

Assignment-3

Spectral Graph Theory

Problem 1

Hemant is immensely interested in Theoretical Computer Science, and wants to do a major in CSE along with Mech. Being a prodigy, he decided to do all the CSE courses during the 4 year stay at IIT Kanpur.

In iitk, you can do a course only if you have done all the prerequisite of that course. You being his friend want to help him in planning the schedule of the 8 semesters.

Input

- first line of input contains n, the number of courses in CSE department.
- second line contains the list of courses
- next n line line correspond to each course, i^{th} line for i^{th} course, all the prerequisite of i^{th} course are listed in this line. If there is no prerequisite i^{th} line contains the string "NULL".

```
4
ESC101 ESO207 CS345 CS201
NULL
ESC101
ESO207
NULL
```

Output

- output the sequence in which Hemant should do the courses in the 4 yrs
- in case of multiple valid solution, print any of them

CS201 ESC101 ESO207 CS345 (*other ordering also possible.*)

Note: Solve the problem for the input given in input.txt. Submit your code along with the file output.txt, containing the output from input.txt

Bonus

Try to write your code as small as possible, using STL functions learnt in previous assignment. If your code has least number of characters (among 9 of you), you will receive a special gift from **Sir Vibhor**.