

SAC '22 Code Challenge 2 P2 - Cookie Sprinkler

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

To help build a new home for Mr. DeMello Santa, you were tasked with maintaining a 2D, $N \times N$ tank of milk in his house.

In this tank, you will be asked to perform Q queries of 2 types:

`1 x y`: Add one new cookie to the tank of milk at position (x, y) .

`2 x1 y1 x2 y2`: Add sprinkles to all the cookies once in the rectangle from $(x1, y1)$ to $(x2, y2)$.

Can you help Santa determine the sum of the sprinkles placed on the cookies?

Input Specification

The first line will contain N ($1 \leq N \leq 500$) and Q ($1 \leq Q \leq 500$), the square size of the milk tank and the number of queries.

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

For type 1 queries, they will contain x ($1 \leq x \leq N$) and y ($1 \leq y \leq N$), the coordinates of the new cookie.

For type 2 queries, they will contain $x1, y1, x2,$ and $y2$ ($1 \leq x1 \leq x2 \leq N, 1 \leq y1 \leq y2 \leq N$), a rectangle where all cookies are given one more sprinkle.

Note: One cell can contain multiple cookies.

Output Specification

Output the sum of the sprinkles placed on the cookies.

Sample Input

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

Sample Output

Explanation for Sample Output

In all the queries, the cookie at $(2, 3)$ is sprinkled 3 times, the cookie at $(5, 6)$ is sprinkled 2 times, and the cookie at $(4, 4)$ is sprinkled 2 times.