```
#include<stdio.h>
int main()
{
   int i, j, c, t, no[20];

   printf("Enter how many numbers you want: ");
   scanf("%d",&c);

   printf("Enter %d elements: ", c);
   for(i=0;i<c;i++)
      scanf("%d",&no[i]);
   for(i=1;i<c;i++)
  {
      t=no[i];
      j=i-1;
      while((t<no[j])&&(j>=0))
     {
         no[j+1]=no[j];
         j=j-1;
      }
      no[j+1]=t;
   }

   printf("Sorted elements: ");
   for(i=0;i<c;i++)
      printf(" %d",no[i]);

   return 0;
}


#include<stdio.h>
int main()
{
   int i, j, c, t, no[20];
   printf("Enter how many numbers you want: ");
   scanf("%d",&c);
   printf("Enter %d elements: ", c);
   for(i=0;i<c;i++)
  {
      scanf("%d",&no[i]);
   }
   for(i=1;i<c;i++)
```

```
  {
     t=no[i];
     j=i-1;
     while((t<no[j])&&(j>=0))
    {
        no[j+1]=no[j];
        j=j-1;
     }
     no[j+1]=t;
   }

   printf("Order of Sorted elements: ");
   for(i=0;i<c;i++)
     printf(" %d",no[i]);

   return 0;
}


#include <stdio.h>
 int main()
{
  int arr[100], g, f, h, s;
  printf("Enter number of elements\n");
  scanf("%d", &g);
  printf("Enter %d integers\n", g);
 for (f = 0; f < g; f++)
    scanf("%d", &arr[f]);
  for (f = 0 ; f < g - 1; f++)
  {
    for (h = 0 ; h < g - f - 1; h++)
    {
      if (arr[h] > arr[h+1])
      {
        s   = arr[h];
        arr[h]   = arr[h+1];
        arr[h+1] = s;
      }
    }
  }

  printf("Sorted list in ascending order:\n");
  for (f = 0; f < g; f++)
```

```
{
    printf("%d\n", arr[f]);
 }
 return 0;
}


\* Merge Sort*\
#include<stdio.h>
void mergesort(int a[],int i,int j);
void merge(int a[],int i1,int j1,int i2,int j2);

int main()
{
 int a[20],n,i;
 printf("Enter no of elements:");
 scanf("%d",&n);
 printf("Enter array elements:");

 for(i=0;i<n;i++)
  scanf("%d",&a[i]);

 mergesort(a,0,n-1);

 printf("\nSorted array is :");
 for(i=0;i<n;i++)
  printf("%d ",a[i]);

 return 0;
}

void mergesort(int a[],int i,int j)
{
 int mid;

 if(i<j)
 {
  mid=(i+j)/2;
  mergesort(a,i,mid);
  mergesort(a,mid+1,j);
  merge(a,i,mid,mid+1,j);
 }
}
```

```
void merge(int a[],int i1,int j1,int i2,int j2)
{
 int temp[50];
 int i,j,k;
 i=i1;
 j=i2;
 k=0;

 while(i<=j1 && j<=j2)
 {
  if(a[i]<a[j])
   temp[k++]=a[i++];
  else
   temp[k++]=a[j++];
 }

 while(i<=j1)
  temp[k++]=a[i++];

 while(j<=j2)
  temp[k++]=a[j++];

 for(i=i1,j=0;i<=j2;i++,j++)
  a[i]=temp[j];
}


#include <stdio.h>
void main()
{
    int heap[10], n, i, j, c, root, t;

    printf("\n Enter number of elements :");
    scanf("%d", &n);
    printf("\n Enter the numbers : ");
    for (i = 0; i < n; i++)
       scanf("%d", &heap[i]);
    for (i = 1; i < n; i++)
    {
        c = i;
        do
        {
```

```
            root = (c - 1) / 2;
            if (heap[root] < heap[c])
            {
                t = heap[root];
                heap[root] = heap[c];
                heap[c] = t;
            }
            c = root;
        } while (c != 0);
    }

    printf("Heap array : ");
    for (i = 0; i < n; i++)
        printf("%d\t ", heap[i]);
    for (j = n - 1; j >= 0; j--)
    {
        t = heap[0];
        heap[0] = heap[j];
        heap[j] = t;
        root = 0;
        do
        {
            c = 2 * root + 1;
            if ((heap[c] < heap[c + 1]) && c < j-1)
                c++;
            if (heap[root]<heap[c] && c<j)
            {
                t = heap[root];
                heap[root] = heap[c];
                heap[c] = t;
            }
            root = c;
        } while (c < j);
    ;}
    printf("\n The sorted array is : ");
    for (i = 0; i < n; i++)
      printf("\t %d", heap[i]);
}
```