Remove Duplicates

SR Score	505
Link	https://www.educative.io/courses/grokking-the-coding-interview/mEEA22L5mNA
Last Reviewed	@April 3, 2022
Time	1
Score	1
DS	arrays
Algo	two pointers
Stated	easy
Perceived	medium
List	REPEAT
Needs Review	☑
Repeat Offender	☐
Confident	☐
C_Date	1
C_Solution	5
C_Time	100
Frequency	

▼ **Problem Statement**

Problem Statement#

Given an array of sorted numbers, **remove all duplicates** from it. You should **not use any extra space**; after removing the duplicates in-place return the length of the subarray that has no duplicate in it.

Example 1:

```
Input: [2, 3, 3, 3, 6, 9, 9]
Output: 4
Explanation: The first four elements after removing the duplicates will be [2, 3, 6, 9].
```

Example 2:

```
Input: [2, 2, 2, 11]
Output: 2
Explanation: The first two elements after removing the duplicates will be [2, 11].
```

▼ **Intuition**

- create two pointers: one to iterate thru the array as is standard, and one “sticky” pointer whose position is always the index at which the next non-duplicate number will be placed
- by doing this, we don’t need an extra “newLen” variable to track the length of the modified array; the “sticky” slow pointer will be at the index that represents the number of non-duplicate elements there are in the array

▼ **Time and Space Complexity Considerations**

- Time:
  - O(2n) → O(n)
    - technically could be up to 2n bc there are two pointers that could iterate over the array once each
- Space: O(1)
  - question required operation to be in-place

▼ **Review Notes**

▼ [4/3]

- couldn’t get working solution
- trick to the solution: using the “slow” pointer to mark where the next non-duplicate element should be placed

▼ Solutions

```
# 4/3/2022
# NS (no solution)
# had basic idea of two pointers, one fast & one slow, but couldn't get working solution
def remove_duplicates(arr):
    slow = 1
    for i in range(1, len(arr)):
        if arr[i] != arr[slow]:
            arr[slow] = arr[i]
            slow += 1

    return slow
```

▼ Resources

Remove Duplicates from Sorted Array - Leetcode 26 - Python

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https://www.youtube.com/watch?v=DEJAZBq0FDA

▼ GitHub

GCI-master-list/Pattern 2 - Two Pointers/Remove Duplicates at main · psdev30/GCI-master-list

Contribute to psdev30/GCI-master-list development by creating an account on GitHub.

https://github.com/psdev30/GCI-master-list/tree/main/Pattern%202%20-%20Two%20Pointers/Remove%20Duplicates