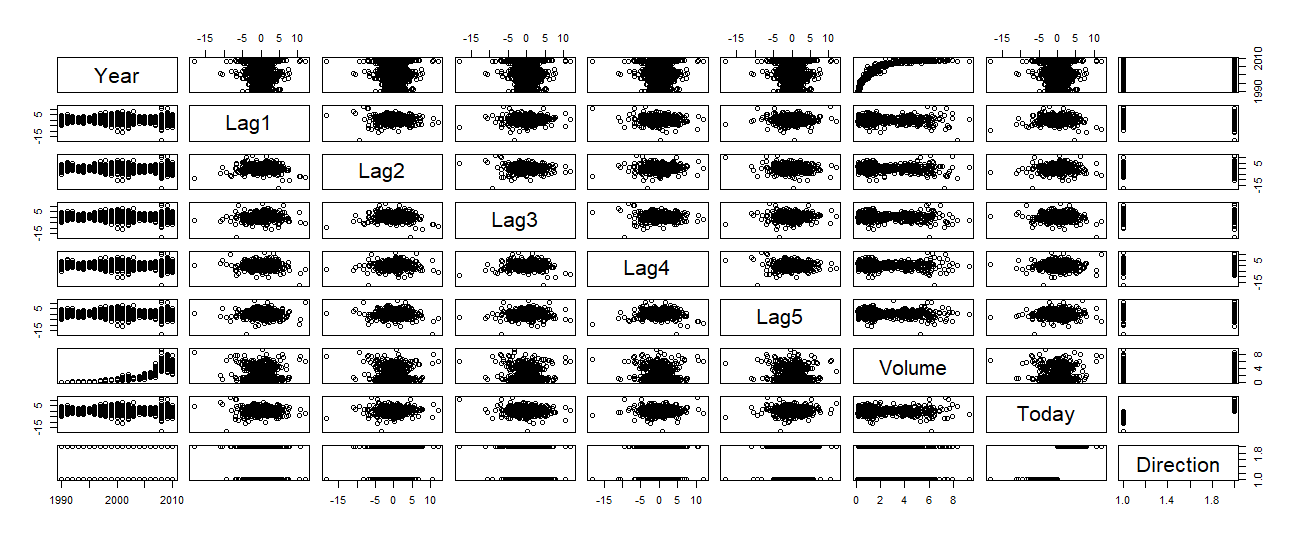


Figure 1. All information vs. Time(Weeks)

All these patterns are in this pairs plot. Volume goes up and down in the end, returns are all around 0 with similar standard deviation.

(b)

Table 2. Logistic Regression Fit

Table

Description automatically generated

2 of the predictors appear to be statistical significant, “Intercept” and “Lag2” are significant in 0.001 and 0.01 significance level respectively.

(c)

Table 3. Confusion Matrix

Text

Description automatically generated with low confidence

overall fraction of correct predictions

Type I error rate is false positive rate

Type II error rate False negative rate =

(d)

Table 4. Confusion Matrix, Lag2 only

A picture containing text

Description automatically generated

overall fraction of correct predictions

(e)

Table 5. LDA

Text

Description automatically generated with low confidence

(f)

