**Program:**

//Program to implement heapSort - Visakh Bobby - S3R2 - 34

#include<stdio.h>

int temp;

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

{

  int root = i; // root position

  int left = 2\*i+1; //left child postion

  int right = 2\*i+2; //right child

  if(left<n && a[left] > a[root]) //changing root , if left is greater than root

    root = left;

  if(right <n && a[right] > a[root]) //changing root , if right is greater than root

    root = right;

  if(root!=i)

  {

    //swapping largest element and current root , if root is no longer the largest

    temp = a[i];

    a[i] = a[root];

    a[root] = temp;

    createHeap(a,n,root); //recursive

  }

}

void heapSort(int a[],int n)

{

  int i;

  //For Step 1: Create A Heap

  for(i = (n/2)-1;i>=0;i--)

    createHeap(a,n,i);

  // Step 2: Removing element one by one from heap and the constantly creating heap with remaining elements

  for(i = n-1 ; i>=0 ;i--)

    {

      temp = a[i];

      a[i] = a[0];

      a[0] = temp;

      createHeap(a,i,0);

    }

}

void main()

{

  int a[50];

  int i,n;

  printf("Enter The No of Elements :\n");

  scanf("%d",&n);

  printf("Enter the Array Elements : \n");

  for(i=0;i<n;i++)

    scanf("%d",&a[i]);

  heapSort(a,n);

  printf("Array After Heap Sort :\n");

  for(i=0;i<n;i++)

    printf("%d\t",a[i]);

}

**Output:**

