Homework #7

- Textbook: 1.8.4, 1.8.7, 1.8.9, 1.8.10, 2.2.15, 2.2.22.

- Programming:

1. Write a function in Matlab that takes as input the size $n$; an $n \times 1$ vector $p$ of rearranged integers from 1 to $n$ representing a permutation matrix $P$ whose $i$th row is the $p(i, 1)$th row of the identity matrix; an $n \times n$ matrix $B$ whose upper triangular portion stores $U$ and strictly lower triangular portion stores $L$ of the $LU$ factoriation of $PA$; and an $n \times 1$ vector $\vec{b}$. Have this function output the solution to $A\vec{x} = \vec{b}$. Use only basic programming.

   (a) Write out or print out your function.

   (b) Run the case with $p = [3;1;2]$ and $B = [2 -1 3; -0.4 -3 3; 0.5 -0.2 4]$ and $b = [2;-1;1]$ and output your results.