



Merging Communities

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Problem

Submissions

Leaderboard

Discussions

Editorial

People connect with each other in a social network. A connection between Person I and Person J is represented as MIJ . When two persons belonging to different communities connect, the net effect is the merger of both communities which I and J belongs to.

At the beginning, there are N people representing N communities. Suppose person **1** and **2** connected and later **2** and **3** connected, then **1,2**, and **3** will belong to the same community.

There are two type of queries:

1. $MIJ \implies$ communities containing person I and J merged (if they belong to different communities).
2. $QI \implies$ print the size of the community to which person I belongs.

Input Format

The first line of input will contain integers N and Q , i.e. the number of people and the number of queries.
The next Q lines will contain the queries.

Constraints :

$$1 \leq N \leq 10^5$$

$$1 \leq Q \leq 2 \times 10^5$$

Output Format

The output of the queries.

Sample Input

```
3 6
Q 1
M 1 2
Q 2
M 2 3
Q 3
Q 2
```

Sample Output

```
1
2
3
3
```

Explanation

Initial size of each of the community is **1**.



Submissions: [4693](#)




Max Score: 50

Difficulty: Hard

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Java 7   

```
1 import java.io.*;
2 import java.util.*;
3 import java.text.*;
4 import java.math.*;
5 import java.util.regex.*;
6
7 public class Solution {
8
9     public static void main(String[] args) {
10         /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
11     }
12 }
```

Line: 1 Col: 1

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