CS 760: Machine Learning Spring 2024

Homework 3: Logistic Regression

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Problem 2.1

(a) I used good ol' fashioned guess and check. I set the iterations to 2000 and printed out the weights after every 100 iterations. Once the values started to level off, I considered that convergence

(b) It took me about 3000 iterations to converge to a respectable value

(c) I performed min-max normalization to avoid running into a RuntimeWarning (when the exponential got WAY too big), so my results for $\hat{\theta}$ were:

$$[-0.10924571, 0.03981236, -0.77742697, -0.01827487, 0.002808]$$

(d) I stored the likelihood for every iteration just to compare. With taht said, the final value for the log-likelihood of $\hat{\theta}$ is: -0.6700727101571831

(e)