

**Aim:**

Write a program to sort the elements in ascending order with insertion sort technique using functions.

At the time of execution, the program should print the message on the console as:

Enter n value :

For example, if the user gives the input as:

Enter n value : 3

Next, the program should print the message on the console as:

Enter 3 elements :

if the user gives the input as:

Enter 3 elements : 45 67 34

then the program should print the result as:

Elements before sorting : 45 67 34  
Elements after sorting : 34 45 67

**Note:** Do use printf() with '\n' at the end of output.

**Source Code:**

sort.c

```
#include<stdio.h>
void insertion_sort(int [],int);
void read(int [],int);
void display(int [],int);
void main()
{
    int a[20],n,i;
    printf("Enter n value : ");
    scanf("%d",&n);
    read(a,n);
    printf("Elements before sorting : ");
    display(a,n);
    insertion_sort(a,n);
    printf("Elements after sorting : ");
    display(a,n);
}
void insertion_sort(int a[],int n)
{
    int i,j,k;
    for(i=1;i<n;i++)
    {
        k=a[i];
        j=i-1;
        while(j>=0&& a[j]>k)
        {
```

```

        a[j+1]=a[j];
        j=j-1;
    }
    a[j+1]=k;
}
}
void read(int a[],int n)
{
    int i;
    printf("Enter %d elements : ",n);
    for(i=0;i<n;i++)
        scanf("%d",&a[i]);
}
void display(int a[],int n)
{
    int i;
    for(i=0;i<n;i++)
        printf("%d ",a[i]);
    printf("\n");
}

```

### Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Enter n value : 3
Enter 3 elements : 45 67 34
Elements before sorting : 45 67 34
Elements after sorting : 34 45 67