

Problem L. Disjoint-Sparse-Table Optimization

- Time Limit: 2 sec

Problem Statement

You are given an integer sequence A of length $2Q - 1$ and Q intervals $[L_i, R_i)$. Here, L_i, R_i satisfy $L_i < R_i$, and each integer between 1 and $2Q$ appears once as an end of an interval.

Your goal is to create a set S of intervals to satisfy at least one of the following conditions for all $i = 1, 2, \dots, Q$.

- $[L_i, R_i) \in S$
- There exists an integer x ($L_i < x < R_i$) such that $[L_i, x) \in S$ and $[x, R_i) \in S$.

The cost of the set S is defined as follows.

- The sum of $A_l + A_{l+1} + \dots + A_{r-1}$ for all intervals $[l, r)$ included in S .

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

Input

```
Q
L1 R1
⋮
LQ RQ
A1 A2 ... A2Q-1
```

The input satisfies the following constraints.

- All inputs consist of integers.
- $1 \leq Q \leq 100$
- $1 \leq L_i < R_i \leq 2Q$
- Each integer from 1 to $2Q$ appears in $L_1, \dots, L_Q, R_1, \dots, R_Q$.
- $1 \leq A_i \leq 10^9$

Output

Output the minimum cost of the set that satisfies the condition. Add a new line at the end of the output.

Sample Input 1	Sample Output 1
3 1 4 2 5 3 6 1 2 3 4 5	20
Sample Input 2	Sample Output 2
5 3 7 1 10 5 9 4 8 2 6 6 4 8 5 9 8 9 8 2	132

In Sample Input 1, the optimal set is $S = \{[1, 4), [2, 3), [3, 5), [5, 6)\}$, where the cost is $6 + 2 + 7 + 5 = 20$.