Milestone 1 : results and thoughts

Linear_regression :

The loss was very high as expected (1169.624451387155) since the lambda was set to 0.

Ridge_regression :

We took a wide range of lambdas for the cross-validation in order to go from something close to the linear regression to something above the default value.
We got a pretty standard MSE with the cross-validation (0.3668) it seemed like the greater the lambda was the better the MSE was (to an extend, after 200 it stopped improving)

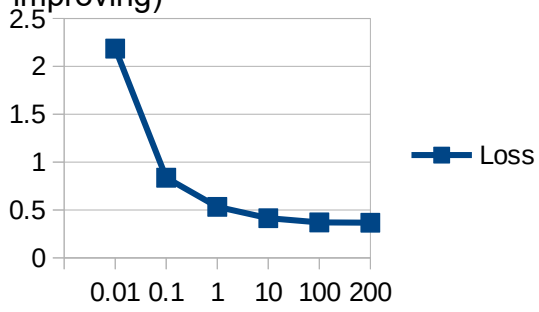

Figure 1: Loss for lambdas between 0.01 and 200(ridge regression)

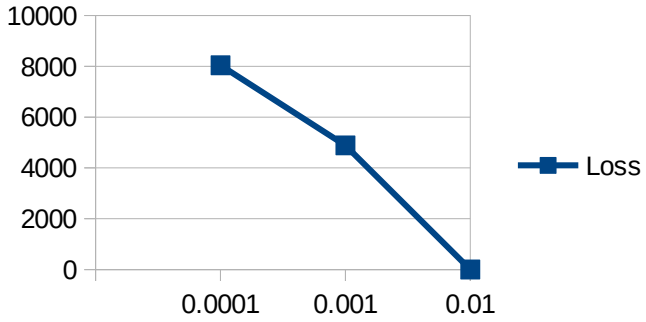

Figure 2: Loss for lambdas between 0.0001 and 0.01(ridge regression)

Logistic_regression :

We used a fixed number of maximum iteration (100) to facilitate testing and because greater didn't improve much the result (tried with 500 and 1000).
Went for close range of learning rates : lr that are pretty small because a lr to high caused overflow on the np.exp function due to high change of the gradient.
An lr to small would cause the gradient to change too slowly and the result would take too much iterations to yield to an acceptable result.
Here the results were unexpectedly good with an accuracy of 81.39% and an F1 score of 0.78.

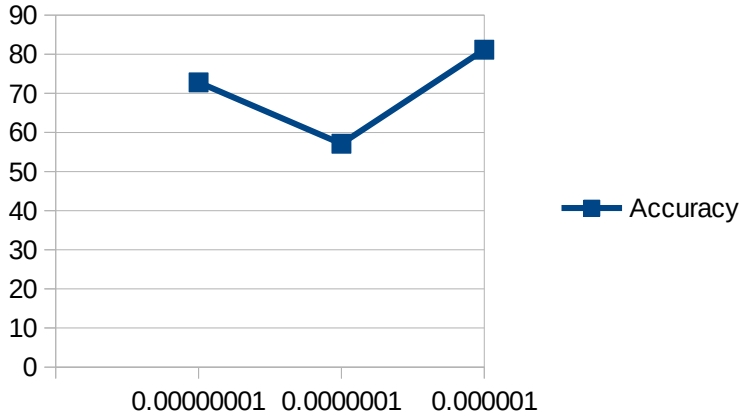

Figure 3: Accuracy for learning rate between 0.00000001 and 0.000001(Logistic regression)