Mesge Sorted Array

You ale given two sorted arrays, nums1, and nums2, with m and n valid elements respectively. Merge nums 2 into nums 1 in-place, so that nums 1 becomes a single sorted array of length m+n

Ex:

Input:

nums 1 = [1, 2, 3, 0, 0, 0], m=3

nums 2 = [2, 5, 6], n=3

output:

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

Algorithm:

1) Take input of two sorted arrays nums1, nums2 and their lengths, m, n.

2) copy elements from nums 2 into nums 1
 - -> start filling from index m in num1
 - -> After this, nums 1 contains all element

3) Sort the merged array
 - -> Use bubble sort to order all m+n elements in decreasing order
 - -> compare adjacent elements, swap if left is bigger than right
 - -> Repeat until fully sorted and return sorted array

code,

```
for (int j =0 ; j<n ; j++){

    nums1 [m+j] =nums2[j]   //add nums2 elements
                              to nums1
 }

//sorting the allay

  for(int i=0 ; i<m+n-1; i++){

  for(int j=0 ; j<m+n-1-i ; j++){

  if(num1[j] > nums1[j+1]){  //if elements out of
                                         order
       int temp=nums1[j];        //swap

     nums1[j]=nums1[j+1];

     nums1[j+1] = temp

    }

  }

}
```

Time complexity: $O((m+n)^2)$

Space complexity : $O(1)$