C. Minimal string

Petya recieved a gift of a string s with length up to 10^5 characters for his birthday. He took two more empty strings t and u and decided to play a game. This game has two possible moves:

- Extract the **first** character of s and append t with this character.
- Extract the **last** character of t and append u with this character.

Petya wants to get strings s and t empty and string u lexicographically minimal.

You should write a program that will help Petya win the game.

Input
First line contains non-empty string s ($1 \leq |s| \leq 10^5$), consisting of lowercase English letters.

Output
Print resulting string u.

Examples

input
cab

output
abc

input
acdb

output
abdc