MASSIVE ONLINE ANALYSIS (MOA) LAB

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Install MOA

- ✓ Installed

Follow the MOA Tutorial

- ✓ Done

Download Covertype dataset

- ✓ Downloded

Run several experiments with at least 5 classifiers

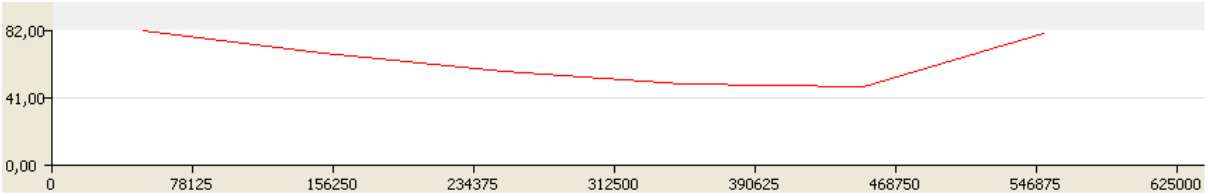
Classifiers chosen for this lab:

- ✓ Naïve Bayes
- ✓ Perceptron
- ✓ Bagging using Adaptive-Size Hoeffding Trees.
- ✓ KNN
- ✓ Adaptive Random Forest

Results:

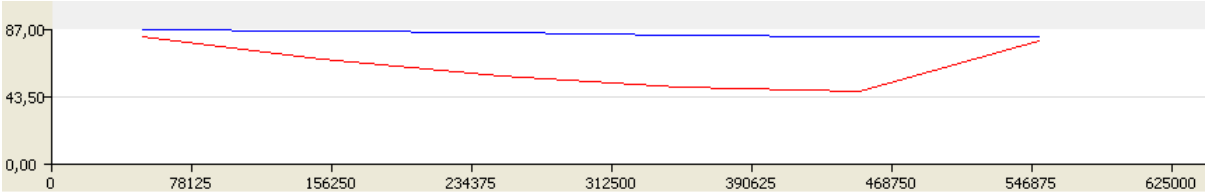
Showing the precision and Kappa for each classifier used

✓ Naïve Bayes:



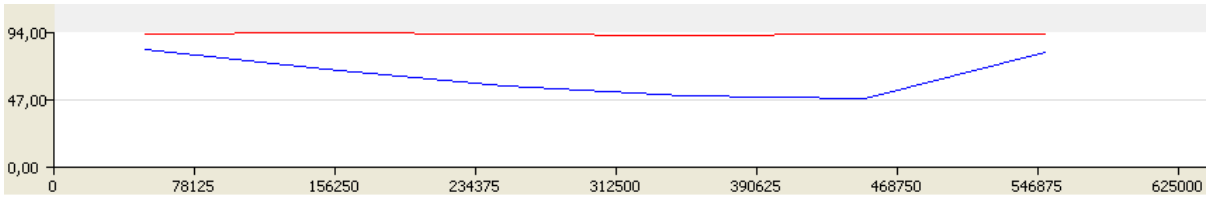
- Mean Precision: 63,35
- Mean Kappa: 38,28

✓ Perceptron



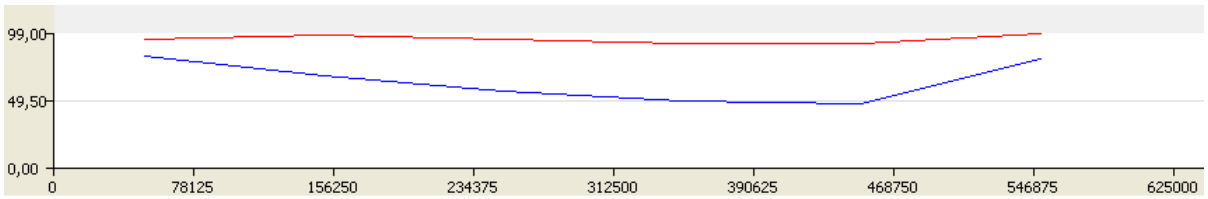
- Mean Precision: 83,66
- Mean Kappa: 70,70

✓ Bagging using Adaptive-Size Hoeffding Trees.



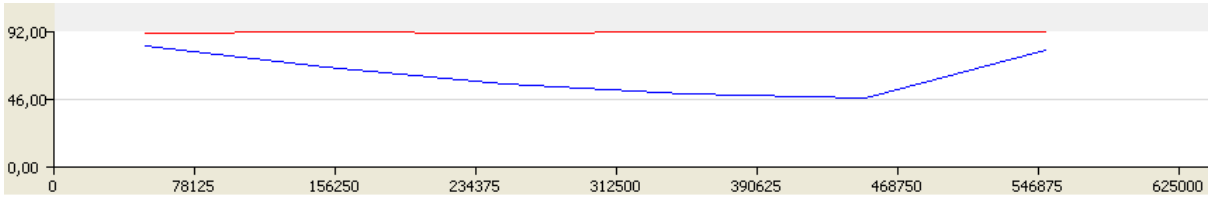
- Mean Precision: 91,56
- Mean Kappa: 83,29

✓ KNN



- Mean Precision: 93,83
- Mean Kappa: 87,24

✓ Adaptive Random Forest



- Mean Precision: 90,32
- Mean Kappa: 82,34

Discussion:

KNN > Bagging using Adaptive-Size Hoeffding Trees > Adaptive Random Forest > Perceptron > Naïve Bayes

Conclusion:
Knn in our example shows the best results but KNN is computationally limited by faster data streams

Which classifier do you recommend using with the Covertype dataset:

From this data set I recommend KNN, but for bigger datasets I recommend Bagging using Adaptive-Size Hoeffding Trees.