Problem G. Columns Swaps

Time limit 2000 ms
Mem limit 262144 kB

You are given a table a of size $2 \times n$ (i.e. two rows and n columns) consisting of integers from 1 to n.

In one move, you can choose some **column** j ($1 \le j \le n$) and swap values $a_{1,j}$ and $a_{2,j}$ in it. Each column can be chosen **no more than once**.

Your task is to find the **minimum** number of moves required to obtain permutations of size n in both first and second rows of the table or determine if it is impossible to do that.

You have to answer t independent test cases.

Recall that the permutation of size n is such an array of size n that contains *each integer* from 1 to n exactly once (the order of elements doesn't matter).

Input

The first line of the input contains one integer t ($1 \le t \le 2 \cdot 10^4$) — the number of test cases. Then t test cases follow.

The first line of the test case contains one integer n ($1 \le n \le 2 \cdot 10^5$) — the number of columns in the table. The second line of the test case contains n integers $a_{1,1}, a_{1,2}, \ldots, a_{1,n}$ ($1 \le a_{1,i} \le n$), where $a_{1,i}$ is the i-th element of the first row of the table. The third line of the test case contains n integers $a_{2,1}, a_{2,2}, \ldots, a_{2,n}$ ($1 \le a_{2,i} \le n$), where $a_{2,i}$ is the i-th element of the second row of the table.

It is guaranteed that the sum of n does not exceed $2 \cdot 10^5$ ($\sum n \le 2 \cdot 10^5$).

Output

For each test case print the answer: `-1` if it is impossible to obtain permutation of size n in both first and the second rows of the table, or one integer k in the first line, where k is the **minimum** number of moves required to obtain permutations in both rows, and k *distinct* integers $pos_1, pos_2, \ldots, pos_k$ in the second line ($1 \le pos_i \le n$) in *any order* — indices of columns in which you need to swap values to obtain permutations in both rows. If there are several answers, you can print any.

Sample 1

Input	Output
6 4 1 2 3 4 2 3 1 4 5 5 3 5 1 4 1 2 3 2 4 3 1 2 1 3 3 2 4 1 2 2 1 3 4 3 4 4 4 3 1 4 3 2 2 1 3 1 1 2 3 2 2	0 2 2 3 1 1 2 3 4 2 3 4 -1