# D. Friends and Subsequences

time limit per test: 2 seconds
memory limit per test: 512 megabytes
input: standard input
output: standard output

Mike and !Mike are old childhood rivals, they are opposite in everything they do, except programming. Today they have a problem they cannot solve on their own, but together (with you) — who knows?

Every one of them has an integer sequences $a$ and $b$ of length $n$. Being given a query of the form of pair of integers $(l, r)$, Mike can instantly tell the value of $\max_{i=l}^{r} a_i$ while !Mike can instantly tell the value of $\min_{i=l}^{r} b_i$.

Now suppose a robot (you!) asks them all possible different queries of pairs of integers $(l, r)$ $(1 \le l \le r \le n)$ (so he will make exactly $n(n+1)/2$ queries) and counts how many times their answers coincide, thus for how many pairs $\max_{i=l}^{r} a_i = \min_{i=l}^{r} b_i$ is satisfied.

How many occasions will the robot count?

## Input

The first line contains only integer $n$ $(1 \le n \le 200\,000)$.

The second line contains $n$ integer numbers $a_1, a_2, ..., a_n$ $(-10^9 \le a_i \le 10^9)$ — the sequence $a$.

The third line contains $n$ integer numbers $b_1, b_2, ..., b_n$ $(-10^9 \le b_i \le 10^9)$ — the sequence $b$.

## Output

Print the only integer number — the number of occasions the robot will count, thus for how many pairs $\max_{i=l}^{r} a_i = \min_{i=l}^{r} b_i$ is satisfied.

### Examples

| input |
| --- |
| 6<br>1 2 3 2 1 4<br>6 7 1 2 3 2 |
| **output** |
| 2 |

| input |
| --- |
| 3<br>3 3 3<br>1 1 1 |
| **output** |
| 0 |

## Note

The occasions in the first sample case are:

1.$l = 4, r = 4$ since $max\{2\} = min\{2\}$.

2.$l = 4, r = 5$ since $max\{2, 1\} = min\{2, 3\}$.

There are no occasions in the second sample case since Mike will answer $3$ to any query pair, but !Mike will always answer $1$.