

ESO208 Programming Assignment

Test problem-1:

Output:

```
1 A (before pivoting) :
2 4.000000 2.000000 0.000000
3 2.000000 4.000000 1.000000
4 0.000000 1.000000 5.000000
5
6 Log of all row and column swaps :
7 Swap Column 1 with Column 3
8 Swap Row 1 with Row 3
9
10
11 A (after pivoting) :
12 5.000000 1.000000 0.000000
13 1.000000 4.000000 2.000000
14 0.000000 2.000000 4.000000
15
16
17 Crout Method
18
19
20 X :
21 1.517857
22 1.964286
23 0.607143
24
25 L
26 5.000000 0.000000 0.000000
27 1.000000 3.800000 0.000000
28 0.000000 2.000000 2.947368
29
30 U
31 1.000000 0.200000 0.000000
32 0.000000 1.000000 0.526316
33 0.000000 0.000000 1.000000
34
```

Test Problem-2:

Output:

```
1 x1 = 0.896424
2 x2 = 0.765130
3 x3 = 0.614475
4
```

Test Problem-3:

Output: b)

```
1 A (before pivoting) :
2 9.000000 3.000000 -2.000000
3 3.000000 6.000000 1.000000
4 -2.000000 1.000000 9.000000
5
6 Log of all row and column swaps :
7 Swap Column 2 with Column 3
8 Swap Row 2 with Row 3
9
10 L
11 9.000000 0.000000 0.000000
12 -2.000000 8.555556 0.000000
13 3.000000 1.666667 4.675325
14
15 U
16 1.000000 -0.222222 0.333333
17 0.000000 1.000000 0.194805
18 0.000000 0.000000 1.000000
19
```

c)

```
1 Inverse of Given Matrix :
2
3 0.147222 -0.080556 0.041667
4 -0.080556 0.213889 -0.041667
5 0.041667 -0.041667 0.125000
6
```

Test Problem-4:

Output:

```
1 X1 = -1.933333
2 X2 = -0.866667
3 X3 = -0.533333
4 X4 = 0.733333
5
```

Test Problem-5:

Output:

```
1 Inverse of Given Matrix :
2
3 25.000000 -41.000000 10.000000 -6.000000
4 -41.000000 68.000000 -17.000000 10.000000
5 10.000000 -17.000000 5.000000 -3.000000
6 -6.000000 10.000000 -3.000000 2.000000
7
8 X :
9 1.000000
10 -1.000000
11 1.000000
12 -1.000000
13
```