ECE 421 Programming Assignment Question

Member One: Mark Qi

Student ID: 1006764645

Member Two: Richard Zhao

Student ID: 1006750614

Part 1b Questions

1. Parameter tol is the stopping criterion, if it is not none, it will stop training iterations when (loss > previous\_loss – tol) to prevent overfitting.
2. Setting max\_iter = 5000 and tol = 1e-3 does not guarantee the algorithm will pass over the training data 5000 times since whenever tol exceeds 1e-3, training iteration will stop. We could set n\_iter\_no\_change = 5000 to ensure that the algorithm will pass over the training data 5000 times since this is the number of iterations with zero improvement.
3. We could use the class\_weight parameter to set the weights of the model to certain value.
4. Our own Numpy implementation resulted in the following confusion matrix.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Predicted | | |
| Label |  | -1 | +1 |
| -1 | 9 | 2 |
| +1 | 0 | 9 |

Scikit-learn library confusion matrix.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Predicted | | |
| Label |  | -1 | +1 |
| -1 | 9 | 0 |
| +1 | 0 | 11 |

Scikit-learn library resulted in 100% accuracy, while our Numpy implementation didn’t.