Task 1: `Problem Setter`

Over the past few years, Stuart has set several problems. Now he is considering whether to submit them to competitive programming contests (including this one!) for the honour of having those problems solved by the best competitive programmers of the country, or even the world.

There are c contests that Stuart can submit his problems to. Submitting any problem to the i-th contest will increase his satisfaction by $s[i]$. However, due to the structure of the contest as well as competition from fellow problem setters, Stuart thinks that the i-th contest will only accept problems that have a quality of at least $m[i]$. Note that Stuart can submit any number of problems to any contest, and each problem he submits will increase his satisfaction by $s[i]$.

Stuart has set p problems. He thinks that the j-th problem has a quality of $q[j]$. However, due to the difficulty of the problem preparation process, submitting the j-th problem to any contest will decrease his satisfaction by $d[j]$. Obviously, each problem can be submitted to at most one contest, or not submitted at all if he chooses not to.

Find the maximum amount of satisfaction that Stuart can gain by submitting the right problems to each contest. Note that if all ways to submit problems to contests will give Stuart negative satisfaction, then he can choose not to submit any problems for a final satisfaction of 0.

Input format

Your program must read from standard input.

The first line of input contains 2 space-separated integers, c and p, denoting the number of contests and number of problems respectively.

Then, c lines will follow. The i-th ($1 \leq i \leq c$) of these lines contains 2 space-separated integers $m[i]$ and $s[i]$, denoting the minimum problem quality and satisfaction gained from this contest respectively.

Another p lines follow. The j-th ($1 \leq j \leq p$) of these lines contains 2 spaced-separated integers $q[j]$ and $d[j]$, denoting the problem quality and satisfaction loss from this problem respectively.

Output format

Your program must print to standard output.

The output should contain one integer, the maximum satisfaction Stuart can gain.

The output should contain only a single integer. Do not print any additional text such as `'Enter a number'` or `'The answer is'`.

Subtasks

For all testcases, the input will satisfy the following bounds:

- $1 \leq c, p \leq 200\,000$
- $0 \leq m[i], s[i], q[j], d[j] \leq 1\,000\,000$ $(1 \leq i \leq c, 1 \leq j \leq p)$

Your program will be tested on input instances that satisfy the following restrictions:

Subtask	Marks	Additional Constraints
0	0	Sample Testcases
1	18	$1 \leq c \leq 1000, p = 1$
2	16	$1 \leq c, p \leq 1000$
3	26	$d[j] = 0$
4	40	No additional restrictions

Sample Testcase 1

This testcase is valid for subtasks 2 and 4.

Input	Output
3 3 2 5 1 1 8 3 3 2 9 4 1 3	4

Sample Testcase 1 Explanation

There are 3 contests and 3 problems.

Stuart can submit problem 1 with quality 3 to contest 1 since its quality is higher than the contest's minimum quality, 2. He gains 5 - 2 = 3 satisfaction from submitting this problem. He can submit problem 2 with quality 9 to contest 1, and gains 5 - 4 = 1 satisfaction from this problem. In total, he gains 4 satisfaction.

Note that he chooses not to submit problem 3, and does not submit any problem to contests 2 and 3.

Sample Testcase 2

This testcase is valid for subtasks 2, 3 and 4.

Input	Output
3 4 2 3 1 1 8 4 2 0 7 0 1 0 8 0	11

Sample Testcase 2 Explanation

There are 3 contests and 4 problems.

Stuart can submit problems 1 and 2 to contest 1, problem 3 to contest 2 and problem 4 to contest 3. He gains $3 \times 2 + 1 + 4 = 11$ satisfaction in total.

Sample Testcase 3

This testcase is valid for subtasks 1, 2 and 4.

Input	Output
5 1 3 4 1 2 5 6 2 8 4 0 3 6	2

Sample Testcase 3 Explanation

There are 5 contests and 1 problem.

Stuart submits the only problem to contest 4, and gains $8 - 6 = 2$ satisfaction.