S.No: 3	Exp. Name: ***program to sort a list of elements using insertion sort***	Date:

Aim:

Program to sort a list of elements using Insertion sort.

Source Code:

InsertionSort.c

```
#include<stdio.h>
int InsertionSort(int arr[], int n)
{
   if(n<=1)
   {
      return 0;
      }
      for(int i=1;i<n;i++)
      {
         int temp = arr[i];
         int j=i-1;
         while(j>=0 && arr[j]>temp)
         {
            arr[j+1]=arr[j];
            j--;
            }
            arr[j+1]=temp;
            }

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

            }
                  int main()
                  {
                     int i,j,temp, n,arr[100];
                     printf("Enter size of the array: ");
                     scanf("%d",&n);   printf("Enter %d elements in to the array: ",n);
                     for(i=0;i<n;i++)
                     {
                        scanf("%d",&arr[i]);
                        }
                        InsertionSort(arr,n);
                        printf("After sorting the elements are:");
                        printArray(arr,n);
                        return 0;

                  }
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Enter size of the array: 5
Enter 5 elements in to the array: 87 12 45 65 21

Test Case - 1
After sorting the elements are: 12 21 45 65 87

Test Case - 2
User Output
Enter size of the array: 3
Enter 3 elements in to the array: 55 14 78
After sorting the elements are: 14 55 78