Rajalakshmi Engineering College

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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>
#include <stdio.h>

// Function to perform Insertion Sort
void insertionSort(int arr[], int n) {
    for (int i = 1; i < n; i++) {
        int key = arr[i];
        int j = i - 1;

        // Shift elements to the right to create space for the current element
        while (j >= 0 && arr[j] > key) {
            arr[j + 1] = arr[j];
            j--;
        }
        arr[j + 1] = key;
    }
}

// Main function
int main() {
    int n;
    scanf("%d", &n);
    int arr[n];

    // Reading input
    for (int i = 0; i < n; i++) {
        scanf("%d", &arr[i]);
    }
```

```
    // Sorting using Insertion Sort
    insertionSort(arr, n);

    // Printing the sorted array
    for (int i = 0; i < n; i++) {
        printf("%d ", arr[i]);
    }
    printf("\n");

    return 0;
}

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***