

Problem C – Networking for ICPC National Exam Room

In preparation for ICPC National 2024, VKU requested the technical department to design a computer room to ensure the following basic requirements:

- *The server is always connected to Client No. 1;*
- *Each cable only connects any two computers together and allows information to be transmitted between these two computers;*
- *The server can send information to any client if the server has a direct connection to that client or an indirect connection through other clients as intermediaries.*

The system is considered interconnected if and only if the server can transfer information to all clients (including through direct or indirect connections).

In order to save the number of cables used in the system, VKU requested the technical department to:

- *If the system is interconnected, check and indicate the maximum number of network cables that can be removed while the system still ensures interconnection. The answer must be in the format “-k”, with $k \geq 0$;*
- *Conversely, if the system is not connected, check and indicate how many additional network cables are required to ensure the system is connected. The answer must be in the format “+h”, with $h > 0$;*

The technical department asked a programmer to build a simulation program to solve the above requirements.

Input

- The first line contains two positive integers n and k representing the number of machines and the number of cables in use ($n, k \leq 10^6$).
- The next k lines, each i^{th} line contains two positive integers a_i and b_i simulating the i^{th} cable connecting the two machines a_i and b_i , ($a_i, b_i \leq n, a_i \neq b_i$).

Output

- Show the result of the above question.

Example

Sample input 1

5 5

1 2

1 3

1 4

1 5

2 3

Sample output 1

-1

Sample input 2

4 3

1 2

2 3

3 1

Sample output 2

+1

Subtask

- 30% tests: $n \leq 5$, $k \leq 10$;
- 30% tests: $n, k \leq 10^3$;
- 40% tests: $n, k \leq 10^6$.