

HOME TOP CATALOG CONTESTS GYM PROBLEMSET GROUPS RATING EDU API CALENDAR HELP P

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS STANDINGS CUSTOM INVOCATION

### D. 1709

time limit per test: 2 seconds memory limit per test: 256 megabytes

You are given two arrays of integers  $a_1, a_2, \ldots, a_n$  and  $b_1, b_2, \ldots, b_n$ . It is guaranteed that each integer from 1 to  $2 \cdot n$  appears in exactly one of the arrays.

You need to perform a certain number of operations (possibly zero) so that both of the following conditions are satisfied:

- For each  $1 \leq i < n$ , it holds that  $a_i < a_{i+1}$  and  $b_i < b_{i+1}$ .
- For each  $1 \le i \le n$ , it holds that  $a_i < b_i$ .

During each operation, you can perform exactly one of the following three actions:

- 1. Choose an index  $1 \leq i < n$  and swap the values  $a_i$  and  $a_{i+1}$ .
- 2. Choose an index  $1 \leq i < n$  and swap the values  $b_i$  and  $b_{i+1}$ .
- 3. Choose an index  $1 \leq i \leq n$  and swap the values  $a_i$  and  $b_i$ .

You do not need to minimize the number of operations, but the total number must not exceed 1709. Find any sequence of operations that satisfies **both** conditions.

#### Input

Each test consists of multiple test cases. The first line contains a single integer t ( $1 \le t \le 100$ ) — the number of test cases. The description of the test cases follows.

The first line of each test case contains a single integer n ( $1 \leq n \leq 40$ ) — the length of the arrays a and b.

The second line of each test case contains n integers  $a_1, a_2, \ldots, a_n$  ( $1 \le a_i \le 2 \cdot n$ ).

The third line of each test case contains n integers  $b_1, b_2, \ldots, b_n$   $(1 \le b_i \le 2 \cdot n)$ .

It is guaranteed that each integer from 1 to  $2 \cdot n$  appears either in array a or in array b.

### Output

For each test case, output the sequence of operations.

In the first line for each test case, output the number of operations k. Note that  $0 \le k \le 1709$ .

In the following k lines for each test case, output the operations themselves:

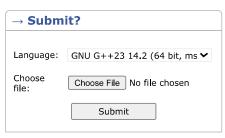
- If you want to swap the values  $a_i$  and  $a_{i+1}$ , output two integers 1 and i. Note that  $1 \le i < n$ .
- If you want to swap the values  $b_i$  and  $b_{i+1}$ , output two integers 2 and i. Note that  $1 \leq i < n$ .
- If you want to swap the values  $a_i$  and  $b_i$ , output two integers 3 and i. Note that  $1 \leq i \leq n$ .

It can be shown that under the given constraints, a solution always exists.

# Example

input	Сору
6	
1	
1	
2	
1	
2	





→ Last submissions		
Submission	Time	Verdict
324826145	Jun/17/2025 18:01	Accepted

```
1
2
1 3
4 2
2
1 4
3 2
3
6 5 4
3 2 1
3
5 3 4
2 6 1
output
0
1
3 1
1
2 1
1
3 2
3 1
3 3
2 1
1 2
1 1
2 1
6
2 2
1 1
1 2
2 1
3 1
3 2
```

## Note

In the first test case,  $a_1 < b_1$ , so no operations need to be applied.

In the second test case,  $a_1>b_1.$  After applying the operation, these values will be swapped.

In the third test case, after applying the operation, a=[1,3] and b=[2,4].

In the fourth test case, after applying the operation, a=[1,2] and b=[3,4].

Codeforces (c) Copyright 2010-2025 Mike Mirzayanov The only programming contests Web 2.0 platform Server time: Jun/17/2025 22:01:59<sup>UTC+7</sup> (k1).

Desktop version, switch to mobile version.

Privacy Policy | Terms and Conditions

Supported by



