Problem A. Smallest Array Cover

Input file:	`smallest.in`
Output file:	`standard output`
Time limit:	3.5 seconds
Memory limit:	512 megabytes

Aziz thinks that an array is useless if it contains lots of duplicates. Such arrays should be reduced to a smaller array that covers the original array. He came up with the following problem.

You are given an array of integers and your task is to find the length of the smallest sub-array that covers the original array. A sub-array is said to cover the original array if it contains all of the different integers in the original array.

Input

The first line of input contains an integer T ($1 \leq T \leq 100$) — the number of test cases. Each test case is specified on two lines. The first line contains the size of the array N ($1 \leq N \leq 10^5$) and the second line contains N space-separated integers in the range $[1, 10^9]$ inclusive.

Output

Print T lines each containing the answer to the problem.

Example

smallest.in	standard output
3 5 1 2 2 2 1 6 1 1 1 1 1 1 4 1 2 2 3	2 1 4

Note

A sub-array is a non-empty contiguous segment of the original array.