Problem K. Make Rounddog Happy

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

Rounddog always has an array $a_1, a_2, \ldots, a_n$ in his right pocket, satisfying $1 \le a_i \le n$.

A subarray is a non-empty subsegment of the original array. Rounddog defines a good subarray as a subsegment $a_l, a_{l+1}, \ldots, a_r$ such that all elements in it are different and

$$\max(a_l, a_{l+1}, \ldots, a_r) - (r - l + 1) \le k.$$

Rounddog is not happy today. As his best friend, you want to find all good subarrays of a to make him happy. For this problem, please calculate the total number of good subarrays of a.

Input

The input contains several test cases, and the first line contains a single integer T ($1 \le T \le 20$), the number of test cases.

The first line of each test case contains two integers n ($1 \le n \le 300\,000$) and k ($1 \le k \le 300\,000$).

The second line contains n integers, the i-th of which is a_i ($1 \le a_i \le n$).

It is guaranteed that the sum of n over all test cases never exceeds $1\,000\,000$.

Output

For each test case, print a single line with a single integer: the number of good subarrays in the given array.

Example

standard input	standard output
2 5 3 2 3 2 2 5 10 4 1 5 4 3 6 2 10 8 4 5	7 31