/\*Implement Heap Sort Java Program Using Array\*/

public class HSort

{

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

{

int l=2\*i+1;

int r=2\*i+2;

int temp,largest;

if(l<n && a[l]>a[i])

largest=l;

else

largest=i;

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

largest=r;

if(largest !=i)

{

temp=a[largest];

a[largest]=a[i];

a[i]=temp;

heapify(a,largest,n);

}

}

public static void bheap(int a[])

{

for(int i=(a.length/2)-1;i>=0;i--)

{

heapify(a,i,a.length);

}

}

public static void Sort(int a[])

{

int temp,j,i;

bheap(a);

for( i=(a.length)-1; i>0;)

{

temp=a[0];

a[0]=a[i];

a[i]=temp;

heapify(a,0,i--) ;

}

}

public static void printarray(int a[])

{

System.out.println();

for(int i=0; i < a.length; i++)

{

System.out.print(a[i]+" ");

}

}

public static void main(String[] args)

{

int n, res,i;

Scanner s = new Scanner(System.in);

System.out.print("Enter number of elements in the array:");

n = s.nextInt();

int a[] = new int[n];

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

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

{

a[i] = s.nextInt();

}

System.out.println( "elements in array ");

printarray(a);

Sort(a);

System.out.println( "\nelements after sorting");

printarray(a);

}

}