DATA STRUCTURES AND ALGORITHMS

LAB ASSIGNMENT-4

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COURSE – AIDE

SECTION - “A”

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Implement Heap Sort.

Write a Java Code to implement Heap Sort.

**Code:**

**package** p1;

**public class** HeapSort {

**static void** heapify(**int** ar1[], **int** n, **int** i)

{

**int** largest = i;

**int** left = 2 \* i + 1;

**int** right = 2 \* i + 2;

**if** (left < n && ar1[left] > ar1[largest]) largest = left;

**if** (right < n && ar1[right] > ar1[largest]) largest = right;

**if** (largest != i) {

**int** temp = ar1[i]; ar1[i] = ar1[largest]; ar1[largest] = temp;

*heapify*(ar1, n, largest);

}

}

**static void** heapSort(**int** ar1[], **int** n)

{

**for** (**int** i = n / 2 - 1; i >= 0; i--)

*heapify*(ar1, n, i);

**for** (**int** i = n - 1; i >= 0; i--) {

**int** temp = ar1[0]; ar1[0] = ar1[i]; ar1[i] = temp;

*heapify*(ar1, i, 0);

}

}

**static void** printArr(**int** ar1[], **int** n)

{

**for** (**int** i = 0; i < n; ++i) System.***out***.print(ar1[i] + " ");

}

**public static void** main(String args[])

{

**int** arr[] = {15,98,3,15,5,18,46,61,45,9};

**int** l = arr.length;

System.***out***.print("Array before sorting: \n");

*printArr*(arr, l);

*heapSort*(arr, l);

System.***out***.print("\nArray after sorting: \n");

*printArr*(arr, l);

}

}

# Output:

