Problem G. Generate The Array

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	1024 mebibytes

Consider an array A of length N. You are planning to do several queries: for a segment $[i, j]$ of the array, find the maximum value on that segment of the array. The query for the indices i and j will be done $Q_{i,j}$ times.

But the array is not given, and you are going to build it right now.

For each i from 1 to N, you can select one of K_i different values $V_{i,j}$ as the value of A_i, and the respective costs of choosing these values are $C_{i,j}$.

After all queries, your *score* will be the sum of the results of all the interval queries you are planning to do, minus the cost of choosing the values A_i. Find the maximum possible score that can be achieved.

Input

First line of the input contains one integer N ($1 \leq N \leq 300$).

Then N lines follow. The i-th of those lines contains integers from $Q_{i,i}$ to $Q_{i,N}$ ($0 \leq Q_{i,j} \leq 999$). The query for the maximum element in the array between A_i and A_j inclusively shall be performed exactly $Q_{i,j}$ times.

After that, the input describes possible values of A_i for each i from 1 to N. The i-th description has the following format:

- The first line contains a positive integer K_i: the number of possible values for A_i.

- Each of the following K_i lines contains two integers $V_{i,j}$ and $C_{i,j}$: a possible value and the cost of picking that value, respectively ($0 \leq V_{i,j} \leq 10^8$, $0 \leq C_{i,j} \leq 10^{13}$).

It is guaranteed that the sum of K_i is at most $3 \cdot 10^5$.

Output

Print one integer: the maximum possible score.

Examples

standard input	standard output
5 1 0 2 2 0 0 2 2 0 2 2 2 1 2 0 2 0 27 1 19 2 7 25 1 1 2 8 7 4 18 2 8 7 4 4 2 0 25 4 26	78
2 1 1 1 2 1 100 2 50 1 1 100	-145