Start 2017-03-25 19:00 CET

CodePSU - Advanced

Contest is over.

End 2017-03-25 2

Problem C
Office Space

Problem ID: codepsu17-advanced.officespace
CPU Time limit: 4 seconds
Memory limit: 1024 MB

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Source: CodePSU 2017 Adva
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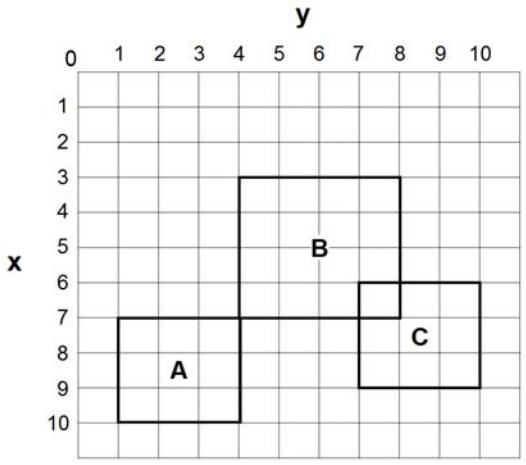
There is a very large office of size 10000 X 10000 units. The office consists of cubicles, conference rooms, and labs. Each of these areas has floor space of N x N square units and can have a maximum area of 10000 square units. These rooms are placed randomly throughout the office space and some of them can overlap. However, none of the walls of the spaces are shared with the walls of the office. Your job is to figure out the area of the office that is not occupied by any of the cubicles, conference rooms, or labs.

The figure below depicts part of the office in grid form. The rooms are indicated by a set of 3 integers (x,y,N). x and y represent the coordinates of the upper left corner of each room, and N represents the length of one of its sides (remember, it has floor space of size N x N). For example, in the figure below, the leftmost square A has the format (7, 1, 3), the middle square B has the format (3, 4, 4) and the rightmost square C has the format (6, 7, 3).



Input

Input contains many test cases. The first line of each test case will contain a single integer c, the number of cubicles in the office. The c $(0 < c \leq 4)$ lines following will contain three integers x, y, s for each cubicle. The next line will contain a single integer q, the number of questions you are to be asked about the size of a given office. The q $(0 < q \leq 100)$ lines following will contain two integers x_q, y_q, where (x_q, y_q) is a point in the room whose size you are trying to determine.

Output

For each test case i, output "Office #i:" followed by the answer to each of the size questions for that test case on a new line.

Sample Input 1

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

Sample Output 1

```
Office #1:
99999948
7
5
4
4
12
```