CSE2202: Numerical Methods Lab
Online 4 Section A2
Time: 40 Minutes Total: 15

Problem Statement: Evaluate the following system of linear equations using **Gauss Elimination with partial pivoting** and **Gauss Seidel** Method and compare the running time of both the methods.

$$\boldsymbol{x1} + x2 - 2x3 = 3$$

$$4x1 - 2x2 + x3 = 5$$

$$3x1 - x2 + 3x3 = 8$$

Task:
1. Write a program to evaluate the system of linear equations using Gauss Elimination Method with partial and Gauss Seidel Method.
2. Your program must have to separate methods gaussElimination() and gaussSeidel() for evaluating the system of linear equations.
3. For Gauss Seidel Method consider the initial values = x2 = x3 = 0 and iterate until the relative error falls below 0.005.
4. Find the iteration needed for both the methods.
5. Find the execution time for both the method to evaluate the system of linear equations.
7. Print the output in following input/output format:

Sample Input/Output:
Enter the size of the equations:
Enter the elements of Coefficients:
Starting of Execution Gauss Elimination Method:
The solution of linear equations is:
x:
y:
z:
End of Execution.....
Number of Iterations:
Running Time for Gauss Elimination Method:
Starting of Execution Gauss Seidel Method:
The solution of linear equations is:
x:
y:
z:
End of Execution.....
Running Time for Gauss Seidel Method:
Number of Iterations: