A. Balanced Rating Changes

time limit per test: 1 second
memory limit per test: 512 megabytes
input: standard input
output: standard output

Another Codeforces Round has just finished! It has gathered n participants, and according to the results, the expected rating change of participant i is a_i. These rating changes are *perfectly balanced* — their sum is equal to 0.

Unfortunately, due to minor technical glitches, the round is declared *semi-rated*. It means that all rating changes must be divided by two.

There are two conditions though:

- For each participant i, their modified rating change b_i must be integer, and as close to $\frac{a_i}{2}$ as possible. It means that either $b_i = \lfloor \frac{a_i}{2} \rfloor$ or $b_i = \lceil \frac{a_i}{2} \rceil$. In particular, if a_i is even, $b_i = \frac{a_i}{2}$. Here $\lfloor x \rfloor$ denotes rounding down to the largest integer not greater than x, and $\lceil x \rceil$ denotes rounding up to the smallest integer not smaller than x.
- The modified rating changes must be perfectly balanced — their sum must be equal to 0.

Can you help with that?

Input

The first line contains a single integer n ($2 \le n \le 13\,845$), denoting the number of participants.

Each of the next n lines contains a single integer a_i ($-336 \le a_i \le 1164$), denoting the rating change of the i-th participant.

The sum of all a_i is equal to 0.

Output

Output n integers b_i, each denoting the modified rating change of the i-th participant in order of input.

For any i, it must be true that either $b_i = \lfloor \frac{a_i}{2} \rfloor$ or $b_i = \lceil \frac{a_i}{2} \rceil$. The sum of all b_i must be equal to 0.

If there are multiple solutions, print any. We can show that a solution exists for any valid input.

Examples

input	output
3 10 -5 -5	5 -2 -3
7 -7 -29 0 3 24 -29 38	-3 -15 0 2 12 -15 19

Note

In the first example, $b_1 = 5$, $b_2 = -3$ and $b_3 = -2$ is another correct solution.

In the second example there are 6 possible solutions, one of them is shown in the example output.

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→ Group Contests

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- ICPC Assiut Advanced Newcomers 2023 Contest 4
- ICPC Assiut Advanced Newcomers 2023 Contest 3
- ICPC Assiut Advanced Newcomers Practice #1
- ICPC Assiut Advanced Newcomers 2023 Contest 2
- ICPC Assiut Advanced Newcomers 2023 Onsite Contest 2
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Practice

→ Virtual participation

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Start virtual contest

→ Submit?

Language: GNU G++20 11.2.0 (64 bit, w

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
227009054	Oct/07/2023 15:33	Accepted
227007452	Oct/07/2023 15:19	Wrong answer on test 5