Experiment 9

Objective: Implementation of Bubble, Selection, Insertion sort and Displaying output

Code:

```
#include<stdio.h>
#include<stdlib.h>

void display(int a[],int n);
void bubble_sort(int a[],int n);
void selection_sort(int a[],int n);
void insertion_sort(int a[],int n);

int main()

{

  int n,choice,i;
  char ch[20];
  printf("Enter number of elements to sort: ");
  scanf("%d",&n);
  int arr[n];
  for(i=0;i<n;i++)
  {
      printf("Enter %d Element: ",i+1);
      scanf("%d",&arr[i]);
  }
  printf("\n**********MENU**********\n");
  while(1)
```

```
{
 printf("\n1.Bubble Sort");
 printf("\n2.Selection Sort");
 printf("\n3.Insertion Sort");
 printf("\n4.Display");
 printf("\n5.Exit");
 printf("\nEnter your Choice: ");
 scanf("%d",&choice);

 switch(choice)
 {
 case 1:
    bubble_sort(arr,n);
    break;
 case 2:
    selection_sort(arr,n);
    break;
 case 3:
    insertion_sort(arr,n);
    break;
 case 4:
    display(arr,n);
    break;
 case 5:
    return 0;
 default:
    printf("\nPlease select correct option");
```

```
    }
}
return 0;
}

void display(int arr[],int n)
{
    for(int i=0;i<n;i++)
   {
        printf(" %d ",arr[i]);
   }
}

void bubble_sort(int arr[],int n)
{
  int i,j,temp;
  for(i=0;i<n;i++)
  {
      for(j=0;j<n-i-1;j++)
      {
          if(arr[j]>arr[j+1])
          {
             temp=arr[j];
             arr[j]=arr[j+1];
             arr[j+1]=temp;
          }
      }
```

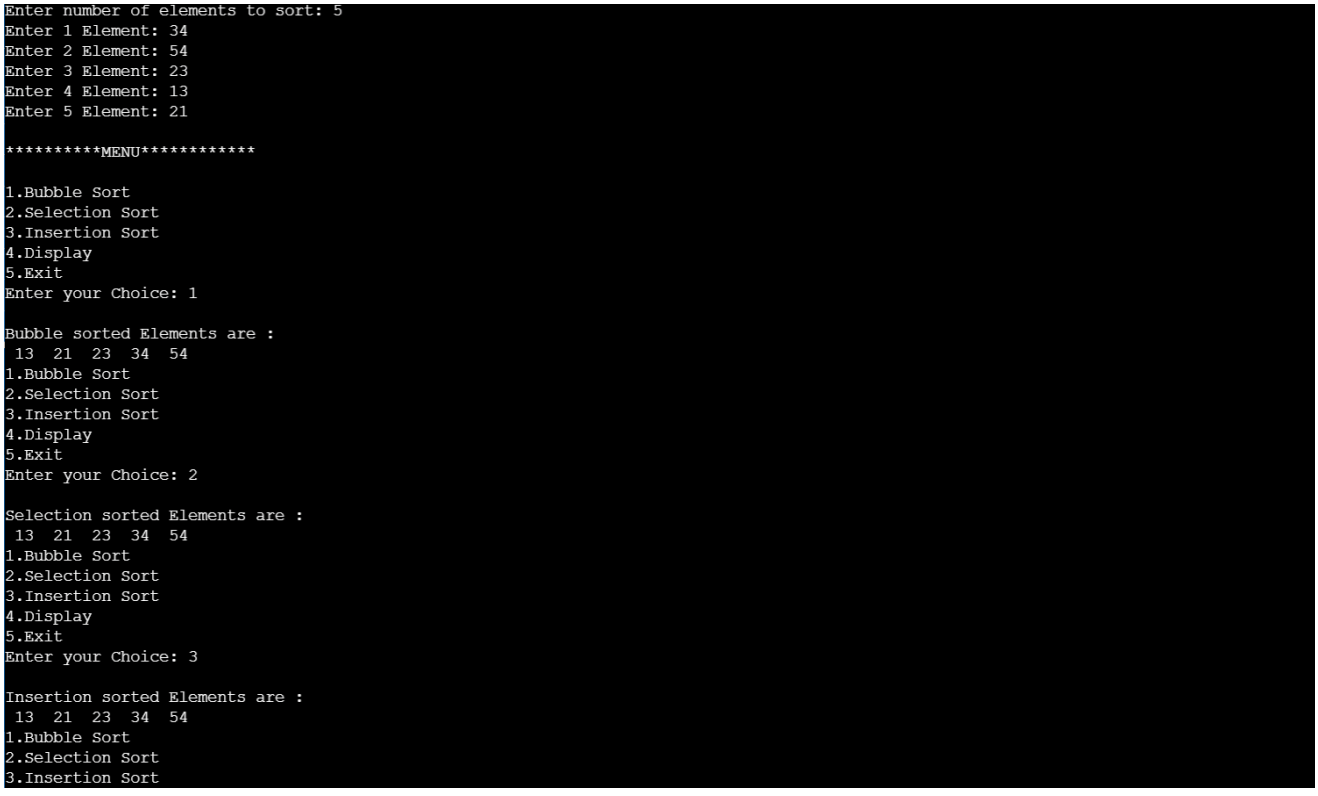
```
  }
printf("\nBubble sorted Elements are : \n");
display(arr,n);
}

void selection_sort(int arr[],int n)
{
   int i,j,temp;
   for(i=0;i<n-1;i++)
   {
      for(j=i+1;j<n;j++)
      {
         if(arr[i]>arr[j])
         {
          temp=arr[i];
          arr[i]=arr[j];
          arr[j]=temp;
         }
      }
   }
printf("\nSelection sorted Elements are : \n");
display(arr,n);
}

void insertion_sort(int arr[],int n)
{
   int i,j,min;
```

```
    for(i=1;i<n;i++)
    {
        min=arr[i];
        j=i-1;
        while(min<arr[j] && j>=0)
        {
            arr[j+1]=arr[j];
            j=j-1;
        }
        arr[j+1]=min;
    }
printf("\nInsertion sorted Elements are : \n");
display(arr,n);
}
```

Output:



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