Ex. No. 10f  **Insertion Sort**

Date:

**Aim:**

To sort an array of N numbers using Insertion sort.

**Algorithm:**

1. Start

2. Read number of array elements n

3. Read array elements Ai

4. Sort the elements using insertion sort In pass p, move the element in position p left until its correct place is found among the first p + 1 elements. Element at position p is saved in temp, and all larger elements (prior to position p) are moved one spot to the right. Then temp is placed in the correct spot.

5. Stop.

**Program:**

/\* Insertion Sort \*/

#include <stdio.h>

void main()

{

int i, j, k, n, temp, a[20], p=0;

printf("Enter total elements: ");

scanf("%d",&n);

printf("Enter array elements: ");

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

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

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

{

temp = a[i];

j = i - 1;

while((temp<a[j]) && (j>=0))

{

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

j = j - 1;

}

a[j+1] = temp;

p++;

printf("\n After Pass %d: ", p);

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

printf(" %d", a[k]);

}

printf("\n Sorted List : ");

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

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

}

**Output:**

**Result:**

Thus array elements was sorted using insertion sort.