Problem H. Maximizer

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

Maximizer has two permutations $A = [a_1, a_2, \cdots, a_N]$ and $B = [b_1, b_2, \cdots, b_N]$. Both A, B have length N and consists of **distinct integers** from 1 to N.

Maximizer wants to maximize the sum of differences of each element, $\sum_{i=1}^{N} |a_i - b_i|$. But he can only swap two adjacent elements in A. Precisely, he can only swap a_i and a_{i+1} for some i from 1 to $N - 1$. He can swap as many times as he wants.

What is the minimum number of swaps required for maximizing the difference sum?

Input

The first line contains an integer N. ($1 \le N \le 250000$)

The second line contains N integers $a_1, a_2, \cdots, a_N$ ($1 \le a_i \le N$).

The third line contains N integers $b_1, b_2, \cdots, b_N$ ($1 \le b_i \le N$).

Each of $[a_1, a_2, \cdots, a_N]$ and $[b_1, b_2, \cdots, b_N]$ is a permutation. In other words, it is consisted of distinct integers from 1 to N.

Output

Print an integer, the minimum number of swaps required for maximizing the difference sum.

Examples

standard input	standard output
3 1 2 3 1 2 3	2
4 3 4 1 2 3 2 4 1	3