Practicle No:-4

4.Wirte a program to perform Merge Sort.

```
#include<stdio.h>
#include<conio.h>
#define Size 5
void merge_sort(int ,int);
void merge_A(int ,int,int,int);
int A_sort[Size];
int main()
{
    int i;
    printf("\n Enter %d Elements for Sorting:",Size);
    for(i=0;i<Size;i++){
        scanf("%d",&A_sort[i]);
    }
    printf("\nTHIS IS YOUR Unsorted Element's:");
    for(i=0;i<Size;i++){
        printf("%d\t",A_sort[i]);
    }
    merge_sort(0,Size-1);
    printf("\n This is Sorted Element's BY MERGE SORT:");
    for(i=0;i<Size;i++){
        printf("%d\t",A_sort[i]);
    }
    return 0;

}
void merge_sort(int i,int j){
    int m;
    if(i<j){
        m=(i+j)/2;
        merge_sort(i,m);
        merge_sort(m+1,j);
        //Merging two array
        merge_A(i,m,m+1,j);
    }
}
void merge_A(int a,int b,int c,int d){
    int t[50];
    int i=a,j=c,k=0;
    while(i<=b && j<=d){
        if(A_sort[i]<A_sort[j])
        t[k++]=A_sort[i++];
        else
        t[k++]=A_sort[j++];
    }
    while(i<=b)
    {
        t[k++]=A_sort[i++];
    }
    while(j<=d)
    {
        t[k++]=A_sort[j++];
    }
    for(i=a,j=0;i<=d;i++,j++){
        A_sort[i]=t[j];
    }

}
```