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Algorithms Lab

Exercise – *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 wizards 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 labeled its rooms from 0 to $n-1$. Some rooms are connected by corridors: A corridor always connects two distinct rooms, and there is at most one corridor between any pair of rooms. Furthermore some of the rooms have a door leading to the outside. The sweepers' starting positions are defined by the room number of the room they are teleported to. They want to sweep each corridor of the building(s) but they don't want to sweep or otherwise traverse any corridor twice. On the other hand, the sweepers can cross a room any number of times. Corridors are swept by a simple traversal of a single sweeper. When done sweeping, each sweeper must leave the building through one of the doors that lead outside. Each door can only be 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 $t \leq 60$, the number of test cases. Each of the t test cases is described as follows:

- It starts with a line that contains three integers `n m s`, separated by a space. They denote
    - n, the number of rooms $r_0, r_1, \ldots, r_{n-1}$ at the Unseen University ($0 \leq n \leq 100$),
    - m, the number of corridors at the Unseen University ($0 \leq m < n^2$), and
    - s, the number of sweepers and at the same time the number of rooms with doors leading outside ($0 \leq s \leq 100$).
- The next line will contain $2s$ numbers: the first s numbers denote the (0-based) starting locations of the sweepers, the second s numbers denote the (0-based) room numbers of the s doors leading to the outside.
- The last line of each test case will contain $2m$ numbers, with the $2i$-th and $(2i+1)$-th numbers denoting the rooms connected by the i-th corridor.

Points   There are three groups of test sets which are worth 100 points in total.

1. For the first group of test sets, worth 30 points, you may assume that there is only a single sweeper ($s = 1$).

2. For the second group of test sets, worth 50 points, there are no further assumptions.

3. The third group of test sets, worth 20 points, contains some bordercases.

Corresponding sample test sets are contained in `test`i`.in/out`, for $i \in \{1, 2\}$.

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
```