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#include <stdio.h>

#include <stdlib.h>

void merge(int arr[], int l, int m, int r)
{
    int i, j, k;

    int n1 = m - l + 1;

    int n2 = r - m;

    int L[n1], R[n2];

    for (i = 0; i < n1; i++)
        L[i] = arr[l + i];

    for (j = 0; j < n2; j++)
        R[j] = arr[m + 1 + j];

    i = 0;
    j = 0;
    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++;
    }
}

```

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while (j < n2) {
    arr[k] = R[j];
    j++;
    k++;
}
}

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

        merge(arr, l, m, r);
    }
}

void printArray(int A[], int size)
{
    int i;
    for (i = 0; i < size; i++)
        printf("%d ", A[i]);
    printf("\n");
}

int main()
{
    int arr[] = { 12, 11, 13, 5, 6, 7 };
    int arr_size = sizeof(arr) / sizeof(arr[0]);

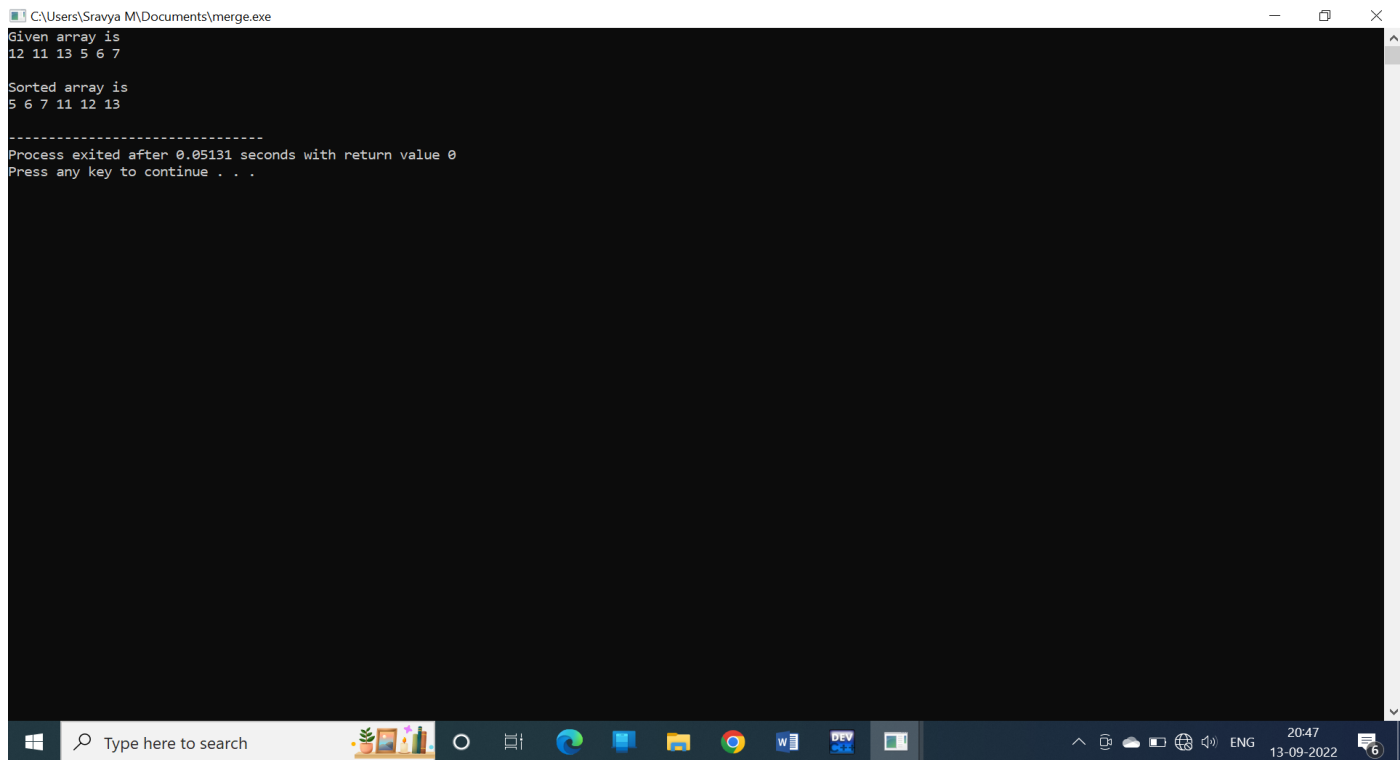
    printf("Given array is \n");
    printArray(arr, arr_size);

```

```
mergeSort(arr, 0, arr_size - 1);

printf("\nSorted array is \n");
printArray(arr, arr_size);

return 0;
}
```



The screenshot shows a Windows command prompt window titled "C:\Users\Sravva M\Documents\merge.exe". The output of the program is as follows:

```
Given array is
12 11 13 5 6 7

Sorted array is
5 6 7 11 12 13

-----
Process exited after 0.05131 seconds with return value 0
Press any key to continue . . .
```

The Windows taskbar at the bottom shows the search bar, task view button, and several open applications including File Explorer, Google Chrome, Word, and Visual Studio Code. The system clock indicates the time is 20:47 on 13-09-2022.