**Group A: Assignment No:10**

Problem Statement: Implement the Heap/Shall sort algorithm implemented in java demonstrating heap/shell data structure with modularity of programming language.

import java.util.\*;

public class Main

{

private static int N;

public static void sort (int arr[])

{

heapMethod (arr);

for (int i = N; i > 0; i--)

{

swap (arr, 0, i);

N = N - 1;

heap (arr, 0);

}

}

public static void heapMethod (int arr[])

{

N = arr.length - 1;

for (int i = N / 2; i >= 0; i--)

heap (arr, i);

}

public static void heap (int arr[], int i)

{

int left = 2 \* i;

int right = 2 \* i + 1;

int max = i;

if (left <= N && arr[left] > arr[i])

max = left;

if (right <= N && arr[right] > arr[max])

max = right;

if (max != i)

{

swap (arr, i, max);

heap (arr, max);

}

}

public static void swap (int arr[], int i, int j)

{

int tmp = arr[i];

arr[i] = arr[j];

arr[j] = tmp;

}

public static void main (String[]args)

{

Scanner in = new Scanner (System.in);

int n;

System.out.println ("Enter the number ofelements to besorted:");

n = in.nextInt ();

int arr[] = new int[n];

System.out.println ("Enter " + n + " integerelements");

for (int i = 0; i < n; i++)

arr[i] = in.nextInt ();

sort (arr);

System.out.println ("After sorting ");

for (int i = 0; i < n; i++)

System.out.println (arr[i] + " ");

System.out.println ();

}

}

