AMSC 466: Second project assignment for 11/24/15

For both projects, your report should contain a quick summary of what you did and the complete code, in Matlab in principle. If you wish to use a different language, please let me know in advance.

You should preferably send me everything by email, pjabin@umd.edu. But if this is really not possible, a paper copy is acceptable.

Program 1. Implement the gaussian elimination.
Implement a function

\[
\text{function } x = \text{gaussian}(A, y, n)
\]

which should return the vector \( x \) obtained after using Gaussian elimination on the system \( A x = y \). You have to use pivoting to make the method stable. The program should return 0 if the matrix \( A \) is not invertible.

Program 2. LU decomposition.
Modify the previous program to obtain a function

\[
\text{function } [L, U] = \text{ludecom}(A, n)
\]

which returns the \( LU \) decomposition of \( A \). The program should return 0 if the decomposition is not possible (for example because a permutation would be needed). We do not ask for the \( PA = LU \) decomposition but for the simple \( A = LU \).