Sequence Is Not Subsequence

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Along with a twisted fate, Nadeko has a string s which consists of lowercase letters. Her ultimate wish is to construct a string t for which the following conditions hold:

- t does not contain s as a subsequence.
- Every subsequence of s which does not coincide with s is contained in t as a subsequence.

Help her find string t of the minimal possible length. If there are multiple such strings, you are allowed to output any.

Input

A single line of the input contains string s ($2 \leq |s| \leq 10^6$) — Nadeko's string. It is guaranteed that s only contains lowercase letters.

Output

In the single line, output any string t of minimal length which satisfies the conditions of the problem.

Examples

standard input	standard output
aaaa	aaa
bba	bab

Note

In the second example, string "bab" contains "bb", "ba", "a", "b" as subsequences but does not contain "bba". It is also obvious that it is impossible to construct a correct sequence of length 2, so "bab" is a possible answer.