✓ PYTHON O (N) || EXPLAINED || ;]

karan_8082 ★ 1166 Last Edit: July 2, 2022 11:46 PM 2.0K VIEWS

84

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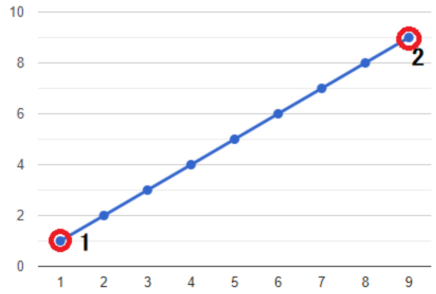
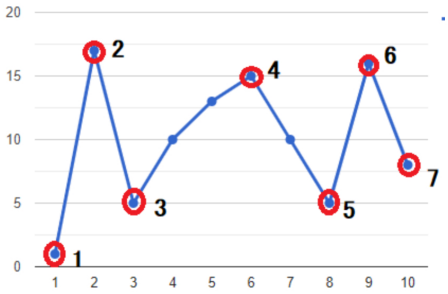
The demand of the question is to get **INCREASING** and **DECREASING** sequences alternating.
Now re-arranging of array is not possible, Hence **NUMBER OF TIMES ARRAY CHANGES** from increasing to decreasing & vice versa **REMAINS CONSTANT**.

The question can now reduced to find number of times array changes pattern.
Further , it can be deduced that we have to **COUNT THE NUMBER OF PEAKS AND VALLEY POINTS.**
EXAMPLE 1 => `nums = [1, 2, 3, 4, 5, 6, 7, 8, 9 ]`



EXAMPLE 2 => `nums = [1, 17, 5, 10, 13, 15, 10, 5, 16, 8 ]`



There are multiple ways to do so. Chose any.
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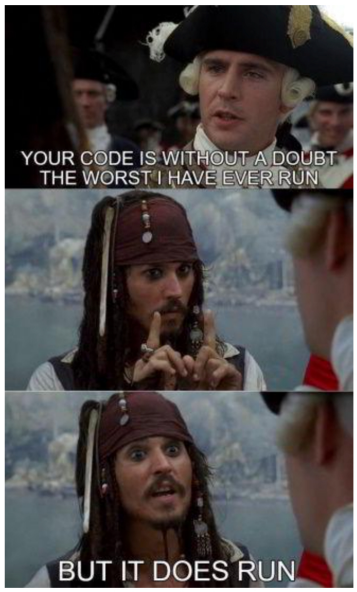
CODE 1

```
class Solution:
    def wiggleMaxLength(self, nums: List[int]) -> int:
        f = 1
        d = 1
        for i in range(1, len(nums)):
            if nums[i]>nums[i-1]:
                f = d+1
            elif nums[i] < nums[i-1]:
                d = f+1
        res = max(f, d)
        return res
```

CODE 2

```
class Solution:
    def wiggleMaxLength(self, nums: List[int]) -> int:
        res=[nums[0]]
        i=1
        while i<len(nums) and nums[i]==nums[i-1]:
            i+=1
        if i<len(nums):
            res.append(nums[i])

        while i<len(nums):
            if (res[-1] > res[-2]):  # last sequence was incresing
                while i<len(nums) and nums[i]>=nums[i-1]:
                    res[-1] = nums[i]
                    i+=1
                if i<len(nums):
                    res.append(nums[i])
                    i+=1
            else:
                while i<len(nums) and nums[i]<=nums[i-1]:
                    res[-1]=nums[i]
                    i+=1
                if i<len(nums):
                    res.append(nums[i])
                    i+=1
        return len(res)
```



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Post

shauno ★ 4 July 3, 2022 6:03 AM

Awesome stuff, you always have the best explanations. I originally tried a 2d array to track negatives and positives but kept failing on large test cases. This is a much better solution, thanks!

4 Show 1 reply Reply

ana_2kacer ★ 69 3 days ago

The diagram was so on point! Great solution🔥🔥

2 Show 1 reply Reply

sonyD4d ★ 80 July 3, 2022 12:34 AM

haha that meme though

3 Show 1 reply Reply

normalpersontryingtopayrent ★ 70 3 days ago

@karan_8082 can you explain this bit some more?

```
Now re-arranging of array is not possible, Hence NUMBER OF TIMES ARRAY CHANGES from increasing to decreasing & vice versa REMAINS CONSTANT.
```

0 Show 1 reply Reply

Jeet4779 ★ 30 3 days ago

Great.. thanks

0 Show 1 reply Reply