

E. Pavel and Triangles

time limit per test: 2 seconds

memory limit per test: 256 megabytes

input: standard input

output: standard output

Pavel has several sticks with lengths equal to powers of two.

He has a_0 sticks of length $2^0 = 1$, a_1 sticks of length $2^1 = 2$, ..., a_{n-1} sticks of length 2^{n-1} .

Pavel wants to make the maximum possible number of triangles using these sticks. The triangles should have strictly positive area, each stick can be used in at most one triangle.

It is forbidden to break sticks, and each triangle should consist of exactly three sticks.

Find the maximum possible number of triangles.

Input

The first line contains a single integer n ($1 \leq n \leq 300\,000$) — the number of different lengths of sticks.

The second line contains n integers a_0, a_1, \dots, a_{n-1} ($1 \leq a_i \leq 10^9$), where a_i is the number of sticks with the length equal to 2^i .

Output

Print a single integer — the maximum possible number of non-degenerate triangles that Pavel can make.

Examples

input

Copy

5

1 2 2 2 2

output

Copy

3

input

Copy

3

1 1 1

output

Copy

0

input

Copy

3

3 3 3

output

Copy

3

Note

In the first example, Pavel can, for example, make this set of triangles (the lengths of the sides of the triangles are listed): $(2^0, 2^4, 2^4)$, $(2^1, 2^3, 2^3)$, $(2^1, 2^2, 2^2)$.


In the second example, Pavel cannot make a single triangle.

In the third example, Pavel can, for example, create this set of triangles (the lengths of the sides of the triangles are listed): $(2^0, 2^0, 2^0)$, $(2^1, 2^1, 2^1)$, $(2^2, 2^2, 2^2)$.

Codeforces Global Round 2

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 ACM-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

brute force dp fft greedy ternary search

*1900

No tag edit access

→ Contest materials

Announcement #1 (en)

Announcement #2 (ru)

Tutorial #1 (en)

Tutorial #2 (ru)

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