

## Second Attempt

Input file:            **standard input**  
Output file:          **standard output**  
Time limit:          2 seconds  
Memory limit:        256 megabytes

Despite all his efforts, the Laysan still refused the Rinat. But Rinat is not used to giving up!

To impress Laysan, Rinat decided to give her a bouquet of flowers. He bought  $n$  flowers and, before arranging the bouquet, laid them out in a row. Each flower is of some type. For each flower, Rinat wrote down a number  $a_i$  — the type of the  $i$ -th flower in the row.

However, Rinat learned that Laysan likes variety and wants the bouquet to contain no two flowers of the same type. In other words, the types of all remaining flowers must be pairwise distinct.

Rinat does not want to change the order of the flowers. He can only remove one contiguous fragment of the row: choose two indices  $l$  and  $r$  ( $1 \leq l \leq r \leq n$ ) and remove the flowers at positions  $l, l+1, \dots, r$ .

If all flowers already have pairwise distinct types, Rinat may remove nothing. In this case, the number of removed flowers is considered to be 0.

Help Rinat determine the minimum number of consecutive flowers that must be removed so that all remaining flowers have pairwise distinct types.

### Input

Each test consists of several test cases. The first line contains one integer  $t$  ( $1 \leq t \leq 10^5$ ) — the number of test cases. The description of the test cases follows.

The first line of each test case contains one integer  $n$  ( $1 \leq n \leq 10^6$ ) — the number of flowers in the row.

The second line of each test case contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $0 \leq a_i \leq 10^9$ ) — the types of the flowers.

It is guaranteed that the sum of  $n$  over all test cases does not exceed  $10^6$ .

### Output

For each test case, output one integer — the minimum number of consecutive flowers that need to be removed so that the species numbers of all remaining flowers are pairwise distinct.

## Scoring

The tests for this problem consist of nine groups. Points for each group are awarded only if all tests in the group, all tests required for it, and the tests from the statement are passed.

| Group | Points | Additional constraints                           | Required groups |
|-------|--------|--------------------------------------------------|-----------------|
| 1     | 10     | $n \leq 100$                                     | –               |
| 2     | 5      | $n \leq 10^3$                                    | 1               |
| 3     | 10     | $n \leq 5 \cdot 10^3$                            | 1, 2            |
| 4     | 10     | $n \leq 10^4$                                    | 1–3             |
| 5     | 15     | Each number appears at most twice, $n \leq 10^5$ | –               |
| 6     | 15     | $n \leq 5 \cdot 10^4$                            | 1–4             |
| 7     | 10     | $n \leq 10^5$                                    | 1–6             |
| 8     | 10     | $n \leq 5 \cdot 10^5$                            | 1–7             |
| 9     | 15     | No additional constraints                        | 1–8             |

## Example

| standard input                                                                                            | standard output       |
|-----------------------------------------------------------------------------------------------------------|-----------------------|
| 5<br>5<br>1 2 1 3 2<br>6<br>0 1 2 3 4 5<br>7<br>4 4 4 4 4 4 4<br>8<br>1 2 3 2 4 5 3 6<br>6<br>5 1 2 3 1 4 | 2<br>0<br>6<br>2<br>1 |

## Note

In the first test case, one can remove the fragment  $[2, 3]$ .

In the second test case, nothing needs to be removed.

In the third test case, one can remove the fragment  $[1, 6]$ .

In the fourth test case, one can remove the fragment  $[3, 4]$ .

In the fifth test case, one can remove the fragment  $[2, 2]$ .