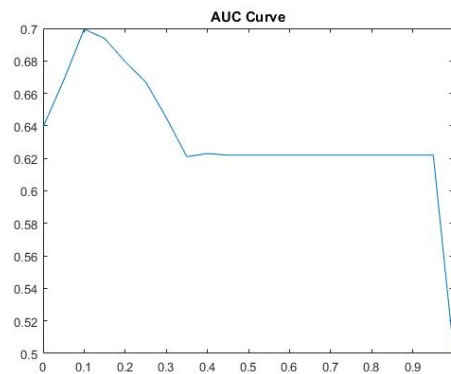# Homework 4

Aaron Gonzales

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1

In this problem we were asked to implement code for logistic regression trained using the Newton-Raphson method. We are also asked to train the data on different training set sizes. Unsurprisingly, it is clear to see in the Accuracy Curve that more training samples yield a higher accuracy on the test data. I was also unsure as to whether or not you wanted us to report on the AUC curve for this problem, I did just in case. The AUC curve in this case closely follows the form of the accuracy curve.
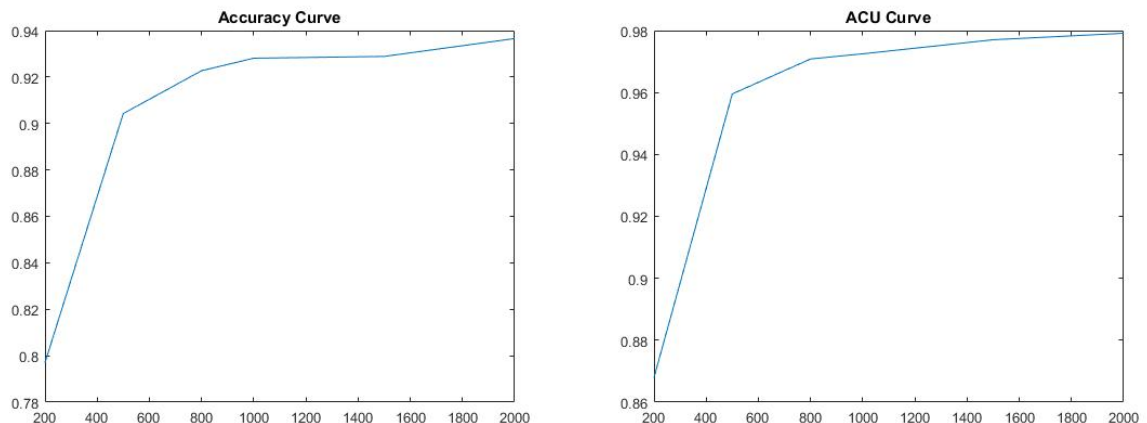
2

In this problem we are asked to perform experiments on sparse logistic regression. We monitor the effects the regularization parameter has in our training, I use 21 values as test regularization parameters, where my reg parameters range from 0 to 1 with 0.05 interval values. While we were not asked to report the accuracy of the experiments I did so out of curiosity

and found that the form of the accuracy was quite different than that of the AUC curve. The best regularization parameter for accuracy did not necessarily correspond with the best AUC performance. The AUC curve in this case suggests that the optimal regularization parameter is around 0.1, while the worst is 1.

Link to the code available here.