import java.util.Arrays;

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

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

int N = sc.nextInt();

int[] arr = new int[N];

System.out.println("Enter the elements:");

for (int i = 0; i < N; i++) {

arr[i] = sc.nextInt();

}

sc.close();

System.out.println("Original array: " + Arrays.toString(array));

quickSort(arr, 0, arr.length - 1);

System.out.println("Sorted array: " + Arrays.toString(array));

}

public static void quickSort(int[] arr, int low, int high) {

if (low < high) {

int pivotIndex = partition(arr, low, high);

quickSort(arr, low, pivotIndex - 1);

quickSort(arr, pivotIndex + 1, high);

}

}

public static int partition(int[] arr, int low, int high) {

int pivot = arr[low];

int left = low + 1;

int right = high;

while (left <= right) {

while (left <= right && arr[left] <= pivot) {

left++;

}

while (left <= right && arr[right] > pivot) {

right--;

}

if (left < right) {

int temp = arr[left];

arr[left] = arr[right];

arr[right] = temp;

}

}

int temp = arr[low];

arr[low] = arr[right];

arr[right] = temp;

return right;

}

}