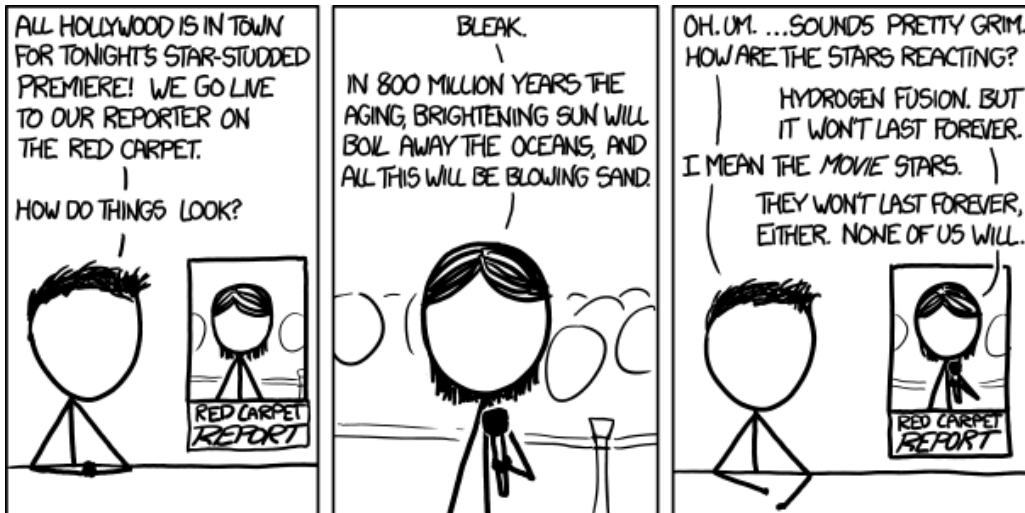


Movie stars



Description

You're hoping to be a news reporter one day and you're looking for a movie star to interview. Your friend has given you a method for determining if there is a celebrity in the room, and who it is.

He tells you that a person is a celebrity if everyone else in the room knows them, but they don't know anybody else in the room.

Determine whether there is a celebrity in the room, and who it is.

Input

The first line will contain two numbers, N ($2 \leq N \leq 1,000$), the number of people in the room, and E ($0 \leq E \leq N*(N-1)$), the number of relationships. People are numbers 0 to $N-1$.

The next E lines will be two space-separated numbers A and B , meaning that person A knows person B .

Output

Print the celebrity's number if there is one. If there is no celebrity, print -1.

Examples

Input	Input	Output	Output
4	6	3	-1
1	2		
0	2		
0	3		
2	3		
2	0		
1	3		