Problem G. Perfect Word

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 a t b ab	2