**PROGRAM-10**

**OBJECTIVE-Write a program to implement insertion, selection and bubble sort.**

**CODE –**

#include<stdio.h>

#include<stdlib.h>

void bubble\_sort(int a[],int n);

void insertion\_sort(int a[],int n);

void selection\_sort(int a[],int n);

void main()

{int a[100],i,j,n,ch;

printf("Enter the number of integers:");

scanf("%d",&n);

printf("Enter Elements:");

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

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

while(1)

{printf("\nChoose the Sorting Technique:\n1.Bubble Sort\n2.Insertion Sort \n3.Selection Sort\n4.Exit\n");

scanf("%d",&ch);

switch(ch)

{ case 1:bubble\_sort(a,n);

break;

case 2:insertion\_sort(a,n);

break;

case 3:selection\_sort(a,n);

break;

case 4:exit(0);

default:printf("Invalid Input!!");}}

selection\_sort(a,n);

}

void bubble\_sort(int a[],int n)

{int i,j;

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

{for(j=0;j<n-1;j++)

{if(a[j+1]<a[j])

{a[j]=a[j+1]+a[j];

a[j+1]=a[j]-a[j+1];

a[j]=a[j]-a[j+1];

}}}

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

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

void insertion\_sort(int a[],int n)

{int i,j,key;

for(i=1;i<n;i++)

{key=a[i];

j=i-1;

while(j>=0 && a[j]>key)

{a[j+1]=a[j];

j=j-1; }

a[j+1]=key;}

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

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

void selection\_sort(int a[],int n)

{int i,j,min\_i;

for(i=0;i<n-1;i++)

{for(j=i+1;j<n;j++)

{min\_i=i;

if(a[j]<a[min\_i])

min\_i=j;}

if(min\_i!=i)

{a[i]=a[min\_i]+a[i];

a[min\_i]=a[i]-a[min\_i];

a[i]=a[i]-a[min\_i];

}}

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

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

**OUTPUT-**

