EX.2.2.4.a, Sauer3

Solve the system by finding the LU factorization and then carrying out the two-step back substitution

$$\text{(a)} \quad \begin{pmatrix} 3 & 1 & 2 \\ 6 & 3 & 4 \\ 3 & 1 & 5 \end{pmatrix} \begin{pmatrix} x_0 \\ x_1 \\ x_2 \end{pmatrix} = \begin{pmatrix} 0 \\ 1 \\ 3 \end{pmatrix}$$

Note 1: the LU factorization for this matrix was found in EX.2.2.2.a.
Note 2: the two-step back substitution for this linear system of equations is done using Python in CP.2.2.2.a.