

B. Businessmen Problems

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Two famous competing companies *ChemForces* and *TopChemist* decided to show their sets of recently discovered chemical elements on an exhibition. However they know that no element should be present in the sets of both companies.

In order to avoid this representatives of both companies decided to make an agreement on the sets the companies should present. The sets should be chosen in the way that maximizes the total income of the companies.

All elements are enumerated with integers. The *ChemForces* company has discovered n distinct chemical elements with indices a_1, a_2, \dots, a_n , and will get an income of x_i Berland rubles if the i -th element from this list is in the set of this company.

The *TopChemist* company discovered m distinct chemical elements with indices b_1, b_2, \dots, b_m , and it will get an income of y_j Berland rubles for including the j -th element from this list to its set.

In other words, the first company can present any subset of elements from $\{a_1, a_2, \dots, a_n\}$ (possibly empty subset), the second company can present any subset of elements from $\{b_1, b_2, \dots, b_m\}$ (possibly empty subset). There shouldn't be equal elements in the subsets.

Help the representatives select the sets in such a way that no element is presented in both sets and the total income is the maximum possible.

Input

The first line contains a single integer n ($1 \leq n \leq 10^5$) — the number of elements discovered by *ChemForces*.

The i -th of the next n lines contains two integers a_i and x_i ($1 \leq a_i \leq 10^9$, $1 \leq x_i \leq 10^9$) — the index of the i -th element and the income of its usage on the exhibition. It is guaranteed that all a_i are distinct.

The next line contains a single integer m ($1 \leq m \leq 10^5$) — the number of chemicals invented by *TopChemist*.

The j -th of the next m lines contains two integers b_j and y_j , ($1 \leq b_j \leq 10^9$, $1 \leq y_j \leq 10^9$) — the index of the j -th element and the income of its usage on the exhibition. It is guaranteed that all b_j are distinct.

Output

Print the maximum total income you can obtain by choosing the sets for both companies in such a way that no element is presented in both sets.

Examples

| input |
|-------|
| 3 |
| 1 2 |
| 7 2 |
| 3 10 |
| 4 |
| 1 4 |
| 2 4 |
| 3 4 |
| 4 4 |

| output |
|--------|
| 24 |

| input |
|---|
| 1 1000000000 239 3 14 15 92 65 35 89 |
| output |
| 408 |

Note

In the first example *ChemForces* can choose the set (3, 7), while *TopChemist* can choose (1, 2, 4). This way the total income is (10 + 2) + (4 + 4 + 4) = 24.

In the second example *ChemForces* can choose the only element 10^9 , while *TopChemist* can choose (14, 92, 35). This way the total income is (239) + (15 + 65 + 89) = 408.