EP. 21

TOP INTERVIEW

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QUESTION

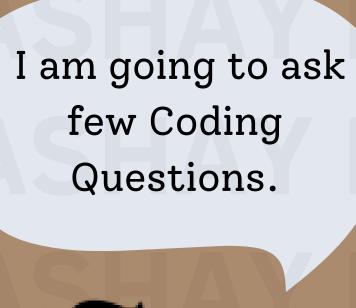
# CODING INTERVIEW



Hi Shreya! I am
Ashay. I am going
to take your
technical round.

Hey Ashay! Thanks for giving me this oppportunity.





okay.



# ASHAY NAYAK ASHAY NAYAK

At the end of pdf, I am sharing details of my Microsoft and Oracle interview experiences and Java articles details for interview preparation.

ASHAY NAYAK
ASHAY NAYAK

### PROBLEM STATEMENT

You are given two integer arrays **nums1** and **nums2**, sorted in non-decreasing order, and two integers m and n, representing the number of elements in nums1 and nums2 respectively.

Merge nums1 and nums2 into a single array sorted in non-decreasing order.

The final sorted array should not be returned by the function, but instead be stored inside the array nums1. To accommodate this, nums1 has a length of m + n, where the first m elements denote the elements that should be merged, and the last n elements are set to 0 and should be ignored. nums2 has a length of n.

## **EXAMPLES**

#### Example 1:

```
Input: nums1 = [1,2,3,0,0,0], m = 3, nums2 = [2,5,6], n = 3

Output: [1,2,2,3,5,6]

Explanation: The arrays we are merging are [1,2,3] and [2,5,6].

The result of the merge is [1,2,2,3,5,6] with the underlined elements coming from nums1.
```

### Example 2:

```
Input: nums1 = [1], m = 1, nums2 = [], n = 0
Output: [1]
Explanation: The arrays we are merging are [1] and [].
The result of the merge is [1].
```

### Example 3:

```
Input: nums1 = [0], m = 0, nums2 = [1], n = 1
Output: [1]
Explanation: The arrays we are merging are [] and [1].
The result of the merge is [1].
Note that because m = 0, there are no elements in nums1. The 0 is only there to ensure the merge result can fit in nums1.
```

# APPROACH 1

Merge these two sorted array into third array and then copy third array to first array: TC -> O(n) and SC -> O(n) - see code for reference.

ASHAY NAYAK

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### CODE

```
. . .
                                    Title
 1 class Solution {
        public void merge(int[] nums1, int m, int[] nums2, int n)
   {
            int thirdArray[] = new int[n+m];
 3
            int i = 0; // for nums1
 4
            int j = 0; // for nums2
 5
            int k = 0; // for thirdArray
 6
 7
            while(i<m&&j<n){</pre>
                 if(nums1[i]<=nums2[j]){</pre>
 8
 9
                     thirdArray[k] = nums1[i];
10
                     i++;
11
                     k++;
                }
12
13
                 else{
                     thirdArray[k] = nums2[j];
14
15
                     j++;
16
                     k++;
                 }
17
18
            }
19
            while(i<m){</pre>
20
                thirdArray[k] = nums1[i];
21
22
                 i++;
23
                 k++;
24
            }
25
            while(j<n){</pre>
26
27
                thirdArray[k] = nums2[j];
28
                 j++;
29
                 k++;
30
            }
31
            for(int idx=0;idx<n+m;idx++){</pre>
32
                 nums1[idx] = thirdArray[idx];
33
            }
34
35
        }
36 }
```

### APPROACH 2

Iterate from right to left to merge the arrays into first array: **best solution** 

Explanation: Forget this question as of now.

Let's say we have to merge two sorted array into third array in increasing order then we can achieve it in two ways. One (that is being done in Approach 1) is to keep iterating both the arrays from left to right (i for nums1 and j for nums2) and Second way is opposite i.e. keep iterating both the arrays from right to left (i for nums1 and j for nums2).

We follow second way but instead of storing it in third array, we will store it in first array as we have given extra space in that. See solution.

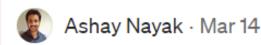


```
Title
 1 class Solution {
       public void merge(int[] nums1, int m, int[] nums2, int n)
  {
 3
           int i = m-1;
           int j = n-1;
 4
           int k = n+m-1;
 5
 6
           while(i>=0&&j>=0){
7
               if(nums1[i]>nums2[j]){
8
                   nums1[k]=nums1[i];
9
10
                    i--;
11
                    k--;
12
13
               else{
14
                    nums1[k]=nums2[j];
15
                    j--;k--;
16
17
18
           while(j>=0){
19
               nums1[k]=nums2[j];
20
21
22
               k--;
23
24
       }
25 }
```

CHECKOUT MY
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PREPARATION
(LINK IN COMMENT)

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Also,



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Ashay Nayak · Mar 29, 2022

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# TO BE CONTINUED...

