Minimize Maximum Mex

The MEX of an array of integers is defined to be the smallest **non-negative integer** not present in it.
For example, $\mathrm{MEX}([2, 3, 1, 2]) = 0$ and $\mathrm{MEX}([2, 0, 3]) = 1$.

You are given two arrays A and B, both of length N.
You can perform the following operation on the arrays:

- Choose an index $i\,(1 \leq i \leq N)$, and swap A_i with B_i.

Find the minimum possible value of $\max(\mathrm{MEX}(A), \mathrm{MEX}(B))$ if you are allowed to perform as many operations as you like (possibly, none).

Input Format

- The first line of input will contain a single integer T, denoting the number of test cases.
- Each test case consists of three lines of input.
  - The first line of each test case contains a single integer N — the length of the arrays.
  - The second line contains N space-separated integers $A_1, A_2, \ldots, A_N$.
  - The third line contains N space-separated integers $B_1, B_2, \ldots, B_N$.

Output Format

For each test case, output on a new line the answer: the minimum possible value of $\max(\mathrm{MEX}(A), \mathrm{MEX}(B))$ after performing some swaps.

Constraints

- $1 \leq T \leq 10^5$
- $1 \leq N \leq 3 \cdot 10^5$
- $0 \leq A_i, B_i < N$
- The sum of N over all test cases won't exceed $3 \cdot 10^5$.

Sample 1:

Input	Output
4	1
2	0
0 1	2
1 0	3
4	
2 3 1 2	
1 3 1 3	
4	
0 1 3 0	
0 3 0 1	
4	
0 1 2 2	