Homework #5 (due 6/3/2020)

1.

(MATLAB or ...) Compute the largest eigenvalue (absolute value) for 200 random 10 by 10 matrices A with entries rand(10, 10). Then do the same for the symmetric matrices $S = \frac{1}{2}(A + A^T)$.

2.

Take a matrix A where A is 0 below the diagonal and 1 above and on the diagonal and is of order 1000 by 1000. Compare the actual SVD of A to the randomized SVD of A reduced to $Y = AG$: the first Gaussian random matrix G is 1000 by 10 and the second G is 1000 by 100.