

# Rajalakshmi Engineering College

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## NeoColab\_REC\_CS23231\_DATA STRUCTURES

### REC\_DS using C\_Week 6\_COD\_Question 1

Attempt : 1  
Total Mark : 10  
Marks Obtained : 10

#### Section 1 : Coding

##### 1. Problem Statement

John and Mary are collaborating on a project that involves data analysis. They each have a set of age data, one sorted in ascending order and the other in descending order. However, their analysis requires the data to be in ascending order.

Write a program to help them merge the two sets of age data into a single sorted array in ascending order using merge sort.

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

The first line of input consists of an integer N, representing the number of age values in each dataset.

The second line consists of N space-separated integers, representing the ages of participants in John's dataset (in ascending order).

The third line consists of N space-separated integers, representing the ages of participants in Mary's dataset (in descending order).

### **Output Format**

The output prints a single line containing space-separated integers, which represents the merged dataset of ages sorted in ascending order.

Refer to the sample output for formatting specifications.

### **Sample Test Case**

Input: 5

1 3 5 7 9

10 8 6 4 2

Output: 1 2 3 4 5 6 7 8 9 10

### **Answer**

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

```
// You are using GCC
```

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

```
void merge(int arr[], int left[], int right[], int n_left, int n_right) {  
    int i = 0, j = 0, k = 0;  
    while (i < n_left && j < n_right) {  
        if (left[i] <= right[j]) {  
            arr[k++] = left[i++];  
        } else {  
            arr[k++] = right[j++];  
        }  
    }  
    while (i < n_left) {  
        arr[k++] = left[i++];  
    }  
    while (j < n_right) {  
        arr[k++] = right[j++];  
    }  
}
```

```

int main() {
    int N;
    scanf("%d", &N);

    int john[N], mary[N];
    for (int i = 0; i < N; i++) {
        scanf("%d", &john[i]);
    }
    for (int i = 0; i < N; i++) {
        scanf("%d", &mary[N - 1 - i]); // Reverse Mary's input during read
    }

    int merged[2 * N];
    merge(merged, john, mary, N, N);

    for (int i = 0; i < 2 * N; i++) {
        printf("%d ", merged[i]);
    }

    return 0;
}

```

```

int main() {
    int n, m;
    scanf("%d", &n);
    int arr1[n], arr2[n];
    for (int i = 0; i < n; i++) {
        scanf("%d", &arr1[i]);
    }
    for (int i = 0; i < n; i++) {
        scanf("%d", &arr2[i]);
    }
    int merged[n + n];
    mergeSort(arr1, n);
    mergeSort(arr2, n);
    merge(merged, arr1, arr2, n, n);
    for (int i = 0; i < n + n; i++) {
        printf("%d ", merged[i]);
    }
    return 0;
}

```

**Status :** Correct

**Marks :** 10/10