#include <stdio.h>

void merge(int arr[], int l, int m, int r)

{

int i, j, k;

int n1 = m - l + 1;

int n2 = r - m;

int L[n1], R[n2];

for (i = 0; i < n1; i++)

L[i] = arr[l + i];

for (j = 0; j < n2; j++)

R[j] = arr[m + 1 + j];

i = 0;

j = 0;

k = l;

while (i < n1 && j < n2) {

if (L[i] <= R[j]) {

arr[k] = L[i];

i++;

}

else {

arr[k] = R[j];

j++;

}

k++;

}

while (i < n1) {

arr[k] = L[i];

i++;

k++;

}

while (j < n2) {

arr[k] = R[j];

j++;

k++;

}

}

void mergeSort(int arr[], int l, int r)

{

if (l < r) {

int m = l + (r - l) / 2;

mergeSort(arr, l, m);

mergeSort(arr, m + 1, r);

merge(arr, l, m, r);

}

}

int\* sortArray(int\* nums, int numsSize, int\* returnSize){

mergeSort(nums, 0, numsSize-1);

\*returnSize = numsSize;

return nums;

}

int main()

{

int numsSize, \*returnSize;

printf("Enter no of elements :");

scanf("%d", &numsSize);

int nums[numsSize];

printf("Enter array elements\n");

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

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

}

int \*n=nums;

sortArray(n, numsSize, returnSize);

printf("Array after sorting\n");

for(int i=0; i<\*returnSize; i++){

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

}

}