
Exercise 1 Find an LU-factorization of A .

$$A = \begin{bmatrix} 5 & -5 & 10 & 0 & 5 \\ -3 & 3 & 2 & 2 & 1 \\ -2 & 2 & 0 & -1 & 0 \\ 1 & -1 & 10 & 2 & 5 \end{bmatrix}$$

$$A = LU = \begin{bmatrix} \dots & 0 & 0 & 0 \\ \dots & \dots & 0 & 0 \\ \dots & \dots & \dots & 0 \\ \dots & \dots & \dots & \dots \end{bmatrix} \begin{bmatrix} \dots & \dots & \dots & \dots & \dots \\ 0 & 0 & \dots & \dots & \dots \\ 0 & 0 & 0 & \dots & \dots \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

Source

[Nicholson] W. Keith Nicholson, *Linear Algebra with Applications*, Lyryx 2021, Open Edition, Example 2.7.3.