Examination

N students took an examination, which consists of mathematics and informatics section. 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, 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 $A = X_j$, $B = Y_j$, $C = Z_j$.

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.

$N\ Q$
$S_1\ T_1$
$\vdots$
$S_N\ T_N$
$X_1\ Y_1\ Z_1$
$\vdots$
$X_Q\ Y_Q\ Z_Q$

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 $A = X_j$, $B = Y_j$, $C = Z_j$.

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

- When $A = 20$, $B = 50$, $C = 120$, only 1st and 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 $A = 10$, $B = 10$, $C = 100$, only 1st, 2nd, 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 $A = 60$, $B = 60$, $C = 80$, only 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 $A = 0$, $B = 100$, $C = 100$, only 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 41304 98327 91921 28251 85635 59191 30361 72671 28949 96958 99041 37826 10245 2726 19387 20282 60366 87723 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	1 3 5 8 8 3 3 3 5 6