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✅ Graph Queries 2

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✔ **Points:** 100 (partial)

🕐 **Time limit:** 1.0s

🗏 **Memory limit:** 128M

❯ **Allowed languages**
  C, C++

Problem Overview

You are tasked with managing a network of computers that start off isolated. Over time, the network administrator issues commands to establish or sever connections between these computers and to check how many direct connections each computer has. Your goal is to simulate these operations and output the required responses.

Problem Description

Initially, you are given (n) computers (indexed from 0) that are not connected. You will receive (q) commands, each command being one of the following types:

1. **INSERT i j**: Establish a bidirectional connection between computer (i) and computer (j).
2. **DELETE i j**: Remove the connection between computer (i) and computer (j). If the connection does not exist, output (-1).
3. **NUM_NEIGHBORS i**: Output the number of direct connections (neighbors) of computer (i).

Since the network is undirected, if computer (i) is connected to computer (j), then computer (j) is also connected to computer (i).

Input Format

- The first line contains two space-separated integers (n) and (q) — the number of computers and the number of commands, respectively.
- Each of the next (q) lines contains a command in one of the following formats:
  - **INSERT i j**
  - **DELETE i j**
  - **NUM_NEIGHBORS i**

Output Format

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- **INSERT** commands do not produce any output.

Example

Input

```
4 8
INSERT 0 1
INSERT 1 2
NUM_NEIGHBORS 1
DELETE 2 1
DELETE 1 3
NUM_NEIGHBORS 3
INSERT 1 3
NUM_NEIGHBORS 3
```

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Output

```
2
-1
0
1
```

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Explanation

1. **INSERT 0 1**: Connect computer 0 with computer 1. (No output.)
2. **INSERT 1 2**: Connect computer 1 with computer 2. (No output.)
3. **NUM_NEIGHBORS 1**: Computer 1 is connected to computers 0 and 2, so the output is 2.
4. **DELETE 2 1**: Remove the connection between computer 2 and computer 1. (No output.)
5. **DELETE 1 3**: There is no connection between computer 1 and computer 3, so the output is (-1).
6. **NUM_NEIGHBORS 3**: Computer 3 is isolated, so the output is 0.
7. **INSERT 1 3**: Connect computer 1 with computer 3. (No output.)
8. **NUM_NEIGHBORS 3**: Now computer 3 is connected to computer 1, so the output is 1.

Constraints

- $(1 \leq n \leq 5 \times 10^2)$
- $(1 \leq q \leq 5 \times 10^5)$

Additional Notes

- This time no real life characters in the question. :P
- The computers are indexed from 0.
- The network is undirected, meaning every connection is bidirectional.
- Only **DELETE** commands for non-existent connections produce an output ((-1)); **INSERT** commands

❓ Clarifications   Request clarification

No clarifications have been made at this time.