Problem I. LCS Spanning Tree

Given a complete undirected graph of n vertices and n strings $s_1, s_2, \cdots, s_n$, 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 2×10^6.

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