

Student Union

Problem Statement:

Students from all over the country come to study in Jaypee Institute of Information Technology and are allotted a room per student in the ABB3 hostel. The hostel can have max 19 stories and a maximum of 100 rooms per floor. The rooms on each floor are numbered 1 to 100 from left to right.

Annual elections are held for the posts of College President, General Secretary and the council of student leaders. The students are free to form unions and currently there are two student unions: JYC and CYC. Each student must vote for one of these two unions. Since there is a duopoly, each student supports either one of the two student unions. Unity plays an important role in formation and survival of unions. Two students are united if their rooms are adjacent to each other (horizontally or vertically) and both of them support the same student union. This unity is transitive i.e. if two students A and B are united and two students B and C are united, then all three A, B and C are united. If the number of united students exceeds a certain threshold value 't', the students will form a third student union.

Input Format:

The input begins with a single positive integer on a line by itself indicating the number of the cases following, each of them as described below. This line is followed by a blank line, and there is also a blank line between two consecutive inputs. The input consists of 't' in the first line followed by n lines each containing m character long sequence of 'J's and 'C's followed by k lines each containing a pair of integers i and j. The first line represents the threshold value 't' and the next n lines will represent the $n \times m$ grid covering the land where a 'J'/'C' at the c-th character of the r-th line indicates support to JYC/CYC within the cell at floor r and room c of the hostel. The pairs of integers on the last k lines, each represent the floor and room numbers of some room in the hostel.

Output Format:

For each test case, the output must follow the description below. The outputs of two consecutive cases will be separated by a blank line. The output for each pair of integers, i and j, on the last k lines of input, consists of an integer, on a separate line, indicating whether the student in room no j of floor number i of the hostel will be able to form a new student union or not by "yes" or "no" respectively.

Constraints:

- $0 < n \leq 19$
- $0 < m \leq 100$
- $k > 0$

Sample Input:

1

6

JJJJJJJJ

JCJCJCJJ

CCCJJJCJC

CCCJJJCJC

JJJJJJJJ

CCCCCCCCC

CJCCCJCC

JJCJJJCJC

JJCJJJJJC

2 4

7 6

Sample Output:

yes

no