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# Merging Communities ☆

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Problem

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People connect with each other in a social network. A connection between Person  $I$  and Person  $J$  is represented as  $M I J$ . 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.  $M I J \implies$  communities containing person  $I$  and  $J$  merged (if they belong to different communities).
2.  $Q I \implies$  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 :

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

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

Author [amititkgp](#)Difficulty **Hard**

Max Score 50

Submitted By **6817**

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## 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**.



Java 8



```
1 import java.io.*;
```

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

Line: 1 Col: 1

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