

# B. Mine Defusal

Time limit: 1s

Memory limit: 512MB

You are a renowned bomb disposal expert in the Flea Kingdom. The mine is equipped with an encryption device represented by an array  $a$  of length  $n$ . The mine will enter an irreversible detonation process after  $T$  seconds.

The intelligence center has intercepted two crucial pieces of information:

- An array  $b$  of length  $n$ , called the **mine key**. The mine is defused if and only if  $a = b$ .
- $T$  **operation windows**  $(l_1, r_1), (l_2, r_2), \dots, (l_T, r_T)$ . At the  $i$ -th second, you may arbitrarily reorder the elements of  $a$  within the subarray  $[l_i, r_i]$ .

Time is critical! You must determine the earliest time at which the mine can be defused, or report that it is impossible.

## Input Format

The first line contains two positive integers  $n$  and  $T$ .

The next two lines each contain  $n$  integers, representing arrays  $a$  and  $b$ .

The next  $T$  lines each contain two integers  $l_i, r_i$ .

## Output Format

Output a single integer in the range  $[0, T + 1]$ , representing the earliest time at which the mine can be defused.

- Output  $0$  if no operation is needed.
- Output  $T+1$  if it is impossible to defuse the mine.

## Sample Input 1

```
5 3
1 1 2 2 1
2 1 2 1 1
1 3
3 4
1 2
```

## Sample Output 1

```
2
```

## Sample Input 2

```
5 1
1 1 2 2 1
1 1 2 2 1
1 3
```

## Sample Output 2

```
0
```

## Sample Input 3

```
5 4
1 1 1 1 2
2 1 1 1 1
1 2
3 4
1 2
3 5
```

## Sample Output 3

5

## Sample Input 4

```
5 1
3 4 5 1 2
1 2 3 4 5
1 5
```

## Sample Output 4

1

## Samples 5–11

See the attachments. Sample  $i$  satisfies the constraints of subtask  $i - 4$ .

## Constraints

For all test cases:

- $1 \leq n \leq 10^4$
- $1 \leq T \leq 2 \times 10^6$
- $1 \leq l_i \leq r_i \leq n$
- $1 \leq a_i, b_i \leq n$

It is guaranteed that arrays  $a$  and  $b$  contain the same multiset of values.

Subtask	$n \leq$	$T \leq$	Special Property	Score
1	10	10	None	5
2	500	500	None	10

<b>Subtask</b>	$n \leq$	$T \leq$	<b>Special Property</b>	<b>Score</b>
3	$10^4$	$10^4$	$a, b$ are permutations	10
4	$10^4$	$10^4$	None	15
5	2000	$2 \times 10^6$	$a, b$ are permutations	15
6	2000	$2 \times 10^6$	None	20
7	$10^4$	$2 \times 10^6$	None	25