Bahria University,

Karachi Campus

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LAB EXPERIMENT NO.

\_\_\_\_**13**\_\_\_\_\_

LIST OF TASKS

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| TASK NO | OBJECTIVE |
| 1 | Write a program to implement concept of Heap Sort |
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Submitted On

11/01/2023

(Date: DD/MM/YY)

**Task # 1:** Write a program to implement concept of Heap Sort

**Solution**

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Lab11\_AVL{

class HeapSort{

public static void Sort(int[] array){

int heapSize = array.Length;

// Build the heap

for (int i = heapSize / 2 - 1; i >= 0; i--){

Heapify(array, heapSize, i);}

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

int temp = array[0];

array[0] = array[i];

array[i] = temp;

Heapify(array, i, 0);}}

private static void Heapify(int[] array, int heapSize, int index){

int largest = index;

int left = 2 \* index + 1;

int right = 2 \* index + 2;

if (left < heapSize && array[left] > array[largest]){

largest = left;}

if (right < heapSize && array[right] > array[largest]){

largest = right;}

if (largest != index){

int temp = array[index];

array[index] = array[largest];

array[largest] = temp;

Heapify(array, heapSize, largest);}}

static void Main(string[] args){

int[] array = { 3, 5, 1, 2, 4 };

Console.Write("\n Unsorted : ");

for (int i = 0; i < array.Length; i++){

Console.Write(array[i]+", ");}

HeapSort.Sort(array);

Console.Write("\n Sorted : ");

Console.Write(string.Join(", ", array)); // 1, 2, 3, 4, 5

Console.ReadLine();}}}

**Output**

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