**A + B for you again**

**Time Limit: 5000/1000 MS (Java/Others)    Memory Limit: 32768/32768 K (Java/Others)  
Total Submission(s): 5941    Accepted Submission(s): 1473**

Problem Description

Generally speaking, there are a lot of problems about strings processing. Now you encounter another such problem. If you get two strings, such as “asdf” and “sdfg”, the result of the addition between them is “asdfg”, for “sdf” is the tail substring of “asdf” and the head substring of the “sdfg” . However, the result comes as “asdfghjk”, when you have to add “asdf” and “ghjk” and guarantee the shortest string first, then the minimum lexicographic second, the same rules for other additions.

Input

For each case, there are two strings (the chars selected just form ‘a’ to ‘z’) for you, and each length of theirs won’t exceed 10^5 and won’t be empty.

Output

Print the ultimate string by the book.

Sample Input

asdf sdfg

asdf ghjk

Sample Output

asdfg

asdfghjk

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Source

[2008杭电集训队选拔赛——热身赛](http://acm.hdu.edu.cn/search.php?field=problem&key=2008%BA%BC%B5%E7%BC%AF%D1%B5%B6%D3%D1%A1%B0%CE%C8%FC%A1%AA%A1%AA%C8%C8%C9%ED%C8%FC&source=1&searchmode=source)

题意：

给定两个字符串a和b，现在要将a和b相加，a+b相加规则为找出a最长的后缀等于b的等长前缀，之后结果为a的前面部分+相等部分+b的后面部 分，例如：asdf+sdfg=asdfg。相加的时候也可以b+a，输出相加后长度最小的，若存在两者长度相等，则输出字典树较小的。

分析：

把a+b 和b+a分别用KMP算法求出相等的最长字符串的长度 取长的 剩余最短的则是满足题意的

#include <stdio.h>

#include <string.h>

#define MOD 10007

char a[200005],b[200005],c[200005];

int next[200005];

int n,m,sum;

void Next(char c[],int m) ///求next数组

{

next[0] = next[1] = 0;

for(int i = 1; i < m; i++)

{

int j = next[i];

while(j&&c[j]!=c[i])

j = next[j];

next[i+1] = c[i]==c[j]?j+1:0;

}

}

int find1(char a[],char b[]) ///模式串与主串进行匹配

{

n = strlen(a);

m = strlen(b);

Next(b,m);

int j = 0; ///初始化在模式串的第一个位置

for(int i = 0; i < n; i++) ///遍历主串

{

while(j&&b[j]!=a[i])

j = next[j];

if(b[j]==a[i]) ///如果匹配成功则进行下一个位置

j++;

//if(j==m) ///能在a数组中找到b数组

//{

// j++;

//}

}

return j; ///把相等的最长的长度返回

}

int main()

{

while(~scanf("%s",a))

{

scanf("%s",b);

int p = find1(a,b);

int q = find1(b,a);

///如果p>q说明a+b的字符串的相等的字符的长度大 那么剩下的就短了 反过来也是这

if(p>q||p==q&&(strcmp(a,b)<0)) ///若a字符串短 则用a字符串加上b字符串减去公共长度所剩余的长度

{

printf("%s",a);

for(int i = p; b[i]!='\0'; i++)

printf("%c",b[i]);

printf("\n");

}

else ///若b字符串短 则用b字符串加上a字符串减

{

printf("%s",b);

for(int i = q; a[i]!='\0'; i++)

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

printf("\n");

}

}

return 0;

}