

Competitive Programming SS24

Submit until end of contest



Problem: Floor is Lava (1 second timelimit)

Since childhood, you trained relentlessly for this moment, honing your skills to perfection. Now, the time for the ultimate test has arrived. The earth quakes violently, tearing open colossal chasms with deafening roars. The long-foretold Armageddon is upon us, and the world seems to be unraveling before your eyes.



The new look of your town. CC BY-SA 4.0 by X on [Netflix](#)

Your town's ground splits apart, revealing rivers of molten lava surging just beneath the surface. Buildings shake and crumble as fiery fissures consume the streets. Panic spreads like wildfire, and chaos erupts as the infernal heat threatens to devour everything in its path. Amidst the devastation, you stand resolute, an expert in the art of 'Floor is Lava,' the town's only hope.

The city's buildings lie scattered at the intersection points of an irregular grid with n vertical and m horizontal lines. Your mission is clear: find the nearest building for each inhabitant.

Input The input consists of:

- One line with three integers n , m , and q ($1 \leq n, m, q \leq 10^5$), the number of vertical lines, the number of horizontal lines and the number of people.
- One line with n integers x_1, \dots, x_n ($0 \leq x_i \leq 10^9$ for each i), where x_i is the x -coordinate of a vertical line.
- One line with m integers y_1, \dots, y_m ($0 \leq y_j \leq 10^9$ for each j), where y_j is the y -coordinate value of a horizontal line.
- n lines, the k th of which contains two integers a_k, b_k ($0 \leq a_k, b_k \leq 10^9$), the position of the k th person.

Output For each person, output the nearest intersection point of the grid.

If there are multiple optimal solutions, you may output any one of them.

Sample Input 1

Sample Output 1

```
2 2 3
1 2
1 2
0 0
1 1
3 3
```

```
1 1
1 1
2 2
```

Sample Input 2

```
3 3 1
0 2 2
1 1 0
1 1
```

Sample Output 2

```
0 1
```