TITLE 16

Write a C program to sort an array in ascending order using Insertion sort

OBJECTIVE:

Implementing insertion sort

PROBLEM STATEMENT:

Using insertion sort elements are arranged in ascending order.

ALGORITHM:

START

Define variables: n.c,d,t,f

INPUT: input from user

COMPUTATION: An array is formed from the elements entered by the user

DISPLAY: Sorted array of elements in ascending order

STOP

PROGRAM:

#include <stdio.h>

int main()  
{  
  int n, a[1000], i, j, t, f = 0;

  printf("Enter number of elements\n");  
  scanf("%d", &n);

  printf("Enter the %d numbers:\n", n);

  for (i = 0; i < n; i++)  
    scanf("%d", &a[i]);

  for (i = 1 ; i <= n - 1; i++) {  
    t = a[i];

    for (j = i - 1 ; j >= 0; j--) {  
      if (a[j] > t) {  
        a[j+1] = a[j];  
        f = 1;  
      }  
      else  
        break;  
    }  
    if (f)  
      a[j+1] = t;  
  }

  printf("Sorted list in ascending order:\n");

  for (i = 0; i <= n - 1; i++) {  
    printf("%d\n", a[i]);  
  }

  return 0;  
}

CONCLUSION:

Simple algorithm to find the element using insertion sort helps me to understand the algorithms and their implementation.

OUTPUT:

Enter number of elements

4

Enter the 6 numbers:

1

3

4

2

Sorted list in ascending order:

1

2

3

4