```c
#include<stdio.h>
int n;
void mergesort(int a[],int low,int high);
void merge(int a[],int low,int mid,int high);
void input(int a[],int n);
void display(int a[],int n);
int main(){
    int low=0;
    printf("Enter the number of elements");
    scanf("%d",&n);
    int a[n],high=n-1;
    printf("Enter the Numbers");
    input(a,n);
    mergesort(a,low,high);
    display(a,n);
    return 0;
}
void input(int a[],int n){
    for(int i=0;i<n;i++){
        scanf("%d",&a[i]);
    }
}
void display(int a[],int n){
    for(int i=0;i<n;i++){
        printf("%d\t",a[i]);
    }
}
void mergesort(int a[],int low,int high){
    int mid;
    if(low<high){
        mid=(low+high)/2;
        mergesort(a,low,mid);
        mergesort(a,mid+1,high);
        merge(a,low,mid,high);
    }
}
void merge(int a[],int low,int mid,int high){
    int b[50];
    int i=low,j=mid+1,k=low;
    while(i<=mid&&j<=high){
        if(a[i]<=a[j]){
            b[k]=a[i];
            i++;
            k++;
```

```
            }else{
                b[k]=a[j];
                j++;
                k++;
            }
    }while(i<=mid){
            b[k]=a[i];
            k++;
            i++;
    }
    while(j<=high){
            b[k]=a[j];
            k++;
            j++;
    }
    for(i=low;i<=high;i++){
            a[i]=b[i];
    }

}
```