Simple sort program: Median & Average

Description

Please remind the program in your Q2 of last week's warm-up exam.

In this problem, write a sort program to read a list of non-zero numbers and print the medium number and their average.

The rules of calculating median:

- If the array's length is even, the median is the average of the two elements in the middle.
- If the array's length is odd, the median is the element in the middle.

For Q6, you still have to use the swap() by passing pointers.

The following is Q2 of last week's warm-up exam. You can refer to the example if you forget how to sort an array.

Write a simple sort program to show the number array in descending order.

In each iteration, you may select the max number among the rest of the array and then use `swap()` to exchange the max number with the curr ent position.

This is an example:

Given an array `5 10 3 1 2`

Iteration 1: The rest of the array is `5 10 3 1 2`, max number is `10` => exchange `10` with the first element `5` => `10 5 3 1 2`

Iteration 2: The rest of the array is `5 3 1 2` (`10` is sorted), the max number is `5` => exchange `5` with the first element `5` => `5 3 1 2`

Iteration 3: The rest of the array is `3 1 2` (`10 5` is sorted), the max number is `3` => exchange `3` with the first element `3` => `3 1 2`

Iteration 4: The rest of the array is `1 2` (`10 5 3` is sorted), the max number is `2` => exchange `2` with the first element `1` => `2 1`

After the iterations, you would get a sorted array in descending order `10 5 3 2 1`, just print the result.

`Note: Please implement swap() with pointers`

Input

Each case has a line, which contains `N` integers `a_i` and ends with `0`.

Constraints:

- 1 <= `N` <= 1000
- -2,147,483,648 <= `a_i` <= 2,147,483,647
- `a_i` != 0

Output

Output the medium and average numbers for the given array.

The array's length is odd:

- Output the medium in `int`
- Output the average in `double` with two decimal digits

The array's length is even:

- Output the medium in `double` with one decimal digit
- Output the average in `double` with two decimal digits

Please follow the output format:

median: {int/double number} average: {double number}

We use a special judge allowing an error of less than or equal to 0.01.

Sample Input 1

```
60 50 92 83 0
```

Sample Output 1

```
median: 71.5 average: 71.25
```

Sample Input 2

```
60 50 92 83 67 0
```

Sample Output 2

```
median: 67 average: 70.40
```

Hint

You MUST include the function `swap(int* a, int* b)` in your code.

TAs will check whether you implement the function with pointers.

Information

ID	mid_06
Time Limit	1000MS
Memory Limit	256MB
IO Mode	Standard IO
Created By	aster
Level	Low
Score	87
Tags	Show

Statistic Details