Math 170A Assignment # 4

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Due Date: November 7, 2014

1. Write Matlab codes for Exercise 1.4.16. Test them on matrices in Exercise 1.4.22.

2. Exercise 1.4.23.

3. Write Matlab codes to compute LU factorizations for square matrices, whose leading principal submatrices are all nonsingular. The output should be a unit lower triangular L and an upper triangular U such that the product LU equals the input square matrix.

   Apply your code to randomly generated matrices, by Matlab command `randn(n)`.

4. Write Matlab codes for Exercise 1.7.40 part (a). Apply your codes to positive definite matrices $A = B^T B$, where B is a random square matrix (use $B = randn(n)$ in Matlab).