# Problem G. Perfect Word

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|---|---|
| Input file: | `standard input` |
| Output file: | `standard output` |
| Time limit: | 1 second |
| Memory limit: | 512 megabytes |

You are given $n$ strings and required to find the length of the longest *perfect word*.

A string $t$ is called a *perfect word*, if and only if every non-empty substring of $t$ appears in the given strings.

A string $s$ is called a substring of $t$ if and only if it can be obtained by removing several (possibly zero) characters from the beginning or end of $t$.

## Input

The first line contains a single integer $n$ ($1 \leq n \leq 10^5$).

Each of the next $n$ lines contains a string consisting of lowercase English letters.

It is guaranteed that the total length of the given strings is no more than $10^5$.

## Output

Output an integer, representing the length of the longest perfect word.

## Example

| standard input | standard output |
|---|---|
| 4<br>a<br>t<br>b<br>ab | 2 |