#include <stdio.h>

#define MAX 100

int merge(int [],int,int,int);

int mergesort(int [],int,int);

int main()

{

int a[MAX],n, i;

printf("\nEnter the size of an integer array : ");

scanf("%d",&n);

printf("\nEnter %d Integers : ",n);

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

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

mergesort(a,0,n-1);

//Printing the sorted data.

printf("\nElements after sorting are.. \n");

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

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

}

int merge(int a[],int low,int high,int mid)

{

int i, j, k, temp[MAX];

i=low;

j=mid+1;

k=low;

while(i<=mid && j<=high)

{

if(a[i]<=a[j])

{

temp[k]=a[i];

i++;

}

else

{

temp[k]=a[j];

j++;

}

k++;

}

if(i>mid)

{

while(j<=high)

{

temp[k]=a[j];

k++;

j++;

}

}

else

{

while(i<=mid)

{

temp[k]=a[i];

k++;

i++;

}

}

for(k=low;k<=high;k++)

a[k]=temp[k];

}

int 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,high,mid);

}

}

O/P:

Enter the size of an integer array : 4

Enter 4 Integers : 23

45

12

8

Elements after sorting are..

8 12 23 45