Problem 2576: Find the Maximum Number of Marked Indices

Problem Information

Difficulty: Medium
Acceptance Rate: 40.73%
Paid Only: No
Tags: Array, Two Pointers, Binary Search, Greedy, Sorting

Problem Description

You are given a **0-indexed** integer array `nums`.

Initially, all of the indices are unmarked. You are allowed to make this operation any number of times:

* Pick two **different unmarked** indices `i` and `j` such that `2 * nums[i] <= nums[j]`, then mark `i` and `j`.

Return _the maximum possible number of marked indices in`nums` using the above operation any number of times_.

Example 1:

Input: nums = [3,5,2,4] **Output:** 2 **Explanation:** In the first operation: pick i = 2 and j = 1, the operation is allowed because 2 * nums[2] <= nums[1]. Then mark index 2 and 1. It can be shown that there's no other valid operation so the answer is 2.

Example 2:

Input: nums = [9,2,5,4] **Output:** 4 **Explanation:** In the first operation: pick i = 3 and j = 0, the operation is allowed because 2 * nums[3] <= nums[0]. Then mark index 3 and 0. In the second operation: pick i = 1 and j = 2, the operation is allowed because 2 * nums[1] <= nums[2]. Then mark index 1 and 2. Since there is no other operation, the answer is 4.

Example 3:

Input: nums = [7,6,8] **Output:** 0 **Explanation:** There is no valid operation to do, so the answer is 0.

Constraints:

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

Code Snippets

C++:

```
class Solution {
public:
int maxNumOfMarkedIndices(vector<int>& nums) {

}
};
```

Java:

```
class Solution {
public int maxNumOfMarkedIndices(int[] nums) {

}
}
```

Python3:

```
class Solution:
def maxNumOfMarkedIndices(self, nums: List[int]) -> int:
```