1.The classifiers chosen for the experiments.

The 12 classifications that I choose for the dataset Covertype are following: LimAttClassifier, kNNwithPAWandADWIN, SAMkNN, SGD, MajorityClass, OCBoost, ActiveClassifier, HoeffdingTree, MultilabelHoeffdingTree, kNN, AdaGrad, NaiveBayesMultinomial

2. The result of the experiments:

	LimAttClassifier	kNNwithPAWandADWIN	SAMkNN	SGD	MajorityClass	OCBoost
Time	2m41s	14m32s	26m11s	6.18s	5.73s	4m34s
accuracy mean	88.20	91.90	92.94	60.59	48.68	75.68
kappa	75.69	83.95	85.6583	11.17	0.05	55
memory	0.05	4.51	203.45m	0.03	0.03	5.36

	ActiveClassifier	HoeffdingTree	MultilabelHoeffding Tree	kNN - k 20	AdaGrad	NaiveBayes Multinomial
Time	12.01s	35.96s	12.22s	7m17s	6.54s	13.30s
accuracy mean	71.27	62.21	60.55	89.48	48.68	62.3
kappa	45.28	83.95	30.91	79.18	0.00	42
memory	0.02	1.39m	0.01	3.31	0.03	0.03

3. Discussion about the results.

For the data set Covertype, I find that the algorithm with KNN could get the best accuracy, almost 91%. However, it needs a lot time (>7minutes) and memory (3 m to 203m). When the train needs less time, the accuracy is not so good.

KNN with PAW and ADWIN could get the accuracy 91.90% almost the same accuracy as the SAMKNN and less memory. However still for training this model, it needs about 14 minutes to train.

The Majority Class only needs 5.73s to train the model, and could get 48.68% accuracy, which suggest the data set is balanced.

MultilabelHoeffding only needs 0.01 memory which could save a lot of resource compare with KNN. However, its accuracy is only 60.55% which is much worse than KNN.

4. Which classification do you recommend to use with the Covertype dataset?

Compared among those classifications that I have chosen; I will highly recommend to use LimAttClassifier. Because the LimAttClassifier could get the accuracy 88.20%, and needs less memory than KNN, only about 0.05m which is accepted. For the training time is 2 minutes, in order to get such high accuracy at the data streaming, I think it is acceptable.