Problem L. Low Cost Set

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	1024 mebibytes

Consider an integer sequence c of length $2k - 1$. Also consider k intervals $[\ell_i, r_i)$. Here, ℓ_i and r_i satisfy $\ell_i < r_i$, and each integer between 1 and $2k$ appears exactly once as an end of an interval.

Given this sequence, create a set s of intervals. Each interval $[\ell, r)$ in the set must satisfy $1 \le \ell < r \le 2k$. Additionally, for all $i = 1, 2, \ldots, k$, the set s has to satisfy at least one of the two following conditions:

- $[\ell_i, r_i) \in s$,
- there exists an integer x ($\ell_i < x < r_i$) such that $[\ell_i, x) \in s$ and $[x, r_i) \in s$.

The *cost* of the set s is defined as the sum of $c_\ell + c_{\ell+1} + \ldots + c_{r-1}$ for all intervals $[\ell, r)$ included in s.

Find the minimum cost of a set that satisfies all the conditions.

Input

The first line of input contains an integer k: the number of intervals ($1 \le k \le 100$).

The i-th of the following k lines contains two integers ℓ_i and r_i: the left (included) and the right (excluded) end of the i-th interval ($1 \le \ell_i < r_i \le 2k$, each integer between 1 and $2k$ can be found in those k lines exactly once).

The last line contains $2k - 1$ integers: the sequence c_i ($1 \le c_i \le 10^9$).

Output

Print the minimum cost of the set that satisfies the condition.

Examples

standard input	*standard output*
3 1 4 2 6 3 5 1 2 3 5 8	27
5 3 10 1 5 7 8 4 9 2 6 9 9 8 2 4 4 3 5 3	82