package com.lesson5.sort;

public class QuickSort {

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

int pivot = arr[high];

int i = (low - 1); // index of smaller element

for (int j = low; j < high; j++) {

if (arr[j] <= pivot) {

i++;

// swap arr[i] and arr[j]

int temp = arr[i];

arr[i] = arr[j];

arr[j] = temp;

}

}

// swap arr[i+1] and arr[high] (or pivot)

int temp = arr[i + 1];

arr[i + 1] = arr[high];

arr[high] = temp;

return i + 1;

}

void sort(int arr[], int low, int high) {

if (low < high) {

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

sort(arr, low, pi - 1);

sort(arr, pi + 1, high);

}

}

static void printArray(int arr[]) {

int n = arr.length;

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

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

System.out.println();

}

public static void main(String[] args) {

int arr[] = {20,35,64,85,95,110,123,140,170,143};

int n = arr.length;

QuickSort ob = new QuickSort();

ob.sort(arr, 0, n-1);

System.out.println("sorted array");

printArray(arr);

}

}