```
/*********************************************************/
/***** SORI A LIST OF NUMBERS USING QUICK SORT *****/
/*********************************************************/


#include<stdio.h>
#include<conio.h>
void main()
 {
  int i,a[20],low=1,high;
  void qsort(int *,int,int);
  clrscr();
  printf("\nEnter how many number U want?");
  scanf("%d",&high);
  printf("\nEnter the numbers::  ");
  for(i=low;i<=high;i++)
   scanf("%d",&a[i]);
  qsort(a,low,high);
  printf("\nSorted list::\n");
  for(i=low;i<=high;i++)
   printf("%4d",a[i]);
  getch();
 }

void qsort(int *a,int p,int q)
  {
   int j;
   int partition(int *,int,int);
   if(p<q)
    {
     j=partition(a,p,q);
     qsort(a,p,j-1);
     qsort(a,j+1,q);
    }
  }

int partition(int *a,int lb,int ub)
 {
  int m,beg,end,temp;
  m=a[lb];
  beg=lb;end=ub;
  while(beg<end)
   {
     while(a[beg]<=m && beg<end)
       beg++;
```

```
    while(a[end]>m)
      end--;
    if(beg<end)
     {
      temp=a[beg];
      a[beg]=a[end];
      a[end]=temp;
     }
  }
 a[lb]=a[end];
 a[end]=m;
 return end;
}


/*************************************************************/
/***** SORI A LIST OF NUMBERS USING MERGE SORT *****/
/*************************************************************/

#include<stdio.h>
#include<conio.h>
void main()
 {
  int i,a[20],low=1,high;
  void mergesort(int *,int,int);
  clrscr();
  printf("\nEnter how many number U want?");
  scanf("%d",&high);
  printf("\nEnter the numbers::  ");
  for(i=low;i<=high;i++)
   scanf("%d",&a[i]);
  mergesort(a,low,high);
  printf("\nSorted list::\n");
  for(i=low;i<=high;i++)
   printf("%4d",a[i]);
  getch();
 }

void mergesort(int *a,int low,int high)
 {
  int mid;
  void merge(int *,int,int,int);
  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 beg,end,i,k,b[30];
  beg=i=low,end=mid+1;
  while((beg<=mid)&&(end<=high))
   {
    if(a[beg]<=a[end])
     {
      b[i]=a[beg];
      beg++;
     }
    else
     {
      b[i]=a[end];
      end++;
     }
    i++;
   }
  if(beg>mid)
   {
    for(k=end;k<=high;k++)
     {
      b[i]=a[k];
      i++;
     }
   }
  else
   {
    for(k=beg;k<=mid;k++)
     {
      b[i]=a[k];
      i++;
     }
   }
  for(k=low;k<=high;k++)
   a[k]=b[k];
 }
```

```
/*************************************************************/
/***** SORI A LIST OF NUMBERS USING INSERTION SORT *****/
/*************************************************************/

#include<stdio.h>
#include<conio.h>
void main()
 {
  int i,high,a[30];
  clrscr();
  void insertion(int *,int);
  printf("\nEnter how many number U want?  ");
   scanf("%d",&high);
  printf("\nEnter the numbers::  ");
  for(i=1;i<=high;i++)
   scanf("%d",&a[i]);
   insertion(a,high);
  printf("\n\nDisplay sorted list::\n");
  for(i=1;i<=high;i++)
   printf("%4d",a[i]);
  getch();
 }
void insertion(int *a,int high)
 {
  int temp,ptr,i;
  a[0]=-20000;
  for(i=2;i<=high;i++)
   {
    temp=a[i];
    ptr=i-1;
    while(temp<a[ptr])
     {
      a[ptr+1]=a[ptr];
      ptr=ptr-1;
     }
    a[ptr+1]=temp;
   }
 }
```