

Playing With Subarray

Alice loves to play with array of integers. He has an array $A[]$ of integers. Bob, friend of Alice is a smart guy. Seeing Alice's curiousness about array Bob decided to give Alice a task. Before giving the task Bob ask Alice if he knows about **$K_min_subarray$** ? A $K_min_subarray$ is the minimum value of a K length subarray of array $A[]$. After Bob knows about $K_min_subarray$, Alice gives Bob Q queries about array $A[]$. In each query he will give two integers L,R . Alice have to answer the **largest value** of all possible $K_min_subarray$ in between L to R . Here each subarray's starting position must be $\geq L$, ending position must be $\leq R$ and the length of the subarray must be K .

Input

In the first line given t (Number of test cases)

For each test case there will be the following-

In the first line given two integers n (Size of the array) and K (Length of the subarray).

In the second line given the elements($A[i]$) of the array

In the next line given an integer Q (The number of queries)

In the next Q lines given two integers L, R

Constraints:

$$1 \leq t \leq 10$$

$$1 \leq n \leq 10^5$$

$$1 \leq K \leq n$$

$$-10^{18} \leq A[i] \leq 10^{18}$$

$$1 \leq Q \leq 10^5$$

$$1 \leq L \leq R \leq n$$

$$t * \max(n, Q) \leq 10^5$$

Here all positions are 1 based.

Output

For each test case you have to output the following-

Print the test case no in one line in the format "Case x :" without quote, where x is the case number.

For each query output the largest value of all possible $K_min_subarray$ in between L to R in each line. If answer is not possible print "Impossible" without quote.

For better understanding see the sample input output and the explanation of sample.

Example

Input:

```
2
7 3
10 5 15 -5 3 11 2
4
1 4
2 3
3 6
5 7
5 1
1 2 3 4 5
3
1 3
2 5
4 4
```

Output:

```
Case 1:
5
Impossible
-5
2
Case 2:
3
5
4
```

Explanation:

Test Case 1:

Query 1: Here 2 subarray possible of length 3 between pos 1 to 4 : {10,5,15} , {5,15,-5}.

Minimum value in {10,5,15} is 5 Minimum value in {5,15,-5} is -5 Maximum of 5 & -5 is 5.

So, answer is 5

Query 2: Here no subarray is possible of length 3 between pos 2 to 3.

So, you have to print "Impossible"

Query 3: Here 2 subarray possible of length 3 between pos 3 & 6 : {15,-5,3} , {-5,3,11}.

Minimum value in {15,-5,3} is -5 Minimum value in {-5,3,11} is -5 Maximum of -5 & -5 is -5.

So, answer is -5.