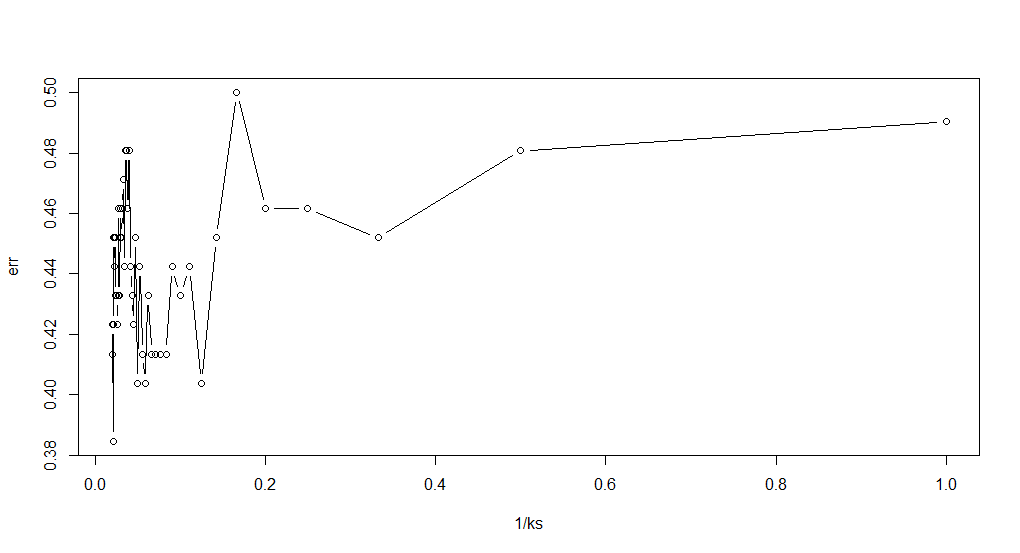


Figure 2. Misclassification Error Rate vs 1/k

Optimal k is 47 with minimum error rate 0.3846154

(g)

