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D. Magazine Ad

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

The main city magazine offers its readers an opportunity to publish their ads. The format of the ad should be like this:

There are space-separated non-empty words of lowercase and uppercase Latin letters.

There are hyphen characters ' - ' in some words, their positions set word wrapping points.
Word can include more than one hyphen.

It is guaranteed that there are no adjacent spaces and no adjacent hyphens. No hyphen is adjacent to space. There are no spaces and no hyphens before the first word and after the last word.

Educational Codeforces Round 20

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 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.

When the word is wrapped, the part of the word before hyphen and the hyphen itself stay on current line and the next part of the word is put on the next line. You can also put line break between two words, in that case the space stays on current line. Check notes for better understanding.

The ad can occupy no more that k lines and should have minimal width. The width of the ad is the maximal length of string (letters, spaces and hyphens are counted) in it.

You should write a program that will find minimal width of the ad.

Input

The first line contains number k ($1 \leq k \leq 10^5$).

The second line contains the text of the ad — non-empty space-separated words of lowercase and uppercase Latin letters and hyphens. Total length of the ad don't exceed 10^6 characters.

Output

Output minimal width of the ad.

Examples

input	Copy
4 garage for sa-le	
output	Copy
7	

input	Copy
4 Edu-ca-tion-al Ro-unds are so fun	
output	Copy
10	

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++17 7.3.0

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
195005919	Feb/26/2023 04:39	Accepted

→ Problem tags

Note

Here all spaces are replaced with dots.

In the first example one of possible results after all word wraps looks like this:

garage.

for.

sa-

le

The second example:

Edu-ca-

tion-al.

Ro-unds.

are.so.fun

binary search greedy *1900

No tag edit access

→ Contest materials

- Announcement
- Tutorial

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The only programming contests Web 2.0 platform

Server time: Feb/26/2023 10:59:03^{UTC+9} (g1).

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