

**Date : 09/10/2023**

**1. Given list of numbers, output the list with list without containing the elements in list 2 and can in list1 for duplicates**

list 1 = [1,2,3,3,3]

list = [2,3,3]

o/p = [1,3]

**TC :  $O(n)$**

**SC :  $O(n)$**

```
def removeList2Nums(nums1, nums2):
    list2_dict = {}
    res = []
    for num in nums2:
        if num in list2_dict:
            list2_dict[num] += 1
        else:
            list2_dict[num] = 1
    for num in nums1:
        if num in list2_dict and list2_dict[num] > 0:
            res.append(num)
            list2_dict[num] -= 1
        else:
            list2_dict[num] = 0
    return res
```

Test Cases:

TC 1:

input: nums1 : [1,2,2,3,3,3,4,4,5]

nums2 = [2,3,3]

output : [1,2,3,4,4,5]

input : nums1 [] nums2 = [1]

output : []

input: nums1= [] nums2 = []

output : []

\*\*\*\*\*

**given list of numbers, output the list with list 1 containing elements not in list 2**

```
def removeList2Nums(nums1, nums2):
    res = []
    nums2 = set(nums2)
    for num in nums1:
        if num not in nums2:
            res.append(num)

    return res
```

```
nums1 = [1,2,2,3,3,3,4,4,5]
nums2 = [2,3,3]
print(removeList2Nums(nums1, nums2))
```

Test Cases:

TC 1:

```
input: nums1 : [1,2,2,3,3,3,4,4,5]
       nums2 = [2,3,3]
output : [1,4,4,5]
```

```
input : nums1 [] nums2 = [1]
output : []
```

```
input: nums1= [] nums2 = []
output : []
```

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## 2. Given list of Strings, output the list with list 1 containing elements not in list 2

**TC :  $O(n)$**

**SC :  $O(n)$**

```
def removeList2Strings(str1, str2):
    str2=[s.lower() for s in str2]
    res = []
    str2 = set(str2)
    for str in str1:
        if str.lower() not in str2:
            res.append(str )

    return res
```

```
str1= ['red','green','Yellow']
str2= ['Red']
print(removeList2Strings(str1, str2))
```

Test Cases:

TC1:

```
input :str1=['red','green','Yellow']
      str2= ['Red']
output: ['green', 'Yellow']
```

TC2 :

```
input : str1 = []
      str2 = []
output : []
```

TC3:

```
input : str1 = ['Red']
      str2 = ['red']
output : []
```

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**3. Given a list of numbers, return a list without duplicate numbers**

TC = O(n)

SC = O(n)

```
def removeDuplicates(nums):
    return set(nums)
```

```
nums = [1,1,2,2]
```

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TC = O(n)

SC = O(n)

```
def removeDuplicates(nums):
    slow = 0
    for fast in range(len(nums)):
        if nums[slow] != nums[fast]:
            slow += 1
            nums[slow] = nums[fast]

    return nums[:slow+1]
```

```
nums = [1,1,2,2,3,5]  
print(removeDuplicates(nums))
```

Test Cases:

TC 1:

input: [1,1,2,2,3,5]

output : [1,2,3,,5]

input : [1]

output : [1]

input: []

output : []