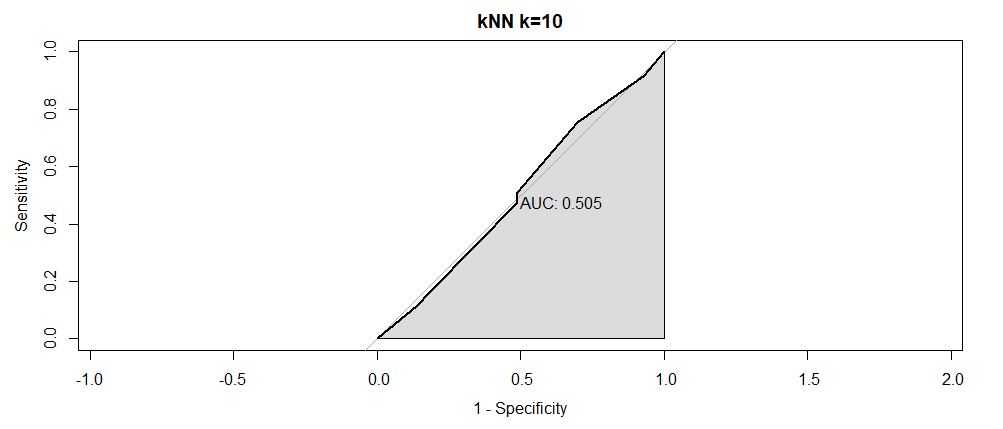
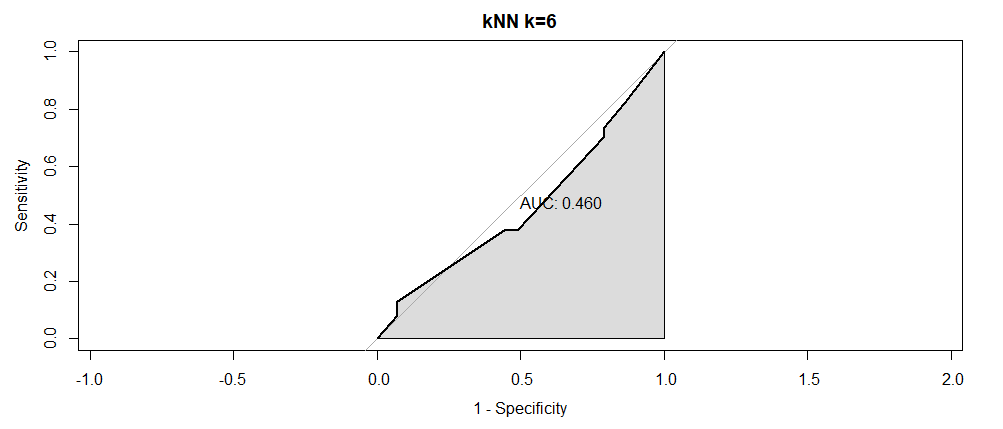
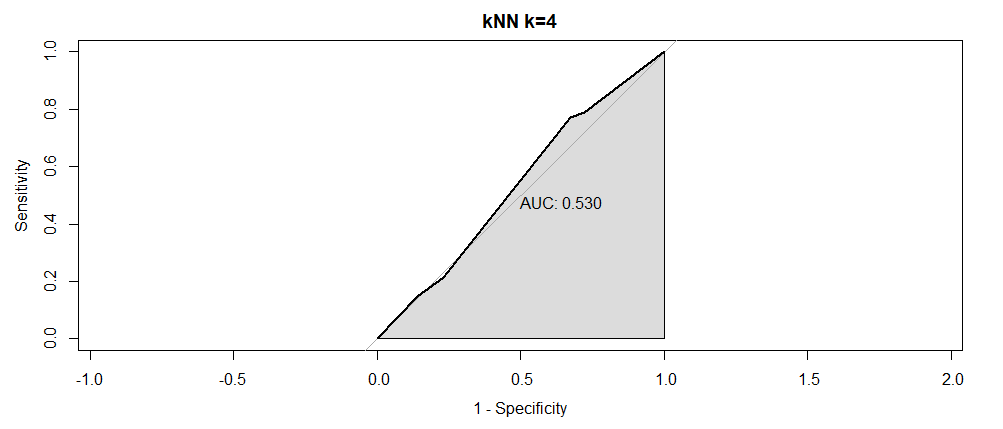
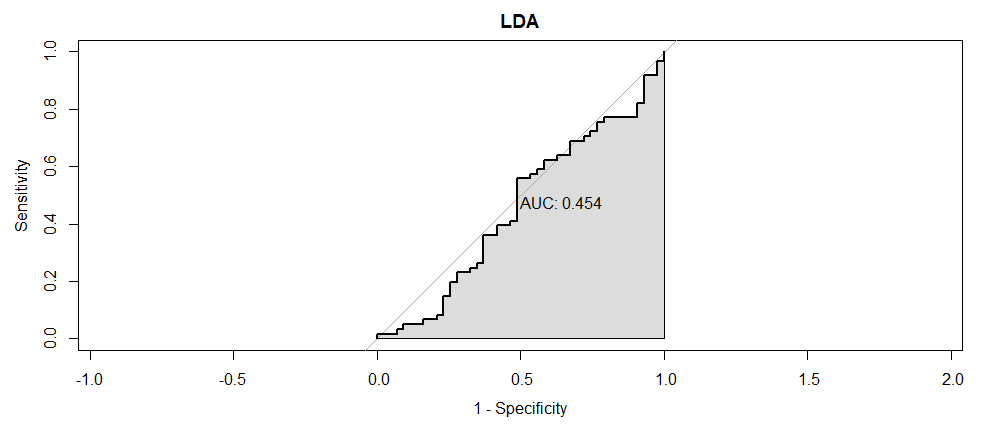
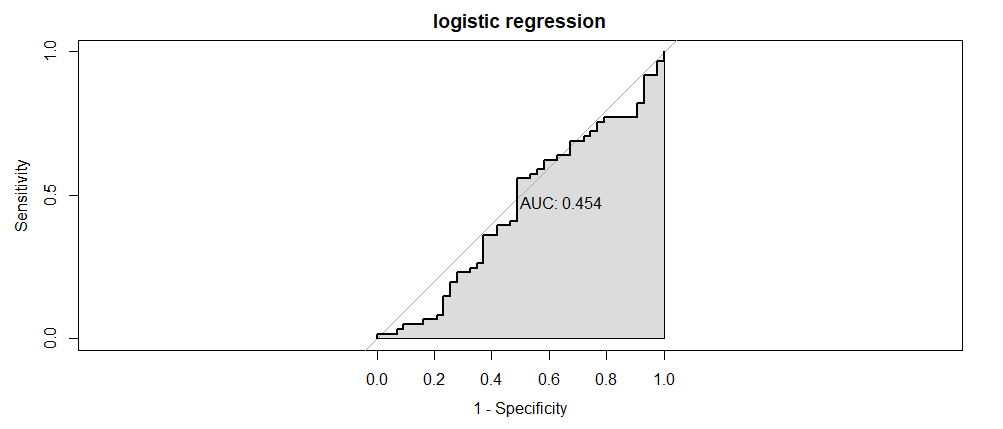
We have correct fraction of overall predictions

|  |  |
| --- | --- |
| Methods | Correct |
| Logistic |  |
| LDA |  |
| KNN |  |

LDA and logistic have the best results, then KNN,.

(h)

Roc plots are below for Logistic regression, LDA, KNN(k=4,6,10)



We can measure their performance by checking their AUC values.

Now we can rank them as follows: