



Examination

N students took an examination, which consisted of mathematics and informatics sections. The i -th student ($1 \leq i \leq N$) scored S_i points in mathematics, and T_i points in informatics. Professor T and Professor I are going to decide whether each student passes or fails, based on the scores.

- Professor T regards both subjects as important; he wants students who scored at least A points in mathematics and B points in informatics to pass.
- Professor I regards only the overall score as important; he wants students who scored at least C points in total to pass.
- Only students whom both professors want to pass can pass the examination.

You do not know these criteria: the values of A , B and C . Instead, given Q triplets of integers (X_j, Y_j, Z_j) ($1 \leq j \leq Q$), you want to know the number of students passing the examination when $A = X_j$, $B = Y_j$ and $C = Z_j$.

Write a program which, given the number of students, each student's scores, and some criteria, calculates the number of students passing the examination under each criterion.

Input

Read the following data from the standard input. All the values in the input are integers.

```
N Q
S1 T1
⋮
SN TN
X1 Y1 Z1
⋮
XQ YQ ZQ
```

Output

Write Q lines to the standard output. The j -th line ($1 \leq j \leq Q$) should contain the number of students passing the examination when $A = X_j$, $B = Y_j$ and $C = Z_j$.



Constraints

- $1 \leq N \leq 100\,000$.
- $1 \leq Q \leq 100\,000$.
- $0 \leq S_i \leq 1\,000\,000\,000$ ($1 \leq i \leq N$).
- $0 \leq T_i \leq 1\,000\,000\,000$ ($1 \leq i \leq N$).
- $0 \leq X_j \leq 1\,000\,000\,000$ ($1 \leq j \leq Q$).
- $0 \leq Y_j \leq 1\,000\,000\,000$ ($1 \leq j \leq Q$).
- $0 \leq Z_j \leq 2\,000\,000\,000$ ($1 \leq j \leq Q$).

Subtasks

1. (2 points) $N \leq 3\,000$, $Q \leq 3\,000$.
2. (20 points) $S_i \leq 100\,000$, $T_i \leq 100\,000$ ($1 \leq i \leq N$), $X_j \leq 100\,000$, $Y_j \leq 100\,000$, $Z_j = 0$ ($1 \leq j \leq Q$).
3. (21 points) $S_i \leq 100\,000$, $T_i \leq 100\,000$ ($1 \leq i \leq N$), $X_j \leq 100\,000$, $Y_j \leq 100\,000$, $Z_j \leq 200\,000$ ($1 \leq j \leq Q$).
4. (57 points) No additional constraints.

Sample Input and Output

Sample Input 1	Sample Output 1
5 4	2
35 100	4
70 70	1
45 15	1
80 40	
20 95	
20 50 120	
10 10 100	
60 60 80	
0 100 100	

- When $A = 20$, $B = 50$ and $C = 120$, only the 1st and the 2nd student can score at least 20 points in



mathematics, at least 50 points in informatics, and at least 120 points in total. Therefore, the number of students passing the examination is 2.

- When $A = 10$, $B = 10$ and $C = 100$, only the 1st, the 2nd, the 4th and 5th student can score at least 10 points in mathematics, at least 10 points in informatics, and at least 100 points in total. Therefore, the number of students passing the examination is 4.
- When $A = 60$, $B = 60$ and $C = 80$, only the 2nd student can score at least 60 points in mathematics, at least 60 points in informatics, and at least 80 points in total. Therefore, the number of students passing the examination is 1.
- When $A = 0$, $B = 100$ and $C = 100$, only the 1st student can score at least 0 points in mathematics, at least 100 points in informatics, and at least 100 points in total. Therefore, the number of students passing the examination is 1.

Sample Input 2	Sample Output 2
10 10	1
41304 98327	3
91921 28251	5
85635 59191	8
30361 72671	8
28949 96958	3
99041 37826	3
10245 2726	3
19387 20282	5
60366 87723	6
95388 49726	
52302 69501 66009	
43754 45346 3158	
25224 58881 18727	
7298 24412 63782	
24107 10583 61508	
65025 29140 7278	
36104 56758 2775	
23126 67608 122051	
56910 17272 62933	
39675 15874 117117	