#include<iostream>

#include <vector>

using namespace std;

void merge(int arr[], int start, int mid, int end)

{

vector<int> temp(end - start + 1);

int left = start, right = mid + 1, index = 0;

while (left <= mid && right <= end)

{

if (arr[left] <= arr[right])

{

temp[index] = arr[left];

index++, left++;

}

else

{

temp[index] = arr[right];

index++, right++;

}

}

// left not empty

while (left <= mid)

{

temp[index] = arr[left];

index++, left++;

}

// right not empty

while (right <= end)

{

temp[index] = arr[right];

index++, right++;

}

index = 0;

// inserting values in array

while (start <= end)

{

arr[start] = temp[index];

start++, index++;

}

}

void divide(int arr[], int start, int end)

{

if (start == end)

return;

int mid = (start + end) / 2;

// left

divide(arr, start, mid);

// right

divide(arr, mid + 1, end);

merge(arr, start, mid, end);

}

int main()

{

int i, arr[] = {5, 23, 67, 3, 7, 34, 2, 77};

divide(arr, 0, 7);

for (i = 0; i < 8; i++)

{

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

}

return 0;

}