### IPL 2021 - Match Day 2

Due to the rise of covid-19 cases in India, this year BCCI decided to organize knock-out matches in IPL rather than a league.

Today is matchday 2 and it is between the most loved team Chennai Super Kings and the most underrated team - Punjab Kings. Stephen Fleming, the head coach of CSK, analyzing the batting stats of Punjab. He has stats of runs scored by all N players in the previous season and he wants to find the maximum score for each and every contiguous sub-list of size K to strategize for the game.

**Example 1:**

**Input:**

N = 9, K = 3

arr[] = 1 2 3 1 4 5 2 3 6

**Output:**

3 3 4 5 5 5 6

**Explanation:**

1st contiguous subarray = {1 2 3} Max = 3

2nd contiguous subarray = {2 3 1} Max = 3

3rd contiguous subarray = {3 1 4} Max = 4

4th contiguous subarray = {1 4 5} Max = 5

5th contiguous subarray = {4 5 2} Max = 5

6th contiguous subarray = {5 2 3} Max = 5

7th contiguous subarray = {2 3 6} Max = 6

**Example 2:**

**Input:**

N = 10, K = 4

arr[] = 8 5 10 7 9 4 15 12 90 13

**Output:**

10 10 10 15 15 90 90

**Explanation:**

1st contiguous subarray = {8 5 10 7}, Max = 10

2nd contiguous subarray = {5 10 7 9}, Max = 10

3rd contiguous subarray = {10 7 9 4}, Max = 10

4th contiguous subarray = {7 9 4 15}, Max = 15

5th contiguous subarray = {9 4 15 12}, Max = 15

6th contiguous subarray = {4 15 12 90}, Max = 90

7th contiguous subarray = {15 12 90 13}, Max = 90

**Constraints:**  
1 ≤ N ≤ 106  
1 ≤ K ≤ N  
0 ≤ arr[i] ≤ 106

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//{ Driver Code Starts

import java.util.\*;

import java.io.\*;

import java.lang.\*;

class Main {

public static void main(String args[]) {

// taking input using class Scanner

Scanner sc = new Scanner(System.in);

// taking total count of testcases

int t = sc.nextInt();

while (t-- > 0) {

// taking total number of elements

int n = sc.nextInt();

// taking size of subArrays

int k = sc.nextInt();

// Declaring and Intializing an array of size n

int arr[] = new int[n];

// adding all the elements to the array

for (int i = 0; i < n; i++) {

arr[i] = sc.nextInt();

}

// Calling the method max\_of\_subarrays of class solve

// and storing the result in an ArrayList

ArrayList<Integer> res = new Solution().max\_of\_subarrays(arr, n, k);

// printing the elements of the ArrayList

for (int i = 0; i < res.size(); i++)

System.out.print(res.get(i) + " ");

System.out.println();

}

}

}

// } Driver Code Ends

class Solution {

static ArrayList<Integer> max\_of\_subarrays(int arr[], int n, int k) {

ArrayList<Integer> ans=new ArrayList<Integer>();

Deque<Integer> dq=new LinkedList<>();

for(int i=0;i<n;i++){

while(!dq.isEmpty() && dq.peek()<i-k+1){

dq.poll();

}

while(!dq.isEmpty() && arr[dq.peekLast()] <arr[i]){

dq.pollLast();

}

dq.offer(i);

if(i>=k-1){

ans.add(arr[dq.peek()]);

}

}

return ans;

}

}