

# Rajalakshmi Engineering College

Name: Sinehan A  
Email: 240801325@rajalakshmi.edu.in  
Roll no: 240801325  
Phone: 6381242076  
Branch: REC  
Department: I ECE AF  
Batch: 2028  
Degree: B.E - ECE

Scan to verify results



## NeoColab\_REC\_CS23231\_DATA STRUCTURES

### REC\_DS using C\_Week 6\_COD\_Question 5

Attempt : 1  
Total Mark : 10  
Marks Obtained : 10

#### Section 1 : Coding

##### 1. Problem Statement

Jose has an array of N fractional values, represented as double-point numbers. He needs to sort these fractions in increasing order and seeks your help.

Write a program to help Jose sort the array using the merge sort algorithm.

##### ***Input Format***

The first line of input consists of an integer N, representing the number of fractions to be sorted.

The second line consists of N double-point numbers, separated by spaces, representing the fractions array.

##### ***Output Format***

The output prints N double-point numbers, sorted in increasing order, and rounded to three decimal places.

Refer to the sample output for formatting specifications.

### **Sample Test Case**

Input: 4

0.123 0.543 0.321 0.789

Output: 0.123 0.321 0.543 0.789

### **Answer**

```
#include <stdio.h>
#include <stdlib.h>

int compare(double a, double b) {
    return 0;
}

void merge(double arr[], int l, int m, int r) {
    int left = l;
    int right = m+1;
    double ar[r-l+1];
    int k = 0;
    while(left <= m && right <= r){
        if(arr[left] <= arr[right]) ar[k++] = arr[left++];
        else ar[k++] = arr[right++];
    }
    while(left <= m) ar[k++] = arr[left++];
    while(right <= r) ar[k++] = arr[right++];

    for(int i = l; i <= r; i++)
        arr[i] = ar[i-l];
}

void mergeSort(double arr[], int l, int r) {
    if(l >= r) return;
    int m = (l+r)/2;
    mergeSort(arr, l, m);
    mergeSort(arr, m+1, r);
    merge(arr, l, m, r);
}
```

```
int main() {  
    int n;  
    scanf("%d", &n);  
    double fractions[n];  
    for (int i = 0; i < n; i++) {  
        scanf("%lf", &fractions[i]);  
    }  
    mergeSort(fractions, 0, n - 1);  
    for (int i = 0; i < n; i++) {  
        printf("%.3f ", fractions[i]);  
    }  
    return 0;  
}
```

**Status :** Correct

**Marks : 10/10**