Assignment # 8

A linear system is described by the following equations

$$\begin{aligned} x_1 - x_2 + x_3 &= 1 \\ 4x_1 + 3x_2 - x_3 &= 6 \\ 3x_1 + 5x_2 + 3x_3 &= 4 \end{aligned}$$

Answer the following questions (1-4):

Questions-1: [1 Mark] Does this system has any unique solution? Explain.

Question-2: [3 Marks] Solve the above linear system by Gaussian elimination method.

Now solve the same linear system above by the LU-decomposition method:

Question-3: [3 Marks] Find the lower triangular matrix L and the upper triangular matrix U.

Question-4: [3 Marks] Now find the solution of the linear system again using the matrix L and U found in the previous question.

Submission of the Assignment # 8:

- Solve all the problems above.
- Prepare a title page including Your Name, Your ID#, Theory Section #.
- Prepare a single .pdf or .jpg file containing the tile page and the solution pages.
- To submit your assignment solution, visit the Submission Link (Click here). This will take you to a Google Form link.
- Fill up the Google Form link with correct information and upload the file there. You are done.

Previous

Next