**[Longest Increasing Subsequence](https://practice.geeksforgeeks.org/problems/longest-increasing-subsequence-1587115620/1)**

Given an array of integers, find the **length**of the**longest (strictly) increasing subsequence** from the given array.

**Example 1:**

**Input:**

N = 16

A[]={0,8,4,12,2,10,6,14,1,9,5

  13,3,11,7,15}

**Output:** 6

**Explanation:**Longest increasing subsequence

0 2 6 9 13 15, which has length **6**

**Example 2:**

**Input:**

N = 6

A[] = {5,8,3,7,9,1}

**Output:** 3

**Explanation:**Longest increasing subsequence

5 7 9, with length **3**

**Your Task:**  
Complete the function **longestSubsequence()** which takes the input array and its size as input parameters and returns the **length**of the**longest increasing subsequence.**

**Expected Time Complexity** : O( N\*log(N) )  
**Expected Auxiliary Space**: O(N)

**Constraints:**  
1 ≤ N ≤ 105  
0 ≤ A[i] ≤ 106