#include <iostream>

#include <cstdlib>

// Function to perform merge sort on array a[]

void mergesort(int num, float a[], float b[]) {

for (int k = 1; k < num; k \*= 2) {

for (int left = 0; left + k < num; left += k \* 2) {

int rght = left + k; //1

int last = rght + k; //1

if (last > num) last = num;

int m = left, i = left, j = rght;

while (i < rght && j < last) {

if (a[i] <= a[j]) {

b[m] = a[i];

i++;

} else {

b[m] = a[j];

j++;

}

m++;

}

while (i < rght) {

b[m] = a[i];

i++;

m++;

}

while (j < last) {

b[m] = a[j];

j++;

m++;

}

for (m = left; m < last; m++) {

a[m] = b[m];

}

}

}

}

int main() {

const long num = 8;

// Initialize arrays with random values for demonstration purposes

float a[num] = {7,1,6,5,8,3,2,4};

float b[num];

// Print the unsorted array (optional)

std::cout << "Unsorted array:" << std::endl;

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

std::cout << a[i] << " ";

}

std::cout << std::endl;

// Perform merge sort

mergesort(num, a, b);

// Print the sorted array

std::cout << "Sorted array:" << std::endl;

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

std::cout << a[i] << " ";

}

std::cout << std::endl;

return 0;

}