

Longest Bitonic Subsequence

Given an array of positive integers. Find the maximum length of Bitonic subsequence.

A subsequence of array is called Bitonic if it is first strictly increasing, then strictly decreasing.

Example 1:

Input: `nums = [1, 2, 5, 3, 2]`

Output: 5

Explanation: The sequence {1, 2, 5} is increasing and the sequence {3, 2} is decreasing so merging both we will get length 5.

Example 2:

Input: `nums = [1, 11, 2, 10, 4, 5, 2, 1]`

Output: 6

Explanation: The bitonic sequence {1, 2, 10, 4, 2, 1} has length 6.

Your Task:

You don't need to read or print anything. Your task is to complete the function **LongestBitonicSequence()** which takes the array `nums[]` as input parameter and returns the maximum length of bitonic subsequence.

Expected Time Complexity: $O(n^2)$

Expected Space Complexity: $O(n)$

Constraints:

$1 \leq \text{length of array} \leq 10^3$

$1 \leq \text{arr}[i] \leq 10^6$