C. Two Teams Composing

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You have n students under your control and you have to compose **exactly two teams** consisting of some subset of your students. Each student had his own skill, the i-th student skill is denoted by an integer a_i (different students can have the same skills).

So, about the teams. Firstly, these two teams should have the same size. Two more constraints:

- The first team should consist of students with **distinct** skills (i.e. all skills in the first team are unique).
- The second team should consist of students with **the same** skills (i.e. all skills in the second team are equal).

Note that it is permissible that some student of the first team has the same skill as a student of the second team.

Consider some examples (skills are given):

- $[1, 2, 3]$, $[4, 4]$ is not a good pair of teams because sizes should be the same;
- $[1, 1, 2]$, $[3, 3, 3]$ is not a good pair of teams because the first team should not contain students with the same skills;
- $[1, 2, 3]$, $[3, 4, 4]$ is not a good pair of teams because the second team should contain students with the same skills;
- $[1, 2, 3]$, $[3, 3, 3]$ is a good pair of teams;
- $[5]$, $[6]$ is a good pair of teams.

Your task is to find the maximum possible size x for which it is possible to compose a valid pair of teams, where each team size is x (skills in the first team needed to be unique, skills in the second team should be the same between them). A student cannot be part of more than one team.

You have to answer t independent test cases.

Input

The first line of the input contains one integer t ($1 \le t \le 10^4$) — 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 students. The second line of the test case contains n integers $a_1, a_2, \ldots, a_n$ ($1 \le a_i \le n$), where a_i is the skill of the i-th student. Different students can have the same skills.

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

Output

For each test case, print the answer — the maximum possible size x for which it is possible to compose a valid pair of teams, where each team size is x.

Example

input
4 7 4 2 4 1 4 3 4 5 2 1 5 4 3 1 1 4 1 1 1 3

output
3 1 0 2

Note

In the first test case of the example, it is possible to construct two teams of size 3: the first team is $[1, 2, 4]$ and the second team is $[4, 4, 4]$. Note, that there are some other ways to construct two valid teams of size 3.