Assignment -1

August 6, 2017

Problems:

1 Write a computer program for the standard Gauss elimination method(i.e without pivoting) and solve the following set of linear equations.

$$3.01x1 + 2.22x2 + 4.1x3 = 4.5 \quad (1)$$
$$1.00x1 + 3.21x2 + 5.3x3 = 5.1 \quad (2)$$
$$0.3x1–0.44x2 + 6.6x3 = 7.1 \quad (3)$$

2 Extend the above program to include partial pivoting and solve the following set of linear equations .

$$2.54x1 + 1.3x2 + 2.1x3 = 4.4 \quad (4)$$
$$0.00002x1 + 1.5x2–4.3x3 = 3.33 \quad (5)$$
$$3.1x1 + 6.1x2 + 14.2x3 = 7.22 \quad (6)$$

3 Write a program for Gauss-Jordan method to solve the second problem.

Always use double precision.

Important information

Your program should contain the following lines in the beginning.

```
==============================================
! Lab No:
! Title :
! Date: dd/mm/year
! Name : Your name
! Roll No:
!Email : youremailid@iitg.ernet.in
==============================================
```

Your code should have enough commented lines for others to understand.
The input and output should be clearly presented.
For example in the above case your code should produce

```
   The matrix A and vector B
====================
```

```
   Matrix A and vector be after elimination
============================
```

```
   Solutions: x(1)=

              x(2)=

              x(3)=

              and up to x(n)
```