#include <stdio.h>

// Function to swap two elements

void swap(int\* a, int\* b) {

int temp = \*a;

\*a = \*b;

\*b = temp;

}

// Partition function

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

int pivot = arr[high];

int i = low - 1;

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

if (arr[j] <= pivot) {

i++;

swap(&arr[i], &arr[j]);

}

}

swap(&arr[i + 1], &arr[high]);

return i + 1;

}

// Quick Sort function

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

if (low < high) {

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

quickSort(arr, low, pi - 1);

quickSort(arr, pi + 1, high);

}

}

// Display array

void display(int arr[], int n) {

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

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

printf("\n");

}

int main() {

int n;

printf("Enter number of elements: ");

scanf("%d", &n);

int arr[n];

printf("Enter %d numbers: ", n);

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

scanf("%d", &arr[i]);

printf("\nOriginal array: ");

display(arr, n);

quickSort(arr, 0, n - 1);

printf("Sorted array (Quick Sort): ");

display(arr, n);

return 0;

}