

Shopping

Task from Polish Youth Olympiad in Informatics

Byteburg and districts

John is a proud inhabitant of a beautiful city called Byteburg. City is divided into districts:

- in the blacksmith's district, you can get the best swords in the kingdom
- in the skin cobbler's district, you can get the best shoes in the kingdom
- in the international district you can buy all imported products

n products, n shops...

John has got the task to go to the international district and buy n rare, imported products. Shops in this district are built along one line.

Unfortunately, each of the n items from John's list has to be bought in the different shop. So, John must visit n shops.

Greedy guys

John knows character and behavior of the merchants from international district. They are very greedy, and they behave very strange:

- if someone buys any product in the shop with the number i , the shop $i+1$ increases price by a_{i+1}
- if someone buys any product in the shop with the number i , the shop $i-1$ increases price by b_{i-1}

Naturally, if someone buys something in shop number 1 , only shop 2 increases prices. Analogically, if someone buys something in shop number n , only shop $n-1$ increases prices.

Your task

John asked you to help and tell him the correct order of shops he shall visit to pay as little as possible.

Input

In the 1st line of the standard input, there is 1 number n ($1 \leq n \leq 500\,000$) meaning number of shops in merchant's district.

In the 2nd line there is n integers c_i ($1 \leq c_i \leq 10^6$). Number c_i means the price in the shop i . Product i can be bought only in the shop number i .

In the 3rd line there is $n - 1$ integers a_i ($1 \leq a_i \leq 10^6$). Number a_i means the increase of the price in the shop $i + 1$ in case someone buys the same product in shop number i .

In the 4th line there is $n - 1$ integers b_i ($1 \leq b_i \leq 10^6$). Number b_i means the increase of the price in the shop i in case someone buys the same product in shop number $i + 1$.

Output

Your program shall print 1 value the minimal amount of money John needs to spend in order to buy all required products.

Examples

Example 1	Example 2	Example 3
Input	Input	Input
2	3	6
10 10	1 2 3	1 2 3 4 5 6
1000	1 2	101 102 103 104 105
999	2 1	5 4 3 2 1
Output	Output	Output
1019	8	36