

# Rajalakshmi Engineering College

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Branch: REC

Department: I AI & DS FD

Batch: 2028

Degree: B.E - AI & DS

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## NeoColab\_REC\_CS23231\_DATA STRUCTURES

### REC\_DS using C\_Week 6\_COD\_Question 2

Attempt : 1

Total Mark : 10

Marks Obtained : 10

### Section 1 : Coding

#### 1. Problem Statement

Nandhini asked her students to arrange a set of numbers in ascending order. She asked the students to arrange the elements using insertion sort, which involves taking each element and placing it in its appropriate position within the sorted portion of the array.

Assist them in the task.

#### ***Input Format***

The first line of input consists of the value of n, representing the number of array elements.

The second line consists of n elements, separated by a space.

#### ***Output Format***

The output prints the sorted array, separated by a space.

Refer to the sample output for formatting specifications.

### **Sample Test Case**

Input: 5

67 28 92 37 59

Output: 28 37 59 67 92

### **Answer**

```
#include <stdio.h>
```

```
void insertionSort(int numbers[], int size)
```

```
{
    for (int i = 1; i < size; i++)
    {
        int key = numbers[i];
        int j = i - 1;
        while (j >= 0 && numbers[j] > key)
        {
            numbers[j + 1] = numbers[j];
            j = j - 1;
        }
        numbers[j + 1] = key;
    }
}
```

```
void printArray(int numbers[], int size)
```

```
{
    for (int i = 0; i < size; i++)
    {
        printf("%d ", numbers[i]);
    }
    printf("\n");
}
```

```
int main() {
```

```
    int n;
```

```
    scanf("%d", &n);
```

```
    int arr[n];
```

```
    for (int i = 0; i < n; i++) {
```

```
scanf("%d", &arr[i]);  
}  
  
insertionSort(arr, n);  
printArray(arr, n);  
return 0;  
}
```

**Status :** Correct

**Marks :** 10/10