Maximum of minimum for every window size

Given an integer array **A**[] of size **N**. The task is to find the maximum of the minimum of every window size in the array.

Input: 7 **Output:**

10 20 30 50 10 70 30 70 30 20 10 10 10 10

CODE:

```
#include <iostream>
#include<stack>
using namespace std;

void printMaxOfMin(int arr[], int n)
{
// Used to find previous and next smaller
   stack<int> s;

   // Arrays to store previous and next smaller
   int left[n+1];
   int right[n+1];

   // Initialize elements of left[] and right[]
   for (int i=0; i<n; i++)
   {
      left[i] = -1;
      right[i] = n;
   }

   // Fill elements of left[] using logic discussed on
   // https://www.cdn.geeksforgeeks.org/next-greater-element/
   for (int i=0; i<n; i++)
   {
```

```
        while (!s.empty() && arr[s.top()] >= arr[i])
            s.pop();

        if (!s.empty())
            left[i] = s.top();

        s.push(i);
    }

    // Empty the stack as stack is
// going to be used for right[]
    while (!s.empty())
        s.pop();

    // Fill elements of right[] using same logic
    for (int i = n-1 ; i>=0 ; i-- )
    {
        while (!s.empty() && arr[s.top()] >= arr[i])
            s.pop();

        if(!s.empty())
            right[i] = s.top();

        s.push(i);
    }

    // Create and initialize answer array
    int ans[n+1];
    for (int i=0; i<=n; i++)
        ans[i] = 0;

    // Fill answer array by comparing minimums of all
```

```
    // lengths computed using left[] and right[]
    for (int i=0; i<n; i++)
    {
        // length of the interval
        int len = right[i] - left[i] - 1;

        // arr[i] is a possible answer for this length
        // 'len' interval, check if arr[i] is more than
        // max for 'len'
        ans[len] = max(ans[len], arr[i]);
    }

    // Some entries in ans[] may not be filled yet. Fill
    // them by taking values from right side of ans[]
    for (int i=n-1; i>=1; i--)
        ans[i] = max(ans[i], ans[i+1]);

    // Print the result
    for (int i=1; i<=n; i++)
        cout << ans[i] << " ";
}

// Driver program
int main()
{
    int arr[] = {10, 20, 30, 50, 10, 70, 30};
    int n = sizeof(arr)/sizeof(arr[0]);
    printMaxOfMin(arr, n);
    return 0;
}
```