Two Way Merge Sort

Merge sort is a sorting technique based on divide and conquer technique. You are given an array of integers in any order. Sort the elements of given array in ascending order using merge sort.

Input Format

The first line contains an integer, n , the size of the array

The second line contains n space-separated integers a[i].

Constraints

2<=n<=600 1<=a[i]<=2*10^6

Output Format

First line prints the space separated initial array element Sorted Array in new line

Sample Input 0

```
5
1 2 3 4 5
```

Sample Output 0

```
1 2 3 4 5
1 2 3 4 5
```

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