

D. Swords

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

There were n types of swords in the theater basement which had been used during the plays. Moreover there were **exactly** x swords of each type. y people have broken into the theater basement and each of them has taken exactly z swords of some **single type**. Note that different people might have taken different types of swords. Note that the values x , y and z are unknown for you.

The next morning the director of the theater discovers the loss. He counts all swords — exactly a_i swords of the i -th type are left untouched.

The director has no clue about the initial number of swords of each type in the basement, the number of people who have broken into the basement and how many swords each of them have taken.

For example, if $n = 3$, $a = [3, 12, 6]$ then one of the possible situations is $x = 12$, $y = 5$ and $z = 3$. Then the first three people took swords of the first type and the other two people took swords of the third type. Note that you don't know values x , y and z beforehand but know values of n and a .

Thus he seeks for your help. Determine the **minimum** number of people y , which could have broken into the theater basement, and the number of swords z each of them has taken.

Input

The first line of the input contains one integer n ($2 \leq n \leq 2 \cdot 10^5$) — the number of types of swords.

The second line of the input contains the sequence a_1, a_2, \dots, a_n ($0 \leq a_i \leq 10^9$), where a_i equals to the number of swords of the i -th type, which have remained in the basement after the theft. It is guaranteed that there exists at least one such pair of indices (j, k) that $a_j \neq a_k$.

Output

Print two integers y and z — the minimum number of people which could have broken into the basement and the number of swords each of them has taken.

Examples

| | |
|------------------------|------|
| input | Copy |
| 3 | |
| 3 12 6 | |
| output | Copy |
| 5 3 | |
| input | Copy |
| 2 | |
| 2 9 | |
| output | Copy |
| 1 7 | |
| input | Copy |
| 7 | |
| 2 1000000000 4 6 8 4 2 | |
| output | Copy |
| 2999999987 2 | |

Codeforces Round #587 (Div. 3)

Finished

Practice

Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

Submit?

Language: GNU G++11 5.1.0

Choose file: 选择文件 未选择任何文件

Submit

Problem tags

math

No tag edit access

Contest materials

Announcement #1 (en)

Announcement #2 (ru)

Tutorial #1 (en)

Tutorial #2 (ru)

| | | |
|---|-----------------------|------|
| ↑ | input | Copy |
| | 6 13 52 0 13 26 52 | |
| | output | Copy |
| | 12 13 | |

Note

In the first example the minimum value of y equals to 5, i.e. the minimum number of people who could have broken into the basement, is 5. Each of them has taken 3 swords: three of them have taken 3 swords of the first type, and two others have taken 3 swords of the third type.

In the second example the minimum value of y is 1, i.e. the minimum number of people who could have broken into the basement, equals to 1. He has taken 7 swords of the first type.

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