1)
```c
#include <stdio.h>
int main()
{
    int A, B, t;
    printf("Enter the size of array for which u want to sort:: \n");
    scanf("%d", &A);
    int arr[A];
    printf("Enter %d elements\n", A);
    for (int i = 0; i < A; i++)
    {
        scanf("%d", &arr[i]);
    }
    for (int i = 1 ; i <= A - 1; i++)
    {   B = i;
        while ( B > 0 && arr[B-1] > arr[B])
        {
            t    = arr[B];
            arr[B]   = arr[B-1];
            arr[B-1] = t;
            B--;
        }
    }
    printf("Sorted list in ascending order:\n");
    for (int i = 0; i <= A - 1; i++)
    {
        printf("%d\n", arr[i]);
    }
    return 0;
}
```

2)
```c
#include<stdio.h>
int main(){
    int A, t, arr[100];
    printf("How many numbers u are going to enter?: ");
    scanf("%d",&A);

    printf("\t Enter %d elements:\n ", A);
    for(int i=0;i<A;i++)
        scanf("%d",&arr[i]);
    for(int i=0;i<A;i++){
        for(int j=i+1;j<A;j++){
```

```c
        if(arr[A]>arr[j]){
            t=arr[i];
            arr[i]=arr[j];
            arr[j]=t;
        }
    }
}

    printf("Sorted elements:\n ");
    for(int i=0;i<A;i++)
        printf("  \t %d\n",arr[i]);

    return 0;
}
```

3)
```c
#include<stdio.h>
int main(){
    int A, t,  arr[30];
    printf("How many numbers are u going to enter in the array?: ");
    scanf("%d",&A);
    printf("Enter %d numbers:: ",A);
    for(int i=0;i<A;i++)
    scanf("%d",&arr[i]);
    for(int i=A-2;i>=0;i--){
        for(int j=0;j<=i;j++){
        if(arr[j]>arr[j+1]){
            t=arr[j];
            arr[j]=arr[j+1];
            arr[j+1]=t;
        }
        }
    }

    printf("Sorted elements are:\n ");
    for(int i=0;i<A;i++)
        printf("  \t   %d \n",arr[i]);
    return 0;
}
```

4)
```c
#include<stdlib.h>
```

```c
#include<stdio.h>
int main()
{
 int arr[] = {12, 1, 13, 52, 46, 07};
 int arr_size = sizeof(arr)/sizeof(arr[0]);
 printf("Given array is \n");
 printArray(arr, arr_size);
 mergeSort(arr, 0, arr_size - 1);
 printf("\nSorted array is \n");
 printArray(arr, arr_size);
 return 0;
}


void mergeSort(int arr[], int left_index, int right_index)
{
if (left_index < right_index)
{
 int m = left_index+(right_index-left_index)/2;
 mergeSort(arr, left_index, m);
 mergeSort(arr, m+1, right_index);
 merge(arr, left_index, m, right_index);
}
}
void merge(int arr[], int left_index, int m, int right_index)
{
 int i, j, k;
 int n1 = m - left_index + 1;
 int n2 = right_index - m;

 int L[n1], R[n2];

 for (i = 0; i < n1; i++)
  L[i] = arr[left_index + i];
 for (j = 0; j < n2; j++)
  R[j] = arr[m + 1+ j];
 i = 0;
 j = 0;
 k = left_index;
 while (i < n1 && j < n2)
 {
  if (L[i] <= R[j])
  {
```

```c
   arr[k] = L[i];
   i++;
  }
  else
  {
   arr[k] = R[j];
   j++;
  }
  k++;
 }
 while (i < n1)
 {
  arr[k] = L[i];
  i++;
  k++;
 }


 while (j < n2)
 {
  arr[k] = R[j];
  j++;
  k++;
 }
}
void printArray(int A[], int size)
{
 int i;
 for (i=0; i < size; i++)
  printf("\t %d \n", A[i]);

}
```

5)


```c
#include <stdio.h>
#include<stdlib.h>
void main()
{
    int arr[100], n, i, j, c, root, temp;
    printf("\n Enter no of elements to sort: :");
    scanf("%d", &n);
```

```c
printf("\n Enter the numbers in array :: ");
for (i = 0; i < n; i++)
    scanf("%d", &arr[i]);
for (i = 1; i < n; i++)
{
    c = i;
    do
    {
        root = (c - 1) / 2;
        if (arr[root] < arr[c])
        {
            temp = arr[root];
            arr[root] = arr[c];
            arr[c] = temp;
        }
        c = root;
    } while (c != 0);
}
printf("The given array is : ");
for (i = 0; i < n; i++)
    printf("%d\t ", arr[i]);
for (j = n - 1; j >= 0; j--)
{
    temp = arr[0];
    arr[0] = arr[j];
    arr[j] = temp;
    root = 0;
    do
    {
        c = 2 * root + 1;
        if ((arr[c] < arr[c + 1]) && c < j-1)
            c++;
        if (arr[root]<arr[c] && c<j)
        {
            temp = arr[root];
            arr[root] = arr[c];
            arr[c] = temp;
        }
        root = c;
    } while (c < j);
}
printf("\n The sorted array is : \n");
for (i = 0; i < n; i++)
```

```
        {printf("\t %d\n", arr[i]);}

    }
```