Problem 6: Žofka's Ribbon

Žofka found a basket with long ribbons in the basement. Upon closer inspection, she noticed that the ribbons have all kinds of pictures printed on them, each picture takes one inch of the ribbon length and the pictures are printed right next to each other. For every ribbon Žofka wants to cut a piece that contains all possible types of pictures printed on that ribbon. Her mom is ok with this, as long as she cuts the shortest possible contiguous piece of the ribbon. Help!

Input specification:

The first line contains k, the number of ribbons. Each ribbon is described using two lines. The first of these lines contains n, the length of the ribbon, and m, the number of different pictures on the ribbon. The pictures are numbered $1, 2, \ldots, m$. The second of these lines contains n numbers describing the sequence of the pictures on the ribbon.

All consecutive numbers are separated by white space. You can assume $n \leq 10{,}000{,}000$ and $m \leq 1{,}000{,}000$.

Output specification:

The output contains k lines. For each line, the output contains the smallest possible ribbon length Žofka can cut to contain all different pictures.

Sample input:

```
2
10 5
1 1 2 2 3 3 4 4 5 5
13 6
5 2 1 5 4 2 4 3 1 6 4 3 2
```

Sample output:

```
8
7
```

Explanation:

The cut part of the first ribbon will be 1 2 2 3 3 4 4 5 of length 8. The cut part of the second ribbon will be 5 4 2 4 3 1 6 of length 7.