

# Problem I. LCS Spanning Tree

Given a complete undirected graph of  $n$  vertices and  $n$  strings  $s_1, s_2, \dots, s_n$ , the weight of edge connecting vertices  $i$  and  $j$  is equal to the length of the longest common substring (LCS) between  $s_i$  and  $s_j$ . Compute the maximum total weight of any spanning tree on this graph.

A substring of a string can be obtained by removing some (possibly zero) characters from the beginning and/or the end of that string. For example, “maca”, “aca” and “cau” are all substrings of “macau”, while “acu” is not.

## Input

There is only one test case in each test file.

The first line of the input contains one integer  $n$  ( $1 \leq n \leq 2 \times 10^6$ ) indicating the number of vertices and strings.

For the following  $n$  lines, the  $i$ -th line contains one string  $s_i$  ( $1 \leq |s_i| \leq 2 \times 10^6$ ) consisting only of lowercase English letters.

It's guaranteed that the sum of lengths of all strings will not exceed  $2 \times 10^6$ .

## Output

Output one line containing one integer indicating the answer.

## Examples

standard input	standard output
4 icpc macau regional contest	4
3 ababa babab aba	7