A. Letters Cyclic Shift

You are given a non-empty string s consisting of lowercase English letters. You have to pick **exactly one non-empty substring** of s and shift all its letters 'z' 'y' 'x' 'b' 'a' 'z'. In other words, each character is replaced with the previous character of English alphabet and 'a' is replaced with 'z'.

What is the lexicographically minimum string that can be obtained from s by performing this shift exactly once?

Input

The only line of the input contains the string s ($1 \le |s| \le 100\,000$) consisting of lowercase English letters.

Output

Print the lexicographically minimum string that can be obtained from s by shifting letters of exactly one non-empty substring.

Examples

input
codeforces

output
bncdenqbdr

input
abacaba

output
aaacaba

Note

String s is lexicographically smaller than some other string t of the same length if there exists some $1 \le i \le |s|$, such that $s_1 = t_1, s_2 = t_2, ..., s_{i-1} = t_{i-1}$, and $s_i < t_i$.