

-Robert Einstien G. Magbanua November 5, 2022

BSIT 2-1 Ruth R. Oclida

Data Structures and Algorithms

Assignment No.1:

Simulate the pseudocode discussed. Iterate each activity and give the result in the array. Write your answer in a separate sheet and send/upload in MSTeams on or before November 9, 2022, 11:59pm.

Assume that the array Array1 contains the following elements. Sort the contents of Array1 using the pseudocode Sort_Arr.

Array1[1] 34

Array1[2] 229

Array1[3] 12

Array1[4] 481

Array1[5] 7

Array1[6] 303

Answer:

Ctr1 = 1

Outer While loop: 1st Iteration

Ctr2 = 2

Inner While loop: 1st Iteration

Temp = "34"

Array1[1] = "229"

Array1[2] = "34"

Ctr2 = 3

Contents of Array1 after Inner Loop

Array1[1] 229

Array1[2] 34

Array1[3] 12

Array1[4] 481

Array1[5] 7

Array1[6] 303

Inner While loop: 2nd Iteration

Temp = "229"

Array1[1] = "12"

Array1[3] = "229"

Ctr2 = 4

Contents of Array1 after Inner Loop

Array1[1] 12

Array1[2] 34

Array1[3] 229

Array1[4] 481

Array1[5] 7

Array1[6] 303

Inner While loop: 3rd Iteration

Ctr2 = 5

Contents of Array1 after Inner Loop

Array1[1] 12

Array1[2] 34

Array1[3] 229

Array1[4] 481

Array1[5] 7

Array1[6] 303

Inner While loop: 4th Iteration

Temp = "12"

Array1[1] = "7"

Array1[5] = "12"

Ctr2 = 6

Contents of Array1 after Inner Loop

Array1[1] 7

Array1[2] 34

Array1[3] 229

Array1[4] 481

Array1[5] 12

Array1[6] 303

Ctr1 = 2

Outer While loop: 2nd Iteration

Ctr2 = 3

Inner While loop: 1st Iteration

Ctr2 = 4

Contents of Array1 after Inner Loop

Array1[1] 7

Array1[2] 34

Array1[3] 229

Array1[4] 481

Array1[5] 12

Array1[6] 303

Inner While loop: 2nd Iteration

Ctr2 = 5

Contents of Array1 after Inner Loop

Array1[1] 7

Array1[2] 34

Array1[3] 229

Array1[4] 481

Array1[5] 12

Array1[6] 303

Inner While loop: 3rd Iteration

Temp = "34"

Array1[2] = "12"

Array1[5] = "34"

Ctr2 = 6

Contents of Array1 after Inner Loop

Array1[1] 7

Array1[2] 12

Array1[3] 229

Array1[4] 481

Array1[5] 34

Array1[6] 303

Ctr1 = 3

Outer While loop: 3rd Iteration

Ctr2 = 4

Inner While loop: 1st Iteration

Ctr2 = 5

Contents of Array1 after Inner Loop

Array1[1] 7

Array1[2] 12

Array1[3] 229

Array1[4] 481

Array1[5] 34

Array1[6] 303

Inner While loop: 2nd Iteration

Temp = "229"

Array1[3] = "34"

Array1[5] = "229"

Ctr2 = 6

Contents of Array1 after Inner Loop

Array1[1] 7

Array1[2] 12

Array1[3] 34

Array1[4] 481

Array1[5] 229

Array1[6] 303

Ctr1 = 4

Outer While loop: 4th Iteration

Ctr2 = 5

Inner While loop: 1st Iteration

Temp = "481"

Array1[4] = "229"

Array1[5] = "481"

Ctr2 = 6

Contents of Array1 after Inner Loop

Array1[1] 7

Array1[2] 12

Array1[3] 34

Array1[4] 229

Array1[5] 481

Array1[6] 303

Ctr1 = 5

Outer While loop: 5th Iteration

Ctr2 =6

Inner While loop: 1st Iteration

Temp = "481"

Array1[5] = "303"

Array1[6] = "481"

Contents of Array1 after Inner Loop

Array1[1] 7

Array1[2] 12

Array1[3] 34

Array1[4] 229

Array1[5] 303

Array1[6] 481

Ctr1 = 6

Final Contents of Array1

Array1[1] 7

Array1[2] 12

Array1[3] 34

Array1[4] 229

Array1[5] 303

Array1[6] 481

Combine the elements of Array1 with Array2 containing the following elements using the Merge_Arr pseudocode.

Original: Sorted:

Array1[1] 34 Array1[1] 7 Array2[1] 121

Array1[2] 229 Array1[2] 12 Array2[2] 332

Array1[3] 12 Array1[3] 34 Array2[3] 531

Array1[4] 481 Array1[4] 229

Array1[5] 7 Array1[5] 303

Array1[6] 303 Array1[6] 481

Answer:

Using Original Array1: Using Sorted Array1:

Ctr1 = 1 Ctr1 = 1

Ctr2 = 1 Ctr2 = 1

Ctr3 = 1 Ctr3 = 1

While loop: 1st Iteration While loop: 1st Iteration

Array3[1] = "34" Array3[1] = "7"

Ctr1 = 2 Ctr1 = 2

Ctr3 = 2 Ctr3 = 2

While loop:2nd Iteration While loop:2nd Iteration

Array3[2] = "121" Array3[2] = "12"

Ctr2 = 2 Ctr1 = 3

Ctr3 = 3 Ctr3 = 3

While loop: 3rd Iteration While loop: 3rd Iteration

Array3[3] = "229" Array3[3] = "34"

Ctr1 = 3 Ctr1 = 4

Ctr3 = 4 Ctr3 = 4

While loop: 4th Iteration While loop: 4th Iteration

Array3[4] = "12" Array3[4] = "121"

Ctr1 = 4 Ctr2 = 2

Ctr3 = 5 Ctr3 = 5

While loop: 5th Iteration While loop: 5th Iteration

Array3[5] = "332" Array3[5] = "229"

Ctr2 = 3 Ctr1 = 5

Ctr3 = 6 Ctr3 = 6

While loop: 6th Iteration While loop: 6th Iteration

Array3[6] = "481" Array3[6] = "303"

Ctr1 = 5 Ctr1 = 6

Ctr3 = 7 Ctr3 = 7

While loop: 7th Iteration While loop: 7th Iteration

Array3[7] = "7" Array3[7] = "332"

Ctr1 = 6 Ctr2 = 3

Ctr3 = 8 Ctr3 = 8

While loop: 8th Iteration While loop: 8th Iteration

Array3[8] = "303" Array3[8] = "481"

Ctr1 = 7 Ctr1 = 7

Ctr3 = 9 Ctr3 = 9

While loop: 9th Iteration While loop: 9th Iteration

Array3[9] = "531" Array3[9] = "531"

Ctr2 = 4 Ctr2 = 4

Ctr3 = 10 Ctr3 = 10

Final Output after using Merge_Arr

Original: Sorted:

Array3[1] = 34 Array3[1] = 7

Array3[2] = 121 Array3[2] = 12

Array3[3] = 229 Array3[3] = 34

Array3[4] = 12 Array3[4] = 121

Array3[5] = 332 Array3[5] = 229

Array3[6] = 481 Array3[6] = 303

Array3[7] = 7 Array3[7] = 332

Array3[8] = 303 Array3[8] = 481

Array3[9] = 531 Array3[9] = 531