Competitive Programming SS23

Submit until end of contest

Problem: snowflake (4.0 second timelimit)

Emily the entrepreneur has a cool business idea: packaging and selling snowflakes. She has devised a machine that captures snowflakes as they fall, and serializes them into a stream of snowflakes that flow, one by one, into a package. Once the package is full, it is closed and shipped to be sold.

The marketing motto for the company is "bags of uniqueness". To live up to this motto, every snowflake in a package must be different from the others. Unfortunately, this is easier said than done because in reality many of the snowflakes flowing through the machine are identical. Emily would like to know the size of the largest possible package of unique snowflakes that can be created.

The machine can start filling the package at any time, but once it starts, all snowflakes flowing from the machine must go into the package until it is completed and sealed. The package can be completed and sealed before all of the snowflakes have flowed out of the machine.

Input   The first line of input contains one integer T specifying the number of test cases to follow ($1 \leq T \leq 10$). Each test case consists of two lines. The first one contains an integer n ($1 \leq n \leq 10^5$), the number of snowflakes processed by the machine, followed by a line with n space-seperated snowflakes (integers in the range from 0 to 10^9, inclusive). Two snowflakes are identical if they are represented by the same integer.

Output   For each test case, output a line containing a single integer, the maximum number of unique snowflakes that can be in a package.

Sample input

```
3
5
1 2 3 2 1
2
1 1
10
0 1 0 2 0 3 0 4 0 5
```

Sample output

```
3
1
3
```