EXPERIMENT NO.08

CODE:

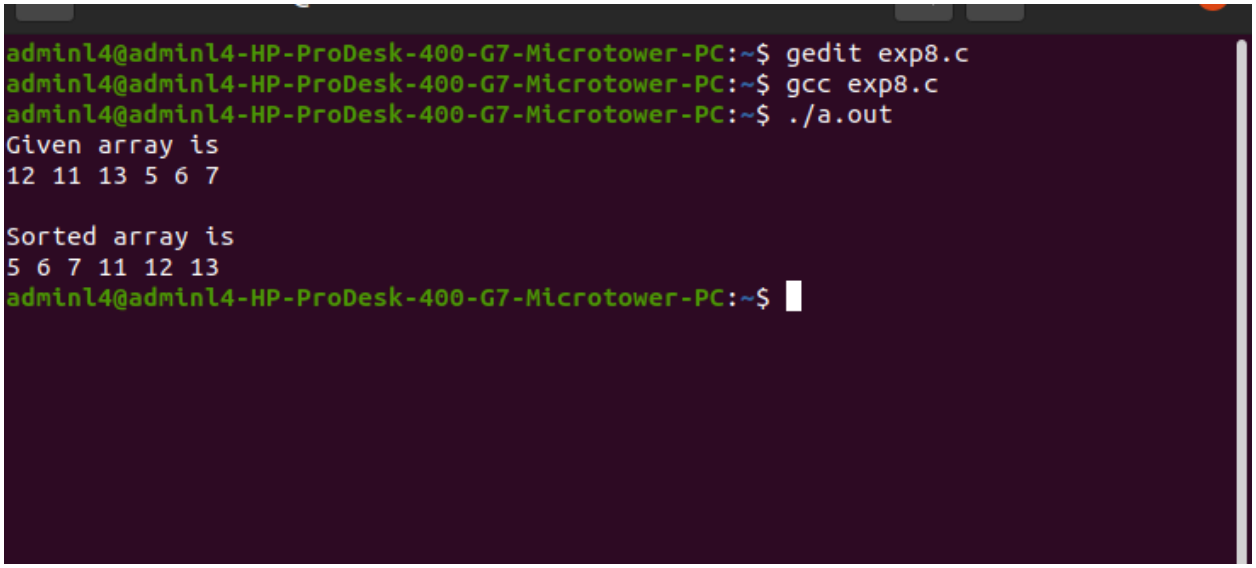
exp8.c

```c
#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++;
        }


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

mergesort.c

```c
                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;
}
```

OUTPUT:



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