CSA0317-DATA STRUCTURES

Program 16

```
#include <stdio.h>
void insertionSort(int arr[], int n) {
   int i, j, key;
   for (i = 1; i < n; i++) {
      key = arr[i];
      j = i - 1;
      while (j >= 0 && arr[j] > key) {
         arr[j + 1] = arr[j];
         j = j - 1;
      }
      arr[j + 1] = key;
   }
}
void printArray(int arr[], int n) {
   for (int i = 0; i < n; i++) {
      printf("%d ", arr[i]);
   }
   printf("\n");
}
int main() {
   int n, i;
   printf("Enter the number of elements: ");
   scanf("%d", &n);
```

```
    int arr[n];
    printf("Enter %d elements: ", n);
    for (i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
    printf("Original array: ");
    printArray(arr, n);
    insertionSort(arr, n);
    printf("Sorted array: ");
    printArray(arr, n);
    return 0;
}
```

Output:

```
Output
Enter the number of elements: 4
Enter 4 elements: 21 89 46 34
Original array: 21 89 46 34
Sorted array: 21 34 46 89


=== Code Execution Successful ===
```