RBG
Problem ID: rbg

One of Cornell's new North Campus dorms will be named in honor of the associate justice of the Supreme Court of the United States, Ruth Bader Ginsburg '54. This problem is also named after her.

You are designing a virtual reality (VR) game simulating a supreme court hearing. In particular, you are now creating the method to render the courtroom, and for that you need to decide the color of each pixel of the VR display.

The courtroom can be described as a box which is W points wide, L points long, and H points high. Each point is described by its color in red-blue-green space "RBG" (the *legislative* variant of the more well-known RGB). In other words, the color of each of the $W \times L \times H$ points will be divided in 3 components (red, blue, and green). Each component will be a number between 0 and 255.

For instance, the color red is defined as $(255, 0, 0)$, while yellow is $(255, 0, 255)$ (combination of equal parts red and green).

A particular pixel to be rendered represents a box within the room. For instance, a pixel might represent the box $(1, 3, 5) - (3, 10, 7)$, which means that all points (x, y, z) with $1 \le x \le 3$, $3 \le y \le 10$, and $5 \le z \le 7$ are represented by that pixel. A pixel should be colored with the *average* color of the points represented by it!

For instance, if a pixel represents points with color $(10, 0, 255)$, $(50, 50, 50)$, and $(255, 0, 0)$, then the pixel should have color $(\frac{10+50+255}{3}, \frac{0+50+0}{3}, \frac{255+50+0}{3}) = (105, 16, 101)$ (note that all divisions should be rounded down).

You are given the color of all the points of the courtroom and a sequence of pixels, and it's your job to decide the color of each pixel.

Input

The first line of the input contains three integers W, L, H, with $1 \le W$, $1 \le L$, $1 \le H$ and $W \times L \times H \le 10^5$.

Next you will receive W blocks of lines, each block will have exactly L lines, and each line will have exactly $3 \times H$ integers between 0 and 255.

The interpretation is that the first three numbers correspond to the colors (in RBG) of point $(1, 1, 1)$, then point $(1, 1, 2)$ will be given, and so far so on (until $(1, 1, H)$, followed by $(1, 2, 1)$ then $(1, 2, 2)$, until $(1, 2, H), \dots$). Please see the samples below to understand the input format.

The next line will contain a single integer Q ($1 \le Q \le 10^5$) with the number of pixels to be drawn.

The next Q lines will contain 6 integers in $x_1, y_1, z_1, x_2, y_2, z_2$ (with $1 \le x_1 \le x_2 \le W$, $1 \le y_1 \le y_2 \le L$, $1 \le z_1 \le z_2 \le H$) with the description of the box of points that this pixel represents (it represents a total of $(x_2 - x_1 + 1) \times (y_2 - y_1 + 1) \times (z_2 - z_1 + 1)$ points).

Output

The output should contain Q lines, one for each pixel.

The i-th line should contain 3 integers with the color of the i-th pixel in RBG.

(Read the sample inputs below for further clarification)

Sample Input 1

```
1 2 3
0 1 2
3 4 5
6 7 8
9 10 11
12 13 14
15 16 17
3
1 1 1 1 2 3
1 1 1 1 1 1
1 2 2 1 2 3
```

Sample Output 1

```
7 8 9
0 1 2
13 14 15
```