#include <iostream>

#include <cstdlib>

#include <ctime>

using namespace std;

#define MAX 10

#define MAXSTACK 10

struct Stack {

int left;

int right;

};

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

int temp = \*a;

\*a = \*b;

\*b = temp;

}

void quickSortNonRecursive(int arr[]) {

Stack stack[MAXSTACK];

int top = 0;

int l, r, i, j, x;

stack[top].left = 0;

stack[top].right = MAX - 1;

top++;

while (top > 0) {

top--;

l = stack[top].left;

r = stack[top].right;

while (r > l) {

i = l;

j = r;

x = arr[(l + r) / 2];

while (i <= j) {

while (arr[i] < x) i++;

while (arr[j] > x) j--;

if (i <= j) {

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

i++;

j--;

}

}

if (l < j) {

top++;

stack[top].left = l;

stack[top].right = j;

}

r = j;

}

}

}

int main() {

int arr[MAX];

srand(time(NULL));

cout << "Data sebelum terurut: ";

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

arr[i] = rand() % 100;

cout << arr[i] << " ";

}

cout << endl;

quickSortNonRecursive(arr);

cout << "Data setelah terurut: ";

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

cout << arr[i] << " ";

cout << endl;

return 0;

}