Prompt

Difficulty: Easy **Category:** Arrays **Successful Submissions:** 121,654+

Validate Subsequence

Given two non-empty arrays of integers, write a function that determines whether the second array is a subsequence of the first one.

A subsequence of an array is a set of numbers that aren't necessarily adjacent in the array but that are in the same order as they appear in the array. For instance, the numbers `[1, 3, 4]` form a subsequence of the array `[1, 2, 3, 4]`, and so do the numbers `[2, 4]`. Note that a single number in an array and the array itself are both valid subsequences of the array.

Sample Input

```
array = [5, 1, 22, 25, 6, -1, 8, 10]
sequence = [1, 6, -1, 10]
```

Sample Output

```
true
```

Hints

Hint 1

You can solve this question by iterating through the main input array once.

Hint 2

Iterate through the main array, and look for the first integer in the potential subsequence. If you find that integer, keep on iterating through the main array, but now look for the second integer in the potential subsequence. Continue this process until you either find every integer in the potential subsequence or you reach the end of the main array.

Hint 3

To actually implement what Hint #2 describes, you'll have to declare a variable holding your position in the potential subsequence. At first, this position will be the 0th index in the sequence; as you find the sequence's integers in the main array, you'll increment the position variable until you reach the end of the sequence.

Optimal Space & Time Complexity

O(n) time | O(1) space - where n is the length of the array

Your Solutions | Run Code

Solution 1 | Solution 2 | Solution 3

```python
'''O(n) Time and O(1) Space'''
def isValidSubsequence(array, sequence):
    if len(sequence) == 0:
        return True

    idx_sub = 0
    for value in array:
        # if a matching value is found, increment the index
        if value == sequence[idx_sub]:
            idx_sub += 1

            # if at any step in the traversal of the array
            # we reach the end of the sequence
            # we can stop, and return True
            if idx_sub == len(sequence):
                return True

    if idx_sub == len(sequence):
        return True
    # if we didn't return True by the end of the traversal
    # we can safely return False
    return False

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```

Custom Output | Raw Output | Submit Code

Yay, your code passed all the test cases!

24 / 24 test cases passed.

- Test Case 1 passed!
- Test Case 2 passed!
- Test Case 3 passed!
- Test Case 4 passed!
- Test Case 5 passed!
- Test Case 6 passed!
- Test Case 7 passed!
- Test Case 8 passed!
- Test Case 9 passed!
- Test Case 10 passed!
- Test Case 11 passed!
- Test Case 12 passed!
- Test Case 13 passed!
- Test Case 14 passed!
- Test Case 15 passed!
- Test Case 16 passed!
- Test Case 17 passed!
- Test Case 18 passed!
- Test Case 19 passed!
- Test Case 20 passed!