

Union of Two Sorted Arrays

Union of two arrays can be defined as the common and distinct elements in the two arrays. Given two sorted arrays of size **n** and **m** respectively, find their union.

Example 1:

```
Input:
n = 5, arr1[] = {1, 2, 3, 4, 5}
m = 3, arr2 [] = {1, 2, 3}
Output: 1 2 3 4 5
Explanation: Distinct elements including
both the arrays are: 1 2 3 4 5.
```

Example 2:

```
Input:
n = 5, arr1[] = {2, 2, 3, 4, 5}
m = 5, arr2[] = {1, 1, 2, 3, 4}
Output: 1 2 3 4 5
Explanation: Distinct elements including
both the arrays are: 1 2 3 4 5.
```

Example 3:

```
Input:
n = 5, arr1[] = {1, 1, 1, 1, 1}
m = 5, arr2[] = {2, 2, 2, 2, 2}
Output: 1 2
Explanation: Distinct elements including
both the arrays are: 1 2.
```

Your Task:

You do not need to read input or print anything. Complete the **function findUnion()** that takes two arrays **arr1[]**, **arr2[]**, and their size **n** and **m** as input parameters and returns a list containing the **union of the two arrays**.

Expected Time Complexity: $O(n+m)$.

Expected Auxiliary Space: $O(n+m)$.

Constraints:

$1 \leq n, m \leq 10^5$

$1 \leq \text{arr}[i], \text{brr}[i] \leq 10^6$

```

def mergeArrays(self,a,b,n,m):
    '''
    :param a: given sorted array a
    :param n: size of sorted array a
    :param b: given sorted array b
    :param m: size of sorted array b
    :return: The union of both arrays as a list
    '''
    # code here
    ans = []
    i = 0
    j = 0
    while i<n and j<m:
        if a[i]==b[j]:
            if len(ans)==0:
                ans.append(a[i])
            else:
                if ans[-1]!=a[i]:
                    ans.append(a[i])
            i+=1
            j+=1
        elif a[i]>b[j]:
            if len(ans)!=0:
                if ans[-1]!=b[j]:
                    ans.append(b[j])
            else:
                ans.append(b[j])
            j+=1
        else:
            if len(ans)!=0:
                if ans[-1]!=a[i]:
                    ans.append(a[i])
            else:
                ans.append(a[i])
            i+=1
    while i<n:
        if ans[-1]!=a[i]:
            ans.append(a[i])
        i+=1
    while j<m:
        if ans[-1]!=b[j]:
            ans.append(b[j])

```

```
j+=1  
return ans
```