19.Write a C program to implement Heap sort.

#include <stdio.h>

void heapify(int a[], int n, int i)

{

int largest = i;

int left = 2 \* i + 1;

int right = 2 \* i + 2;

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

largest = left;

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

largest = right;

if (largest != i) {

int temp = a[i];

a[i] = a[largest];

a[largest] = temp;

heapify(a, n, largest);

}

}

void heapSort(int a[], int n)

{

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

heapify(a, n, i);

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

int temp = a[0];

a[0] = a[i];

a[i] = temp;

heapify(a, i, 0);

}

}

void printArr(int arr[], int n)

{

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

{

printf("%d", arr[i]);

printf(" ");

}

}

int main()

{

int a[] = {48, 10, 23, 43, 28, 26, 1};

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

printf("Before sorting array elements are - \n");

printArr(a, n);

heapSort(a, n);

printf("\nAfter sorting array elements are - \n");

printArr(a, n);

return 0;

} 