

SEM 3\Exp8\main.c

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1  #include <stdio.h>
2
3  // Function declarations for sorting algorithms
4  void bubbleSort(int arr[], int size);
5  void insertionSort(int arr[], int size);
6  void selectionSort(int arr[], int size);
7  void quickSort(int arr[], int low, int high);
8  void shellSort(int arr[], int size);
9
10 // Function to display the array
11 void display(int arr[], int size)
12 {
13     for (int i = 0; i < size; i++)
14         printf("%d ", arr[i]);
15     printf("\n");
16 }
17
18 int main()
19 {
20     int arr1[] = {64, 34, 25, 12, 22, 11, 90};
21     int size1 = sizeof(arr1) / sizeof(arr1[0]);
22
23     printf("Original array for Bubble Sort: ");
24     display(arr1, size1);
25     bubbleSort(arr1, size1);
26     printf("Sorted array using Bubble Sort: ");
27     display(arr1, size1);
28
29     // Reset the array for next sorting
30     int arr2[] = {64, 34, 25, 12, 22, 11, 90};
31     int size2 = sizeof(arr2) / sizeof(arr2[0]);
32
33     printf("\nOriginal array for Insertion Sort: ");
34     display(arr2, size2);
35     insertionSort(arr2, size2);
36     printf("Sorted array using Insertion Sort: ");
37     display(arr2, size2);
38
39     // Reset the array for next sorting
40     int arr3[] = {64, 34, 25, 12, 22, 11, 90};
41     int size3 = sizeof(arr3) / sizeof(arr3[0]);
42
43     printf("\nOriginal array for Selection Sort: ");
44     display(arr3, size3);
45     selectionSort(arr3, size3);
46     printf("Sorted array using Selection Sort: ");
47     display(arr3, size3);
48
49     // Reset the array for next sorting
50     int arr4[] = {64, 34, 25, 12, 22, 11, 90};
51     int size4 = sizeof(arr4) / sizeof(arr4[0]);
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52
53     printf("\nOriginal array for Quick Sort: ");
54     display(arr4, size4);
55     quickSort(arr4, 0, size4 - 1);
56     printf("Sorted array using Quick Sort: ");
57     display(arr4, size4);
58
59     // Reset the array for next sorting
60     int arr5[] = {64, 34, 25, 12, 22, 11, 90};
61     int size5 = sizeof(arr5) / sizeof(arr5[0]);
62
63     printf("\nOriginal array for Shell Sort: ");
64     display(arr5, size5);
65     shellSort(arr5, size5);
66     printf("Sorted array using Shell Sort: ");
67     display(arr5, size5);
68
69     return 0;
70 }
71
```