Hi Dongguan,

Nice work on linear models and logistic models. Very neat and easy-to-read codes. But more comments before or after the codes could definitely help and facilitate understanding your codes. I learned a lot from the method for sparse matrix. Here are my suggestions regarding your work.

1. For the Newton's method, hessian matrix seems wrong to me, could you double check that? I think it should be

W = (1/(1+exp(-X %*% beta))) %*% t(m - 1/(1+exp(-X %*% beta)))

2. Good job on the Cholesky factorization for both ordinary matrix and sparse matrix. I would encourage you to explore more on other matrix factorization, like LU decomposition, QR decomposition, and SVD decomposition.

3. It would be better if you could include mathematical derivation/proof for non-coding parts in the exercise. A good opportunity to practice Latex and how to present it in an easy-to-ready way.

Let me know if you have any concern. Keep on working.

Tracy