https://course.acciojob.com/idle?question=de43ff3c-19e0-407b-a2c8-26d41c2e0edc

- EASY
- Max Score: 30 Points

Merge Sort Algorithm

Given an array arr[] of size n. Sort the array using merge sort algorithm.

Input Format

Input consists of two lines.

First line contains an integer n.

Next line contains n spaced integers.

Output Format

Print the sorted array

Example 1

Input:

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

Output::

```
1 2 3 4 5
```

Explanation:

This is the sorted array.

Example 2

Input:

```
10
10 9 8 7 6 5 4 3 2 1
```

Output::

```
1 2 3 4 5 6 7 8 9 10
```

Explanation:

This is the sorted array.

Constraints

1 <= n <= 10 ^ 5

1 <= arr[i] <= 10 ^ 3

Topic Tags

- **Sorting**
- **Arrays**

My code

```
// n java
import java.util.*;
import java.lang.*;
import java.io.*;

public class Main
```

```
{
static void merge(int arr[], int l, int m, int r)
    {
        int n1 = m - l + 1;
        int n2 = r - m;
        int L[] = new int[n1];
        int R[] = new int[n2];
        for (int i = 0; i < n1; ++i)
            L[i] = arr[l + i];
        for (int j = 0; j < n2; ++j)
            R[j] = arr[m + 1 + j];
        int i = 0, j = 0;
        int k = l;
        while (i < n1 && j < n2) {
            if (L[i] <= R[j]) {
                arr[k] = L[i];
                i++;
            }
            else {
                arr[k] = R[j];
                j++;
            }
            k++;
        }
        while (i < n1) {
            arr[k] = L[i];
            i++;
            k++;
        }
        while (j < n2) {
```

```
            arr[k] = R[j];
            j++;
            k++;
        }
    }

        static void merge_sort(int arr[], int l, int r)
    {
        if (l < r) {
            int m = l + (r - l) / 2;
            merge_sort(arr, l, m);
            merge_sort(arr, m + 1, r);
            merge(arr, l, m, r);
        }
    }

        public static void main (String[] args) throws
java.lang.Exception
        {
                //your code here
                Scanner s=new Scanner(System.in);
                int n=s.nextInt();
                int arr[]=new int[n];
                for(int i=0;i<n;i++)
                        arr[i]=s.nextInt();
                merge_sort(arr,0,n-1);
              for(int i=0;i<n;i++)
                      System.out.print(arr[i]+" ");
        }
}
```