onsider the linear system, $Ax = b$, where A is the following matrix,

$$A = \begin{pmatrix} -5 & 2 & -1 \\ 1 & 0 & 3 \\ 3 & 1 & 6 \end{pmatrix}.$$

Using **partial pivoting technique**, determine the P, L, U decomposition of the matrix A, such that $PA = LU$. (Show **EACH STEP** in the decomposition.)

Use the P, L, U decomposition found in (a) to find the solution to $Ax = \begin{pmatrix} 2 \\ -2 \\ 1 \end{pmatrix}$ (Show **ALL** relevant steps).

Use the P, L, U decomposition found in (a) to find the solution to $x = \begin{pmatrix} 0 \\ 1 \\ 5 \end{pmatrix}$ (Show **ALL** relevant steps).

Pivoting: MATLAB program)

ogram to find the LU decomposition of a given $n \times n$ matrix A using **voting**. The program should return the updated matrix A and the *p*. In MATLAB, name your file myLU.m, the first few lines of which s follows: