

<https://course.acciojob.com/idle?question=dee87292-2cca-4f9c-9501-973000b81a15>

MEDIUM

Max Score: 40 Points

Stock Span Problem

The stock span problem is a financial problem where we have a series of n daily price quotes for a stock and we need to calculate the span of stock's price for all n days.

The span s_i of the stock's price on a given day i is defined as the maximum number of consecutive days just before the given day(including), for which the price of the stock on the current day is less than or equal to its price on the given day.

For example, if an array of 7 days prices is given as {100, 80, 60, 70, 60, 75, 85}, then the span values for corresponding 7 days are {1, 1, 1, 2, 1, 4, 6}.

Explanation to the given example:

On 0th day only the current day where we find that stock price is less than or equal to it so for 1 consecutive day(current day) this happens.

On 1st day only the current day where we find that stock price is less than or equal to it so for 1 consecutive day(current day) this happens.

On 2nd day only the current day where we find that stock price is less than or equal to it so for 1 consecutive day(current day) this happens.

Now on 3rd day we observe that stock price for last two consecutive days is less than or equal to current day i.e. (60, 70) thus count is 2

On 4th day only the current day where we find that stock price is less than or equal to it so for 1 consecutive day(current day) this happens.

On 5th day we observe that stock price for last four consecutive days is less than or equal to current day i.e. (60, 70, 60, 75) thus count is 4.

On 6th day we observe that stock price for last six consecutive days is less than or equal to current day i.e. (80, 60, 70, 60, 75, 85) thus count is 6.

Input Format

line 1: contains an integer n denoting size of array.

line 2: contains n separated integers denoting elements of array.

Output Format

Print n space separated integers denoting span value of i th day where $i=0,1,\dots,n-1$.

Example 1

Input

```
7
100 80 60 70 60 75 85
```

Output

```
1 1 1 2 1 4 6
```

Explanation

On 0th day only the current day where we find that stock price is less than or equal to it so for 1 consecutive day(current day) this happens.

On 1st day only the current day where we find that stock price is less than or equal to it so for 1 consecutive day(current day) this happens.

On 2nd day only the current day where we find that stock price is less than or equal to it so for 1 consecutive day(current day) this happens.

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On 4th day only the current day where we find that stock price is less than or equal to it so for 1 consecutive day(current day) this happens.

On 5th day we observe that stock price for last four consecutive days is less than or equal to current day i.e. (60, 70, 60, 75) thus count is 4.

On 6th day we observe that stock price for last six consecutive days is less than or equal to current day i.e. (80, 60, 70, 60, 75, 85) thus count is 6.

Constraints

$$1 \leq n \leq 100000$$

$$1 \leq \text{arr}[i] \leq 100000$$

Topic Tags

Stacks

My code

// in java

```
import java.util.*;  
import java.lang.*;  
import java.io.*;
```

```

public class Main
{
    static int[] stockspan(int arr[])
    {
        int n=arr.length;
        Stack<Integer>st=new Stack<>();
        int ans[]=new int[n];
        for(int i=0;i<n;i++)
        {
            int value=arr[i];
            while(st.size()>0 && arr[st.peek()]<=value)
            {
                st.pop();
            }
            if(st.size()==0)
            {
                ans[i]=i+1;
            }
            else
            {
                ans[i]=i-st.peek();
            }
            st.push(i);
        }
        return ans;
    }
    public static void main (String[] args) throws
java.lang.Exception
    {
        //your code here
    }
}

```

```
Scanner s=new Scanner(System.in);
int n=s.nextInt();
int arr[]=new int[n];
for(int i=0;i<n;i++)
    arr[i]=s.nextInt();
int arb[]=stockspan(arr);
for(int val:arb)
    System.out.print(val+" ");
}
}
```