

V. 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 ($2 \leq n \leq 13\,845$), denoting the number of participants.

Each of the next n lines contains a single integer a_i ($-336 \leq a_i \leq 1164$), 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	Copy
3 10 -5 -5	
output	Copy
5 -2 -3	

input	Copy
7 -7 -29 0 3 24 -29 38	
output	Copy
-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.

Assiut University Training - Newcomers

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About Group



ICPC Assiut community

Group website

Group Contests

Sheet #10 (General Hard)

Sheet #9 (General medium)

Sheet #8 (General easy)

Sheet #7 (Recursion)

Sheet #6 (Math - Geometry)

Sheet #5 (Functions)

Sheet #4 (Strings)

Contest #3.1

Sheet #3 (Arrays)

Contest #2

Sheet #2 (Loops)

Contest #1

Sheet #1 (Data type - Conditions)

Sheet #9 (General medium).

Finished

Practice

About Time Scaling

This contest uses time limits scaling policy (depending on a programming language). The system automatically adjusts time limits by the following multipliers for some languages. Despite scaling (adjustment), the time limit cannot be more than 30 seconds. Read the details by the [link](#).

Virtual participation