**Institute of Computer Technology**

**B. Tech. Computer Science and Engineering**

**Sub: DS**

**Course Code: 2CSE302**

**Practical – 20**

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**Sem - 3**

**Branch: CS**

**Class: A**

**Batch: 32**

**Selection Sort is a sorting algorithm that repeatedly finds the smallest element from the unsorted portion of a list and moves it to the beginning. This process is repeated for each position in the list until it is fully sorted.**

**Code:**

*#include* <stdio.h>

void selectionSort(int *arr*[], int *n*) {

    int i, j, minIndex, temp;

    printf("Initial Array:\n");

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

        printf("%d ", *arr*[i]);

    }

    printf("\n");

*//* **Selection Sort Algorithm**

*for* (i = 0; i < *n* - 1; i++) {

        minIndex = i;*//* **Assume the first unsorted element is the smallest**

*for* (j = i + 1; j < *n*; j++) {

*if* (*arr*[j] < *arr*[minIndex]) {

                minIndex = j;*//* **Update the index of the smallest element**

            }

        }

*//* **Swap the smallest element with the first unsorted element**

*if* (minIndex != i) {

            temp = *arr*[i];

*arr*[i] = *arr*[minIndex];

*arr*[minIndex] = temp;

        }

*//* **Print the array after each step**

        printf("Step %d:\n", i + 1);

*for* (j = 0; j < *n*; j++) {

            printf("%d ", *arr*[j]);

        }

        printf("\n");

    }

    printf("Sorted Array:\n");

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

        printf("%d ", *arr*[i]);

    }

    printf("\n");

}

int main() {

    int arr[] = {29, 10, 14, 37, 13};

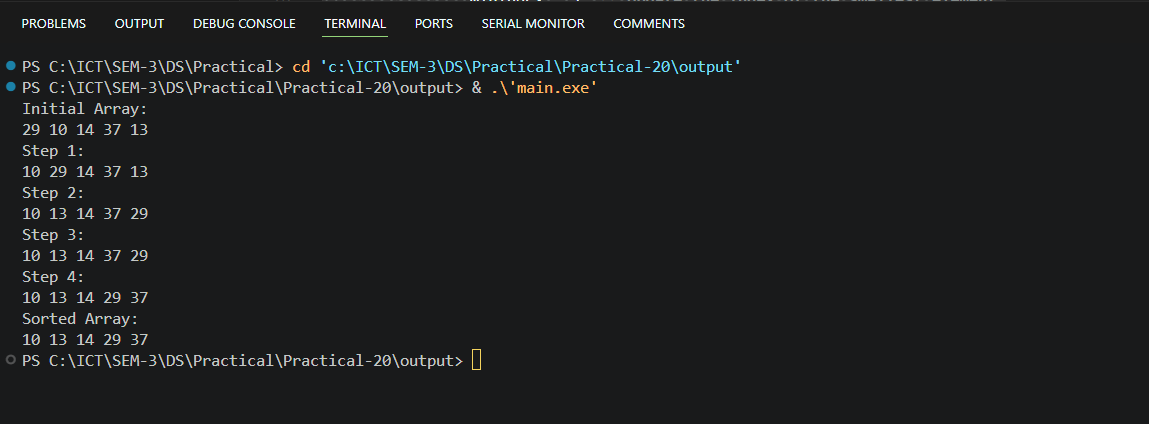
    int n = sizeof(arr) / sizeof(arr[0]);

    selectionSort(arr, n);

*return* 0;

}

**Output:**

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