HOME   TOP   CONTESTS   GYM   PROBLEMSET   GROUPS   RATING   API   HELP   HONORCUP 🏆   CALENDAR

PROBLEMS   SUBMIT CODE   MY SUBMISSIONS   STATUS   HACKS   ROOM   STANDINGS   CUSTOM INVOCATION

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 $b_i = \left\lfloor \frac{a_i}{2} \right\rfloor$ or $b_i = \left\lceil \frac{a_i}{2} \right\rceil$. 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 $b_i = \left\lfloor \frac{a_i}{2} \right\rfloor$ or $b_i = \left\lceil \frac{a_i}{2} \right\rceil$. 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.

→ 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

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

[Submit]

→ Problem tags

math   No tag edit access

→ Contest materials

- Announcement #1 (en)   ✕
- Announcement #2 (ru)   ✕
- Tutorial (en)   ✕

Codeforces Global Round 5
Finished
Practice
⭐