Name – Saikat Sheet

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Stream – CSE

Section – A

Assignment 3 (Heap Sort):

#include<stdio.h>

void max\_heapify(int \*arr, int n, int i) {

int largest = i;

int left = 2 \* i + 1;

int right = 2 \* i + 2;

if (left < n && arr[left] > arr[largest])

largest = left;

if (right < n && arr[right] > arr[largest])

largest = right;

if (largest != i) {

int temp = arr[i];

arr[i] = arr[largest];

arr[largest] = temp;

max\_heapify(arr, n, largest);

}

}

void build\_max\_heap(int \*arr, int n)

{

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

max\_heapify(arr, n, i);

}

void heapSort(int \*arr, int n)

{

build\_max\_heap(arr, n);

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

{

int temp = arr[0];

arr[0] = arr[i];

arr[i] = temp;

max\_heapify(arr, i, 0);

}

}

int main()

{

int arr[] = {24,2,56,48,100,96,25,32};

int n = sizeof(arr) / sizeof(arr[0]);

printf("Given array is \n");

for (int i = 0; i < n; ++i) printf("%d ", arr[i]);

printf("\n");

heapSort(arr, n);

printf("Sorted array is \n");

for (int i = 0; i < n; ++i) printf("%d ", arr[i]);

printf("\n");

}

