

A. Mafia

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

One day n friends gathered together to play "Mafia". During each round of the game some player must be the supervisor and other $n - 1$ people take part in the game. For each person we know in how many rounds he wants to be a player, not the supervisor: the i -th person wants to play a_i rounds. What is the minimum number of rounds of the "Mafia" game they need to play to let each person play at least as many rounds as they want?

Input

The first line contains integer n ($3 \leq n \leq 10^5$). The second line contains n space-separated integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq 10^9$) — the i -th number in the list is the number of rounds the i -th person wants to play.

Output

In a single line print a single integer — the minimum number of game rounds the friends need to let the i -th person play at least a_i rounds.

Please, do not use the %lld specifier to read or write 64-bit integers in C++. It is preferred to use the cin, cout streams or the %I64d specifier.

Examples

input
3 3 2 2
output
4
input
4 2 2 2 2
output
3

Note

You don't need to know the rules of "Mafia" to solve this problem. If you're curious, it's a game Russia got from the Soviet times: [http://en.wikipedia.org/wiki/Mafia_\(party_game\)](http://en.wikipedia.org/wiki/Mafia_(party_game)).

→ Attention

Package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then value 800 ms will be displayed and used to determine the verdict.

Codeforces Round #202 (Div. 1)

Finished

→ Virtual participation

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