SAC '21 Code Challenge P5 - Friends of Friends

Time limit: 1.0s **Memory limit:** 256M

After a student started a rumour, you have been tasked with implementing a system to count the number of people that heard it for the N students in the school: you will be asked Q queries of 2 types:

`1 u v`: u and v are now friends and can spread the rumour from their friends to each other.

`2 x`: If x started a rumour, output the number of people that heard the rumour, including the starter.

Input Specification

The first line will contain N and Q, the number of students and the number of queries.

The next Q lines will contain one of the above queries.

Output Specification

Output the answer to each type 2 query.

Constraints

For all subtasks:

$1 \leq N, Q \leq 100\,000$

$1 \leq u, v, x \leq N$

Subtask 1 [40%]

$1 \leq N, Q \leq 1\,000$

Subtask 2 [60%]

No additional constraints.

Sample Input

```
5 6
2 3
1 1 2
1 2 3
2 1
1 4 5
2 4
```

Sample Output

```
1
3
2
```

Explanation for Sample Output

For the 1^{st} query, the 3^{rd} student is only able to reach himself, so the answer is 1. For the 2^{nd} query, the 1^{st} student can reach himself and the 2^{nd} and 3^{rd} student. For the 3^{rd} query, the 4^{th} person can only reach himself and the 5^{th} student.