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## Collaboration Policy Report

Did you receive any help whatsoever from anyone in solving this assignment? No. Only us two (Alex Degtiar & Preeti Singh), did it in a team.

Did you give any help whatsoever to anyone in solving this assignment? No.

## Milestone-2 Project Report:

We were assigned three classifiers 1) SMO 2) AdaBoostM1 3) MultilayerPerceptron to run on 12 different datasets.

For each dataset (e.g. anneal etc.) the given classifier had the lowest error ratio:

- 1) anneal - MultilayerPerceptron
- 2) audiology - MultilayerPerceptron
- 3) autosl - SMO
- 4) balance-scale - MultilayerPerceptron
- 5) breast-cancer - SMO
- 6) colic - Multilayer Perceptron
- 7) credit-a - AdaBoostM1
- 8) diabetes - SMO
- 9) glass - SMO
- 10) heart-c- AdaBoostM1
- 11) hepatitis - SMO, MultilayerPerceptron and AdaBoostM(tied)
- 12) hypothyroid - MultilayerPerceptron

Below are individual error ratios(error ratio = ErrorRate of Classifier/ErrorRate of Naive Bayes) for each classifier on the 12 datasets, along with mean and max error. We can see clearly that the average and maximum error ratio of MultiLayerPerceptron are minimal amongst the three classifiers.

So according to our observation we can rank these three classifiers as follows for the given datasets:

- 1) Multilayer Perceptron
- 2) SMO
- 3) AdaBoostM1

Below are the per-classifier error ratio for the 12 datasets:

	SMO	MultilayerPerceptron	AdaBoostM1
anneal	0.5882352941176471	0.17647058823529413	2.705882352941176
audiology	0.6363636363636364	0.5454545454545454	1.6818181818181819
autosl	0.9736842105263157	1.131578947368421	1.0789473684210527
balance-scale	.4090909090909090	0.3181818181818181	1.1666666666666665
breast-cancer	0.8620689655172413	0.896551724137931	0.9655172413793103
colic	1.0	0.9565217391304348	0.9565217391304348
credit-a	0.7261904761904763	0.7619047619047619	0.7023809523809524
diabetes	0.9838709677419355	1.1290322580645162	1.1612903225806452
glass	0.5490196078431372	0.6078431372549019	0.8235294117647058
heart-c-	0.8888888888888889	1.0	0.6666666666666666
hepatitis	1.0	1.0	1.0
hypothyroid	1.2602739726027397	1.1232876712328765	1.3835616438356164
Mean	0.8231405774069106	0.8039022659137918	1.1910652122987841
Max	1.2602739726027397	1.131578947368421	2.705882352941176