

Sequence Analysis

Problem ID: p06sequenceanalysis

This project is an exercise in using files, lists and exceptions. Write a program that reads a floating point number sequence from an input file and outputs various information about the sequence. A typical sequence in a file (`data1.txt`) looks like this:

```
5
3
-2
7
-4
4
0
11
15
-12
22
6
8
```

However, a sequence in a file (`data2.txt`) could also look like this:

```
12.4
11.9
-3.6
bla
5.7
-2.6
7.4
8.9
xxx
4.5
```

Or even like this (`data3.txt`):

```
aa
```

Note that the file `data2.txt` contains two lines that should be ignored in the analysis, and that the file `data3.txt` does not contain any valid numbers.

Input

The input is a name of a file to be analysed, e.g. `data1.txt` or any other name ending in `.txt`. The input file contains 1 – 20 lines, where each line either contains a valid floating point number f , where $-20 \leq f \leq 20$, or any other string which is not a valid float.

Output

The output is either nothing, in the case where the input data file does not contain any floats or if it cannot be opened, or it consists of the following four lines:

1. The numbers in the sequence
2. The cumulative sum of the numbers in the sequence
3. The sorted version (ascending order) of the numbers in the sequence
4. The median of the sequence

All numbers should be rounded to four digits after the decimal point.

Sample Input 1

Sample Output 1

<code>data1.txt</code>	5.0 3.0 -2.0 7.0 -4.0 4.0 0.0 11.0 15.0 -12.0 22.0 6.0 8.0 5.0 8.0 6.0 13.0 9.0 13.0 13.0 24.0 39.0 27.0 49.0 55.0 63.0 -12.0 -4.0 -2.0 0.0 3.0 4.0 5.0 6.0 7.0 8.0 11.0 15.0 22.0 5.0
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Sample Input 2

Sample Output 2

<code>data2.txt</code>	12.4 11.9 -3.6 5.7 -2.6 7.4 8.9 4.5 12.4 24.3 20.7 26.4 23.8 31.2 40.1 44.6 -3.6 -2.6 4.5 5.7 7.4 8.9 11.9 12.4 6.55
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Sample Input 3

Sample Output 3

<code>data3.txt</code>	
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