//C Program to implement Merge Sort:-

#include<stdio.h>

#include<conio.h>

int a[20],n;

void merge(int i,int j,int p,int q);

void mergesort(int l,int h);

void main()

{

int i;

clrscr();

printf("enter no array of elements to sort\n");

scanf("%d",&n);

printf("enter array of elements to sort\n");

for(i=0;i<n;i++)

scanf("%d",&a[i]);

mergesort(0,n-1);

printf("elements after mergesort \n");

for(i=0;i<n;i++)

printf("%d ",a[i]);

getch();

}

void mergesort(int low,int high)

{

int mid;

if(low<high)

{

mid=(low+high)/2;

mergesort(low,mid);

mergesort(mid+1,high);

merge(low,mid,mid+1,high);

}

}

void merge(int i,int j,int p,int q)

{

int c[100],k=i,r=i;

while((i<=j) && (p<=q))

{

if(a[i]<a[p])

c[k++]=a[i++];

else

c[k++]=a[p++];

}

while(i<=j)

{

c[k++]=a[i++];

}

while(p<=q)

{

c[k++]=a[p++];

}

for(i=r;i<=q;i++)

a[i]=c[i];

}