Minimum moves to equal array element

453. Minimum Moves to Equal Array Elements

Medium 2305 1848 Add to List Share

Given an integer array `nums` of size `n`, return *the minimum number of moves required to make all array elements equal.*

In one move, you can increment `n - 1` elements of the array by `1`.

Example 1:

```
Input: nums = [1,2,3]
Output: 3
Explanation: Only three moves are needed
(remember each move increments two elements):
[1,2,3]  =>  [2,3,3]  =>  [3,4,3]  =>  [4,4,4]
```

Brute force :- TLE

[1, 2, 3]

take max element from array and increase all element by 1 except max

ie [1, 2, [3]]

↓ max

[2, 3, [3]] 1

Again take max and increase all element by 1

[3, [4], 3] 2

[4, 4, 4] Hence No. of step = 3

3

T.C - $O(n^2)$ → increse element by +1

↓

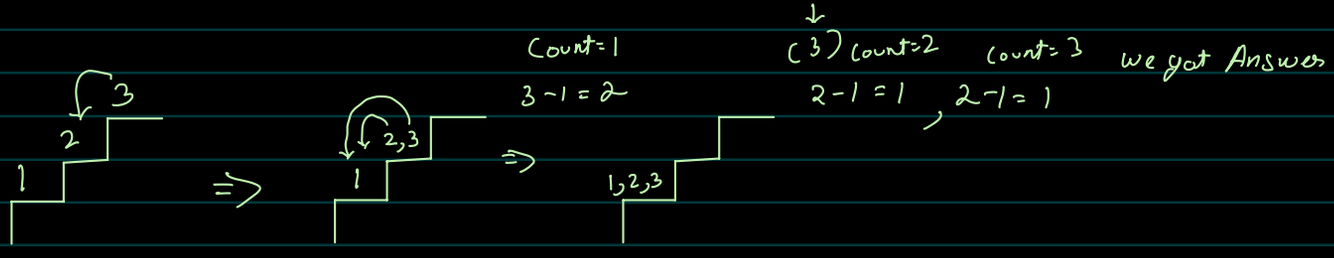
Find max every time

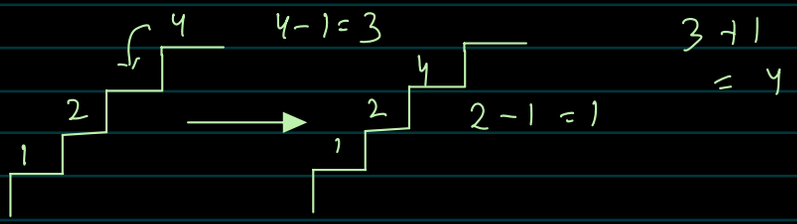
Store it in Set and whenever we get set.size() == 1

return count;

Optimal approach:-

[1, 2, 3]





[3, 4, 3]

3 - 3 = 0
4 - 3 = 1
→ 0 + 1 = 1

Take min and subtract & add in new variable we will get ans

T.C - O(n) + O(n)

S.C - O(1)

```
class Solution {
public:
    int minMoves(vector<int>& nums) {
        int mini=INT_MAX;
        for(int i=0;i<nums.size();i++){
            mini=min(mini,nums[i]);
        }
        int sum=0;
        for(int i=0;i<nums.size();i++){
            sum+=nums[i]-mini;
        }
        return sum;
    }
};
```