

Tulip And Numbers

Little Tulip recently learnt about how to write numbers. So she wrote some numbers in a paper in a line. But she never wrote a number which is less than the previous one.

Now she want to know how many different numbers are in a given range.

In short, you are given an array of N integers indexed from 1 to N , and q queries, each in the form $i j$, you have to find the number of distinct integers from index i to j (inclusive).

Input

Input starts with an integer T (≤ 15), denoting the number of test cases.

The first line of a case is a blank line. The next line contains two integers N ($1 \leq N \leq 10^5$), q ($1 \leq q \leq 10^5$). The next line contains N space separated positive integers forming the array. Each of the next q lines will contain a query which is in the form $i j$ ($1 \leq i \leq j \leq N$).

Output

For each test case, print the case number in a single line. Then for each query you have to print a line containing number of distinct integers from index i to j .

Example

Input:

```
2

5 3
1 2 2 4 5
1 2
1 5
4 5

3 1
1 1 1
1 3
```

Output:

```
Case 1:
2
4
2
Case 2:
1
```