

## Problem E. Examining groups

Source file name: E.c, E.cpp, E.java, E.py2, E.py3  
Input: Standard  
Output: Standard  
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Schools usually divide students in groups usually by age or ability, this has created some polarity on people opinion, some people think this is good so that students can interact with others that may have similar skills and likes in common. Others think this is one of the main things that are dividing society.

John's school does not like to be part of this kind of discussions that's why they will limit groups by the amount of students they can put on their classrooms. Today John's school has  $N$  students divided in 1000 groups, each of these groups is represented by an integer number between 1 and 1000 and are groups conformed of students who have common skills or common age.

In order to have more diversified groups John has decided to put all students in a line with  $N$  slots numbered from 0 to  $N - 1$ , each student is wearing a shirt that represents which group the student belongs to. After all students are in the line then John ask them to move to a random position making sure that each position in the line has exactly one student. John will take now two positions  $X$  and  $Y$  and calculate the "diversity score" of the group that they can make by creating a group with students standing in the line from position  $X$  to position  $Y$  inclusive. The "diversity score" is the number of different groups that the students between  $X$  and  $Y$  belong to at this moment.

John will be selecting several values for  $X$  and  $Y$  trying to find good "diversity scores", but as there can be a lot of students it is complicated and time consuming. Can you help John to given the arrangement of the students to find what is the "diversity score" for each selection of  $X$  and  $Y$  that he makes?

### Input

The first line contains a single number  $T$ , the number of test cases. Each test case starts with a line with two integer number  $N$  and  $Q$  being the number of students and the number of selections John will make for  $X$  and  $Y$ . The next line contains  $N$  numbers separated by a space, representing where the  $i - th$  element of the line is the group the  $i - th$  student in the line belongs to. The next  $Q$  lines contain two integer numbers separated by a space representing each of the selectiong for  $X$  and  $Y$  that John will make.

- $1 \leq N \leq 10^5$
- $1 \leq Q \leq 10^5$
- $0 \leq X \leq Y \leq N$
- Even when the school has 1000 groups, not necessarily all groups have students.

### Output

For each test your program should print exactly  $Q$  lines each line contains the "diversity score" based on the definition above for each of the  $X$  and  $Y$  selections John has made on the test case.