Problem F. String Product

Input file:	`standard input`
Output file:	`standard output`
Time limit:	4 seconds
Memory limit:	256 megabytes

Let $f(c)$ be the 0-based alphabetic number of a small English letter c, hence $f(\texttt{a}) = 0$, $f(\texttt{b}) = 1$, ..., $f(\texttt{z}) = 25$. The *product* $s \times t$ of two strings $s = s_0 \dots s_{n-1}$ and $t = t_0 \dots t_{m-1}$ is a string $u = u_0 \dots u_{nm-1}$, where $f(u_{j \cdot n+i}) = (f(s_i) + f(t_j)) \bmod 26$ for all $i = 0, \dots, n-1$ and $j = 0, \dots, m-1$. For example, $\texttt{abc} \times \texttt{de} = \texttt{defefg}$, $\texttt{de} \times \texttt{abc} = \texttt{deeffg}$, $\texttt{xy} \times \texttt{yz} = \texttt{vwwx}$.

You are given a string s. Find two strings a and b such that $a \times b = s$. If there are multiple options of a and b, find the one such that the string $a + b$ (where $+$ stands for concatenation) is lexicographically smallest. If there are still several answers, find the one with the smallest length of a.

Input

The only line of the input contains the string s of small English letters ($1 \le |s| \le 10^6$).

Output

If it is impossible to find two strings a, b such that $a \times b = s$, print -1. Otherwise, print a and b separated by a space. The string $a + b$ should be lexicographically smallest among all suitable pairs (a, b). In case of a tie, $|a|$ should be smallest possible.

Examples

standard input	standard output
ddbb	aa db
eefbbcccdddeaabaab	aab ebcdaa