

Never trust Ivan (3)**P89640_en**

Vint-i-tresè Concurs de Programació de la UPC - Final (2025-09-17)

Naiv and Uradiga are in different rooms of the same building. Naiv has to prepare a surprise party for Uradiga in a room different from where he is. To avoid Uradiga discovering his plan, Naiv must move through the building without encountering him.

We can model the building as an undirected connected graph, where the vertices represent rooms and the edges represent bidirectional corridors. We can assume three things:

- At each instant in time, Uradiga randomly chooses between staying still in the room he is in, or moving to any adjacent room.
- At each instant in time, Naiv also can stay still or move to any adjacent room.
- Naiv moves through the ventilation ducts. Therefore, if Uradiga and Naiv cross paths on an edge, they cannot see each other. (They can only meet in vertices, not edges.)

Given the description of the building, the initial positions of Naiv and Uradiga, and the party room, can Naiv plan a sequence of movements that guarantees that he will reach the party room without being discovered?

Input

Input consists of several cases. Each case begins with the numbers of vertices n , the number of edges m , and three different integers representing the room of Naiv, the room of Uradiga, and the party room. Follow m pairs $x y$, with $x \neq y$, to indicate an edge between x and y . Assume $3 \leq n \leq 10^5$, $2 \leq m \leq 5n$, that the given graph is connected, that the vertices are numbered from 1 to n , and that there are no repeated edges.

Output

For every case, print “Yes” if Naiv can avoid being discovered, and “No” otherwise.

Sample input

```
3 2 1 2 3 1 3 2 3
4 3 1 2 3 1 3 2 4 4 3
```

Sample output

```
No
Yes
```

Problem information

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