CODEFORCES
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E. Compress Words

time limit per test: 1 second

memory limit per test: 256 megabytes

Amugae has a sentence consisting of n words. He want to compress this sentence into one word. Amugae doesn't like repetitions, so when he merges two words into one word, he removes the longest prefix of the second word that coincides with a suffix of the first word. For example, he merges "`sample`" and "`please`" into "`samplease`".

Amugae will merge his sentence left to right (i.e. first merge the first two words, then merge the result with the third word and so on). Write a program that prints the compressed word after the merging process ends.

Input

The first line contains an integer n ($1 \le n \le 10^5$), the number of the words in Amugae's sentence.

The second line contains n words separated by single space. Each words is non-empty and consists of uppercase and lowercase English letters and digits ('`A`', '`B`', ..., '`Z`', '`a`', '`b`', ..., '`z`', '`0`', '`1`', ..., '`9`'). The total length of the words does not exceed 10^6.

Output

In the only line output the compressed word after the merging process ends as described in the problem.

Examples

input	Copy
5 I want to order pizza	

output	Copy
Iwantorderpizza	

input	Copy
5 sample please ease in out	

output	Copy
sampleaseinout	

Codeforces Round 578 (Div. 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 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]

→ Clone Contest to Mashup ⌄

You can clone this contest to a mashup.

[Clone Contest]

→ Submit?

Language: [GNU G++20 13.2 (64 bit, win ▾]

Choose file: [Choose File] No file chosen

[Submit]

→ Last submissions

Submission	Time	Verdict
281778348	Sep/18/2024 21:07	Accepted
281764885	Sep/18/2024 19:24	Accepted
281724194	Sep/18/2024 14:14	Accepted
281724066	Sep/18/2024 14:13	Time limit exceeded on test 3
281723914	Sep/18/2024 14:11	Time limit exceeded on test 3
281723164	Sep/18/2024 14:05	Accepted
281721799	Sep/18/2024 13:52	Runtime error on test 11
281695918	Sep/18/2024 09:30	Runtime error on test 11
281695819	Sep/18/2024 09:28	Runtime error on test 11
281695517	Sep/18/2024 09:25	Runtime error on test 11

→ Problem tags

[brute force] [hashing] [implementation]
[string suffix structures] [strings] [*2000]

No tag edit access

→ Contest materials

• Announcement (en) ✕