**C - Minimal string**

Petya recieved a gift of a string *s* with length up to 105 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 ≤ |*s*| ≤ 105), consisting of lowercase English letters.

Output

Print resulting string *u*.

Example

Input

cab

Output

abc

Input

acdb

Output

abdc

Codeforces 797C Minimal string

• 给定长度为n的小写字母字符串s，及空串t, u，两种操作

• 1. 将s的第一个字符加到t的末尾

• 2. 将t的最后一个字符加到u的末尾

• 求字典序最小的字符串u (长度必须为n，即s, t最后为空串)

• 1 ≤ n ≤ 1e5

#include <bits/stdc++.h>

using namespace std;

int r[30];//存字母

vector<int>ans;

stack<int>s;

int i,j;

int main()

{

int flag;

for(i=0;i<30;i++) r[i]=0;

string c;

int b[100010];

cin>>c;

for(i=0;i<c.size();i++)

{

b[i]=c[i]-'a';

r[b[i]]++; //r[i]存这个字母出现了几次

}

for(i=0;i<c.size();i++)//每次进栈一个字母

{

s.push(b[i]);//s是存每个字母的一个栈

r[b[i]]--;

flag=0;

while(s.empty()==0)//栈没空

{

for(j=s.top()-1;j>=0;j--)

if(r[j]>0)

{

flag=1;

break;

}

if(flag==1)

break;

ans.push\_back(s.top());//执行到这一步的话肯定是flag=0即后面再没有这个字母了

s.pop();

}

}

for(i=0;i<ans.size();i++)

printf("%c",ans[i]+'a');

}