

## C. Rotation Matching

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

After the mysterious disappearance of Ashish, his two favourite disciples Ishika and Hriday, were each left with one half of a secret message. These messages can each be represented by a permutation of size  $n$ . Let's call them  $a$  and  $b$ .

Note that a permutation of  $n$  elements is a sequence of numbers  $a_1, a_2, \dots, a_n$ , in which every number from 1 to  $n$  appears exactly once.

The message can be decoded by an arrangement of sequence  $a$  and  $b$ , such that the number of matching pairs of elements between them is maximum. A pair of elements  $a_i$  and  $b_j$  is said to match if:

- $i = j$ , that is, they are at the same index.
- $a_i = b_j$

His two disciples are allowed to perform the following operation any number of times:

- choose a number  $k$  and cyclically shift one of the permutations to the left or right  $k$  times.

A single cyclic shift to the left on any permutation  $c$  is an operation that sets

$c_1 := c_2, c_2 := c_3, \dots, c_n := c_1$  simultaneously. Likewise, a single cyclic shift to the right on any permutation  $c$  is an operation that sets  $c_1 := c_n, c_2 := c_1, \dots, c_n := c_{n-1}$  simultaneously.

### Codeforces Round 648 (Div. 2)

Finished

Practice



#### → Virtual participation



Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

#### → Clone Contest to Mashup



You can clone this contest to a mashup.

Clone Contest

Help Ishika and Hriday find the maximum number of pairs of elements that match after performing the operation any (possibly zero) number of times.

### Input

The first line of the input contains a single integer  $n$  ( $1 \leq n \leq 2 \cdot 10^5$ ) — the size of the arrays.

The second line contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $1 \leq a_i \leq n$ ) — the elements of the first permutation.

The third line contains  $n$  integers  $b_1, b_2, \dots, b_n$  ( $1 \leq b_i \leq n$ ) — the elements of the second permutation.

### Output

Print the maximum number of matching pairs of elements after performing the above operations some (possibly zero) times.

### Examples

input	Copy
5 1 2 3 4 5 2 3 4 5 1	
output	Copy
5	


  

input	Copy
5 5 4 3 2 1 1 2 3 4 5	
output	Copy
1	

input	Copy
4 1 3 2 4 4 2 3 1	

### → Submit?

Language: GNU G++20 11.2.0 (64 bit, v 

Choose file:  No file selected.

### → Problem tags

constructive algorithms

data structures



greedy

implementation

\*1400

No tag edit access

### → Contest materials

- Announcement (en) 
- Tutorial (en) 

output

Copy

2

**Note**

For the first case:  $b$  can be shifted to the right by  $k = 1$ . The resulting permutations will be  $\{1, 2, 3, 4, 5\}$  and  $\{1, 2, 3, 4, 5\}$ .

For the second case: The operation is not required. For all possible rotations of  $a$  and  $b$ , the number of matching pairs won't exceed 1.

For the third case:  $b$  can be shifted to the left by  $k = 1$ . The resulting permutations will be  $\{1, 3, 2, 4\}$  and  $\{2, 3, 1, 4\}$ . Positions 2 and 4 have matching pairs of elements. For all possible rotations of  $a$  and  $b$ , the number of matching pairs won't exceed 2.

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