CA2 Instructions to Run the Code

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The code is interactive with following limitations: -

- If you want to run for a different test case then you will have to paste the input in: -

  Input_file_method_no.txt

  Where “no” has to replaced by 1-7 depending on your method number input because there are 7 methods
- It is **NECESSARY that you have to enter the folder path where you want to save the output file for example: -**
  - **"C:\Aviral Data\Sem7\ESO208”**

  So, in a similar manner you have to enter the path of the folder

  Once you execute the code input will be taken from file as mentioned above and similarly output will be in the folder you mentioned with the file name: -

  output_file_method_no.txt

  Where “no” is the method number you give as input.

INPUT/OUTPUT STARTS FROM NEXT PAGE:-

Input output for the given Test case: -

Method 1: -

Input

3

4.0 2.0 0.0 10.0

2.0 4.0 1.0 11.5

0.0 1.0 5.0 5.0

Output

X

1.517857

1.964286

0.607143

U for GE with no pivot and no scaling

4.000000 2.000000 0.000000

0.000000 3.000000 1.000000

0.000000 0.000000 4.666667

Method 2: -

Input

3

4.0 2.0 0.0 10.0

2.0 4.0 1.0 11.5

0.0 1.0 5.0 5.0

Output

X

1.517857

1.964286

0.607143

U for GE pivot and no scaling

5.000000 0.000000 1.000000

0.000000 4.000000 2.000000

0.000000 0.000000 2.800000

Row Permutation Matrix for GE with pivot

0.000000 0.000000 1.000000

1.000000 0.000000 0.000000

0.000000 1.000000 0.000000

Column Permutation Matrix for GE with pivot

0.000000 1.000000 0.000000

0.000000 0.000000 1.000000

1.000000 0.000000 0.000000

Method 3: -

Input

3

4.0 2.0 0.0 10.0

2.0 4.0 1.0 11.5

0.0 1.0 5.0 5.0

Output

X

1.517857

1.964286

0.607143

U for GE pivot and scaling

5.000000 0.000000 1.000000

0.000000 4.000000 2.000000

0.000000 0.000000 2.800000

Row Permutation Matrix for GE with pivot and scaling

0.000000 0.000000 1.000000

1.000000 0.000000 0.000000

0.000000 1.000000 0.000000

Column Permutation Matrix for GE with pivot and scaling

0.000000 1.000000 0.000000

0.000000 0.000000 1.000000

1.000000 0.000000 0.000000

Method 4: -

Input

3

4.0 2.0 0.0 10.0

2.0 4.0 1.0 11.5

0.0 1.0 5.0 5.0

Output

X

1.517857

1.964286

0.607143

L for LU with GE

1.000000 0.000000 0.000000

0.500000 1.000000 0.000000

0.000000 0.333333 1.000000

U for LU with GE

4.000000 2.000000 0.000000

0.000000 3.000000 1.000000

0.000000 0.000000 4.666667

Method 5: -

Input

3

4.0 2.0 0.0 10.0

2.0 4.0 1.0 11.5

0.0 1.0 5.0 5.0

Output

X

1.517857

1.964286

0.607143

L for LU with GE pivot

1.000000 0.000000 0.000000

0.500000 1.000000 0.000000

0.000000 0.333333 1.000000

U for LU with GE pivot

4.000000 2.000000 0.000000

0.000000 3.000000 1.000000

0.000000 0.000000 4.666667

Permutation Matrix for LU with GE pivot

1.000000 0.000000 0.000000

0.000000 1.000000 0.000000

0.000000 0.000000 1.000000

Method : -

Input

3

4.0 2.0 0.0 10.0

2.0 4.0 1.0 11.5

0.0 1.0 5.0 5.0

Output

X

1.517857

1.964286

0.607143

L for Crouts Method

4.000000 0.000000 0.000000

2.000000 3.000000 0.000000

0.000000 1.000000 4.666667

U for Crouts Method

1.000000 0.500000 0.000000

0.000000 1.000000 0.333333

0.000000 0.000000 1.000000

Method 7: -

Input

3

4.0 2.0 0.0 10.0

2.0 4.0 1.0 11.5

0.0 1.0 5.0 5.0

Output

X

1.517857

1.964286

0.607143

Cholesky factor L_c for Cholesky Decomposition

2.000000 0.000000 0.000000

1.000000 1.732051 0.000000

0.000000 0.577350 2.160247