Beaker queries

Mad scientist Kintaro Okabe has just hypothesized a way to enable time travelling. He needs to perform a series of experiments to confirm his findings. He has N beakers, labelled 1 to N, placed in a row. He performs Q operations (in order) which can be of the following types:

- $1LRX$ — Mix one unit of chemical X in each of the beakers L, $L+1$, ... R.
- $2LR$ — Determine if the beakers L, $L+1$, ... R all have the same quantity as well as composition. In other words, the contents of the beakers must be identical.

Mad scientist Kintaro Okabe needs your help for each query of the second kind.

Input:

- The first line contains two integers N and Q — the number of beakers and the number of operations.
- The next Q lines describe the operations in the format described above.

Output:

For each query of the second kind, output 1 if the answer is yes, otherwise 0.

Constraints

- $1 \leq N, M \leq 2 \cdot 10^5$
- $1 \leq X \leq 10^5$
- $1 \leq L \leq R \leq N$

Subtasks

- **Subtask #1 (10 points):** $N, Q \leq 100$
- **Subtask #2 (10 points):** $N, Q \leq 500$
- **Subtask #3 (20 points):** $N, Q \leq 3000$
- **Subtask #4 (15 points):** $N, Q \leq 2 \cdot 10^5$ and $X = 1$ for all queries.
- **Subtask #5 (45 points):** original constraints.

Sample Input:

```
4 7
2 1 3
1 1 3 5
1 3 4 6
2 1 3
2 1 2
1 2 2 5
```

```
2 1 2
```

Sample Output:

```
1
0
1
0
```

EXPLANATION:

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