Homework 2 – Due Sept. 23rd 23:59, KST

Instructions: Complete the report and turn it in before the due date. You must show all your work for full credit. The "TODO" comments in logreg.py are also part of the official instruction, so pay close attention to those as well. DO NOT COPY OTHER'S WORKS!

1. Implement L2-regularized logistic regression on the given dataset. In particular, write a code that performs gradient descent on the parameters. You must also implement the gradients manually in the provided functions. See 'logreg.py' for details on what to implement. Plot the training and validation performance on the same graph to see how they change over each iteration. When do you think overfitting happens? (50%)

2. Identify all hyperparameters in your algorithm. Once you do that, use the provided validation set to choose the 'right' set of parameters. Provide a paragraph detailing your approach, as well as any supporting plots/graphs/tables, etc. You can write a separate code in the logreg.py file to do this, but you're also welcome to do it manually. Just make sure to clearly describe what you did. I'm giving you a lot of freedom for this problem (50%).

3. (Bonus 10%) Draw the Precision-Recall curve.

Deliverables

- An error-free source code for problem #1.
- A ***typed*** PDF file that contains the answers to problem #2 (and #3, if available).