Şırdan Seller Yasin

Yasin is a well-known chef in Istanbul who owns and runs his own Şırdan restaurant.

Yasin farms all of the vegetables he uses in his meals. He has a garden in the shape of a $X \times Y$. The garden includes N stones of various sizes that take up space in the garden and prevent Yasin from growing his vegetables there.

He intends to expand D various vegetables in his $X \times Y$ shaped garden. Each veggie has to be placed differently according to the Cracking the Garden Interviews 2. Edition. The veggies occupy various shapes of the garden.

Can you calculate how many spots Yasin can use for each vegetable he wants to grow?

Submit Solution

Points: 1

Time limit: 1.0s
Java 8: 4.0s
Python: 8.0s

All submissions

Best submissions

My submissions

Input Format

The input consists of many lines, each of which contains numbers separated by single spaces:

- The first line contains the integers X, Y , N, and D, respectively;
- Each of the N lines after that includes the coordinates of a stone as four numbers x, x', y, and y', with $0 \le x < x' \le X$ and $0 \le y < y' \le Y$, representing a stone spanning between (x, y) and (x', y');
- The width x and length y of vegetables are represented as two numbers in the D following lines, with $0 < x \le X$ and $0 < y \le Y$.

Constraints

$1 \le X, Y \le 2 \cdot 10^3$

$0 \le N \le 10^6$

$1 \le D \le 10^5$

Output Format

For each vegetable, D lines, print the number of valid integer places.

Sample Input

Copy

```
7 5 3 9
1 2 0 1
5 7 2 5
0 1 2 4
7 1
3 5
5 3
2 2
3 3
4 4
4 5
6 2
1 1
```

```
1 1
```

Sample Output 0

```
1
1
0
13
5
1
0
0
26
```

Copy

Explanation 0

For the $7x1$ veggie, there is only one place to grow. For the $1x1$ veggie, there are 26 different places.