# Homework 5

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## Covtype Misclassification Error Table

| Algorithm | Train Misclassification Error | Test Misclassification Error | Training Time |
|---|---|---|---|
| J48 Decision Tree | 5.1257 % | 31.3016 % | 2.85 seconds |
| Random Forest with 100 Trees | 0% | 25.1087 % | 10.6 seconds |
| Random Forest with 300 Trees | 0% | 24.9737 % | 31.74 seconds |
| Logistic Regression | 28.7103 % | 40.4457 % | 43.06 seconds |
| Naive Bayes | 33.9286 % | 45.7335 % | 0.23 seconds |
| Adaboost with 20 Weak Classifiers that are J48 Decision Trees | 0% | 24.8077 % | 54.16 seconds |
| Adaboost with 100 Weak Classifiers that are J48 Decision Trees | 0% | 22.8351 % | 234.31 seconds |
| LogitBoost with 10 Decision Stumps | 29.1468 % | 48.1608 % | 8.93 seconds |
| LogitBoost with 100 Decision Stumps | 21.7989 % | 38.8615 % | 86.61 seconds |
| LogitBoost with 100 Stumps and Weight Trimming at 95% | 21.3095 % | 39.261 % | 36.42 seconds |
| LogitBoost with 25 M5P Regression Trees | 0% | 24.7091 % | 194.56 seconds |

# Test Misclassification Errors vs Log(Training Times) Plot

| Point Label used in Plot | Algorithm |
|---|---|
| 5 | NaiveBayes |
| 1 | J48 Decision Tree |
| 8 | LogitBoost with 10 Decision Stumps |
| 2 | Random Forest with 100 Trees |
| 3 | Random Forest with 300 Trees |
| 10 | LogitBoost with 100 Stumps and Weight Trimming at 95% |
| 4 | Logistic Regression |
| 6 | Adaboost with 20 Weak Classifiers that are J48 Decision Trees |
| 9 | LogitBoost with 100 Decision Stumps |
| 11 | LogitBoost with 25 M5P Regression Trees |
| 7 | Adaboost with 100 Weak Classifiers that are J48 Decision Trees |



Test Misclassification Errors vs Log of Training Time