Canada Day Contest 2021 - Fine Art

Time limit: 2.0s **Memory limit:** 768M
Python: 3.0s

Deruikong is a highly skilled artist. He wants to build a sculpture out of wool in Minecraft. He has n types of wool, the i th of which is of colour (x_i, y_i, z_i) (x_i% red, y_i% green, z_i% blue using the RGB colour model). His build contains q pixels, the ith of which is of colour (X_i, Y_i, Z_i). Help Deruikong choose a good substitute for each pixel i by finding the wool j that minimizes $|X_i - x_j| + |Y_i - y_j| + |Z_i - z_j|$. If there are multiple solutions, output the smallest value of j.

Input Specification

The first line will contain two space-separated integers, n and q.

The next n lines contain three space-separated integers, x_i, y_i, and z_i for $1 \leq i \leq n$.

The next q lines contain three space-separated integers, X_i, Y_i, and Z_i for $1 \leq i \leq q$.

Output Specification

For each pixel, output the lowest index of the closest substitute.

Constraints

$1 \leq n, q \leq 150\,000$

$0 \leq x_i, y_i, z_i, X_i, Y_i, Z_i \leq 100$

No two wool types have the same colour.

Sample Input 1

```
2 3
0 0 0
0 0 5
0 0 0
0 0 3
0 0 4
```

Sample Output 1

```
1
2
2
```

Sample Input 2

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

Sample Output 2

```
1
1
1
```