January 2023 CSE 106

Online on Divide and Conquer - A1 & A2

Total Marks: 10 **Time Duration: 30 mins**

Given an integer array, **find the peak element in it**. A peak element is an element that is greater than its neighbors. There might be multiple peak elements in an array, and the solution should report any peak element.

An element A[i] of an array A is a peak element if it's not smaller than its neighbor(s).

1. $A[i-1] <= A[i] >= A[i+1]$ for $0 < i < n-1$
2. $A[i] >= A[i+1]$ if i = 0
3. $A[i-1] <= A[i]$ if i = n – 1

Input Format

- The first line of input contains an integer n, the size of the array.
- The second line of input contains n integers, representing the array elements.

Output Format

The program should output the peak element in the array.

Important Note

1. **Your solution should have logarithmic time complexity (O(log n))**. Otherwise, you will get zero marks.

Sample IO

Input
6
8 9 10 2 5 6

Output
10