Homework 5

Jarod Klion

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Learning Algorithm	Train Misclassification Error	Test Misclassification Error	Training Time (s)
J48 Decision Tree	2.3901%	14.8%	0.25
Random Forest (100 trees)	0%	9.15%	0.99
Random Forest (300 trees)	0%	8.7%	2.71
Logistic Regression	11.9278%	16.25%	0.78
Naïve Bayes	20.2706%	20.4%	0.02
Adaboost (30 trees)	0%	9.35%	3.95
Adaboost (100 trees)	0%	8.45%	13.05
Logitboost (30 stumps)	8.0947%	12.8%	1.73
Logitboost (100 stumps)	3.3822%	11.85%	5.68
Logitboost (30 regression trees)	0%	8.8%	26.23
SVM with RBF (C = 1 and γ=0.01)	16.6178%	18.9%	2.9
SVM with RBF (C = 0.01 and γ=1)	17.407%	19.65%	6.65
SVM with RBF (C = 1 and γ=1)	8.478%	10.25%	0.76
SVM with RBF (C = 10 and γ=1)	5.2086%	9.25%	0.79
SVM with RBF (C = 100 and γ=1)	1.8264%	9.55%	1.19
SVM with RBF (C=0.01 and γ=10)	43.1567%	44.55%	9.1
SVM with RBF (C=0.1 and γ=10)	14.4532%	17.4%	4.17
SVM with RBF (C=1 and γ=10)	2.8861%	8.45%	2.92

i. I would recommend using Random Forest with 100 trees because while the accuracy isn't the highest out of the algorithms, it is extremely simple to tune the number of trees and took about 1 second to train, which is much faster than any other algorithm with that level of accuracy.