MATB24. Quiz #8, TUT # 21

(1) (4 point) In each part, give a complete definition, or mathematical characterization of the word in bold.
   (a) A **normal matrix**

(2) (5 point) Give an example of the described object (with justification) or explain why such an example does not exist.
   (a) A non-Hermitian matrix such that it is unitarily diagonalizable.

(3) (6 point) Answer the following question:
   (a) Prove that if A is Hermitian then it is unitarily diagonalizable, and it has real eigenvalues. [Can cite spectral theorem as stated in lecture]