
Algorithms Lab

Exercise 3 – Sweepers

After a long day of doing magic, the corridors of the Unseen University (UU) of Ankh-Morpork need to be cleaned to get rid of the banana peels, billiard balls, dead pigeons, disoriented rabbits, half-eaten cupcakes, burnt flower bouquets, and a malfunctioning stone for a catapult.

To do this, UU hired a few sweepers, and some wizard teleported them to random locations in the University. Since they are pretty terrified of the place, they would like to sweep the corridors clean as quickly as possible and get out. They have been initially placed in rooms and they need to clean all the corridors of the building they are in, but they don't want to sweep any corridor twice. They need your help to tell them if it is even possible.

Problem UU has rooms labeled 0 to $n - 1$. The rooms are connected by corridors, a corridor always connects two rooms. Some rooms have a door leading outside. Sweepers start in rooms given in the input. They want to sweep each corridor of the building(s) but they don't want to sweep or otherwise traverse any corridor twice. They can cross a room any number of times. Corridors are swept by a simple traversal by the sweeper. When done sweeping, each sweeper must leave the building through one of the doors that lead outside. Each door can be only used by one sweeper and there is an equal number of sweepers and doors. However note that more sweepers can start in the same room and each room can have several doors.

Input The first line of the input contains t , the number of test cases. The first line for each test case will contain three numbers: n , the number of rooms of the UU, m , the number of corridors in UU, s , the number of sweepers and at the same time the number of rooms with doors leading outside. The next line will contain $2s$ numbers: the first s numbers denoting the starting locations of the sweepers, the second s numbers denoting the room numbers of the s doors leading to the outside. The line after that will contain $2m$ numbers, with the $2i$ -th and $(2i + 1)$ -th numbers denoting the end points of the i -th corridor. You can expect the value of s , t , and n to be at least 0 and at most 100, and that $0 \leq m < n^2$.

Output For every test case output a single line containing the word "yes" if the corridors can be swept and "no" if they cannot.

Sample Input

```
2
6 7 1
1 4
0 1 1 2 1 4 0 3 3 4 4 5 2 5
6 7 2
1 3 4 4
0 1 1 2 1 4 0 3 3 4 4 5 2 5
```

Sample Output

```
yes
no
```