CLL 113
CODE 5

Input Format

Input would be taken from a file named input.txt.

1. Consider the system to be solved as Ax=B, where A is the coefficient matrix and B a vector containing constants.
2. First line of the file would contain a single integer specifying the number of test cases.
3. Second line would contain an integer m with m specifying the order of square matrix A.
4. This would be followed by m lines with each line containing m real (float) numbers specifying the elements of each row of matrix A.
5. Next line would contain a vector with m real (float) numbers specifying the elements of vector B.
6. There would be one line gap after a test case.
7. This would be followed by repeating steps 2-6 for every test case.

Example1

Let the linear systems to be solved are as follows:

Test case 1:

$$\begin{aligned} x_1 + 2x_2 + x_3 + 4x_4 &= 13 \\ 2x_1 + 0x_2 + 4x_3 + 3x_4 &= 28 \\ 4x_1 + 2x_2 + 2x_3 + x_4 &= 20 \\ -3x_1 + x_2 + 3x_3 + 2x_4 &= 6. \end{aligned}$$

Test case 2:

$$\begin{bmatrix} 1 & 2 & 1 \\ 2 & 2 & 3 \\ -1 & -3 & 0 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} 0 \\ 3 \\ 2 \end{bmatrix}$$

Now the input format should be as follows:

2
4
1 2 1 4
2 0 4 3
4 2 2 1
-3 1 3 2
13 28 20 6

3
1 2 1
2 2 3
-1 -3 0
0 3 2

Output Format

Output should be generated by your program in a file named output.txt

1. Output should be a vector with m real (float) numbers specifying the value of corresponding variables.
2. The results of each test case should be separated by a line.
3. **For infinite solutions print -1 and for no solutions print 0.**

Example 1 Output

2 4 -1 3

1 -1 1

Submission Instruction:

1. Submit a single file named EntryNo._code5.c/ EntryNo._code5.cpp/ EntryNo._code5.py or any other extension file you are using. **No zip file submissions are acceptable.**

Other Instructions:

1. Evaluation would be fully automated with the help of scripts made by TA's. Hence you are requested to follow the format instructions very carefully.
2. Plagiarism would be taken very strictly. Everyone is requested not to share codes with each other or copy code from online sources. Vivas would be taken to test your understanding of the code and if required we may use softwares to detect plagiarism.
3. For any doubts related to this assignment please contact
   Groups 1&3 - Milan: roymilaniitd@gmail.com
   Groups 2&4 - Niladri: niladrisekharmandal@gmail.com