**DAY-4 TASK**

Problem-1

Given an integer array nums, return *the maximum difference between two successive elements in its sorted form*. If the array contains less than two elements, return 0.

You must write an algorithm that runs in linear time and uses linear extra space.

**Example 1:**

**Input:** nums = [3,6,9,1]

**Output:** 3

**Explanation:** The sorted form of the array is [1,3,6,9], either (3,6) or (6,9) has the maximum difference 3.

**Example 2:**

**Input:** nums = [10]

**Output:** 0

**Explanation:** The array contains less than 2 elements, therefore return 0.

**Constraints:**

* 1 <= nums.length <= 105
* 0 <= nums[i] <= 109

Problem-2

We define a harmonious array as an array where the difference between its maximum value and its minimum value is **exactly** 1.

Given an integer array nums, return the length of its longest harmonious subsequence among all its possible subsequences.

**Example 1:**

**Input:** nums = [1,3,2,2,5,2,3,7]

**Output:** 5

**Explanation:**

The longest harmonious subsequence is [3,2,2,2,3].

**Example 2:**

**Input:** nums = [1,2,3,4]

**Output:** 2

**Explanation:**

The longest harmonious subsequences are [1,2], [2,3], and [3,4], all of which have a length of 2.

**Example 3:**

**Input:** nums = [1,1,1,1]

**Output:** 0

**Explanation:**

No harmonic subsequence exists.

**Constraints:**

* 1 <= nums.length <= 2 \* 104
* -109 <= nums[i] <= 109