MAD 6406: HOMEWORK 11

Due: Friday, November 20

Numbered problems are from Trefethen and Bau, Numerical Linear Algebra. Starred problems (*) require the use of Matlab (you can use another language if you prefer).

(1) Prove that if A is Hermetian postive definite, then each of the principal submatrices of A is Hermitian positive definite.

(2) Prove that if A is Hermitian positive definite, every diagonal element of A is positive.

(3) Prove that if A is Hermitian positive definite, an element of A with largest magnitude lies on the diagonal.

(4) Prove that the product of two lower triangular matrices is lower triangular.

(5) Prove that every Hermitian positive definite matrix has a Cholesky decomposition.

(6) 23.1

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