Lab 5 Assignment
Instructor: Rong Qin

Write a function `myLU` to perform the LU factorization for an arbitrary $n \times n$ matrix (under the assumption that elimination can be performed without row exchanges). Run the function on the input,

$$A = \begin{pmatrix} 1 & 2 & 7 & 1 & 8 & 2 & 8 \\ 3 & 7 & 22 & 11 & 26 & 14 & 28 \\ 2 & 5 & 16 & 15 & 27 & 12 & 24 \\ 8 & 22 & 66 & 77 & 117 & 66 & 107 \\ 3 & 15 & 35 & 101 & 93 & 85 & 86 \\ 8 & 18 & 65 & 62 & 151 & 64 & 130 \\ 6 & 16 & 49 & 62 & 133 & 96 & 173 \end{pmatrix}.$$

Test to see if this factorization is correct.

HW GUIDELINES

- You should turn in both your completed code (the m-file), and the diary file containing successful execution of the code (using the test given in the problem). Make sure that the diary is a .txt file and do not compress the file(s).
- Remember to only show output where appropriate.
- The m-file should be commented so that the reader can understand what the program/function does.
- MATLAB has a built-in function for LU factorization. *You may not use any built-in LU factorization functions in your m-file.*
- Your diary file should look like the following:

```
% Name Lastname
>> A = [1 2 7 1 8 2 8; 3 7 22 11 26 14 28; 2 5 16 15 27 12 24;
8 22 66 77 117 66 107; 3 15 35 101 93 85 86; 8 18 65 62 151 64
130; 6 16 49 62 133 96 173];

>> [L,U] = myLU(A)

L = [7x7 Lower Triangular Matrix Output of myLU(A)]

U = [7x7 Upper Triangular Matrix Output of myLU(A)]

>> A - L*U

ans = [7x7 Zeros Matrix]

diary off
```