

F. Two Arrays

time limit per test: 2 seconds
memory limit per test: 512 megabytes

You are given two arrays a and b of length n . You can perform the following operation an unlimited number of times:

- Choose an integer i from 1 to n and swap a_i and b_i .

Let $f(c)$ be the number of distinct numbers in array c . Find the maximum value of $f(a) + f(b)$. Also, output the arrays a and b after performing all operations.

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 \leq t \leq 10^4$). The description of the test cases follows.

The first line of each test case contains a single integer n ($1 \leq n \leq 10^5$) — the length of the arrays.

The second line of each test case contains n integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 2n$) — the elements of array a .

The third line of each test case contains n integers b_1, b_2, \dots, b_n ($1 \leq b_i \leq 2n$) — the elements of array b .

It is guaranteed that the sum of n over all test cases does not exceed 10^5 .

Output

For each test case, print a single integer in the first line — the maximum value of $f(a) + f(b)$.

In the second line, print n integers — the elements of array a after performing the operations.

In the third line, print n integers — the elements of array b after performing the operations.

Example

input	Copy
3	
5	
1 2 4 4 4	
1 3 3 5 2	
7	
2 2 4 4 5 5 5	
1 3 3 2 1 6 6	
7	
12 3 3 4 5 6 4	
1 2 13 8 10 13 7	
output	Copy
9	
1 3 4 5 2	
1 2 3 4 4	
12	
2 3 4 2 1 5 6	
1 2 3 4 5 6 5	
14	
12 3 13 8 10 6 4	
1 2 3 4 5 13 7	

Note

Codeforces Round 1031 (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

→ Submit?

Language: GNU G++23 14.2 (64 bit, ms)

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
324663611	Jun/16/2025 18:03	Accepted
324662764	Jun/16/2025 17:56	Time limit exceeded on test 3
324510521	Jun/15/2025 13:59	Wrong answer on pretest 2

→ Problem tags

constructive algorithms dfs and similar
graphs math

No tag edit access

→ Contest materials

- Announcement (en)

↑ In the first test case, after applying three operations with $i = 2$, $i = 4$, and $i = 5$, we obtain $a = [1, 3, 4, 5, 2]$ and $b = [1, 2, 3, 4, 4]$. After that, $f(a) + f(b) = 5 + 4 = 9$. It can be shown that it is not possible to achieve a greater answer.

• Tutorial (en) 

In the second test case, after applying the operations:

$$f([2, 3, 4, 2, 1, 5, 6]) + f([1, 2, 3, 4, 5, 6, 5]) = 6 + 6 = 12$$

[Codeforces](#) (c) Copyright 2010-2025 Mike Mirzayanov
The only programming contests Web 2.0 platform
Server time: Jun/16/2025 22:03:21^{UTC+7} (k1).
Desktop version, switch to [mobile version](#).
[Privacy Policy](#) | [Terms and Conditions](#)

Supported by



ITMO