

The Parades[†]



The sun is beating down as you look down from your VIP stand after a very nice lunch and observe the colourful spectacular below, a sea of humanity in an array of brightly colourful costumes. It's almost time for the traditional North Versus South Parade where the most respected members from each region will line up and parade past the public and VIP stands. A voice behind you interrupts your thoughts, "It's almost time, the master of ceremonies wants you to calculate and announce the winners". The winners from each side will form an identically coloured sequence and then parade together receiving great honour and tribute from the two presidents. A certain unease descends upon you as you realize the truth of the old saying, there is no such thing as a free lunch.

Task

Announcing the winners is a complicated and difficult task. When the signal is given the members in the parades have to form up into two lines in what to many seems like some seemingly random sequence and then begin the parade. The winners are the parade members that form the longest common coloured subsequence contained in each line. In this case to avoid ties we always want the lexicographically smaller sequence — in other words blue, green, red is better than red, green, blue. As there are a lot of colours we shall restrict ourselves to 52 colours and label them $A \dots Z a \dots z$. Your task is to calculate the number of winners from each side and the sequence of colours.

Input

Two lines of input. Each line will contain one string of at most 98 characters.

Output

Two lines of output (terminated with a new line character). On the first line an integer with the length of the winning sequence and on the second the actual sequence (the lexicograph-

[†]A few minor changes have been made to the original version, which appeared in MIUP 2017, organized by Departamento de Informática da Universidade do Minho.

ically smaller in case of a tie). In the case where there is no common sequence then the output is only one line with the value zero (0).

Sample Input 1

```
abcd  
fbcf
```

Sample Output 1

```
2  
bc
```

Sample Input 2

```
CabD  
CDab
```

Sample Output 2

```
3  
Cab
```

Sample Input 3

```
xxabABxxcdCDefEF  
ABxyabCDxycdEFef
```

Sample Output 3

```
8  
ABxxcdEF
```

Sample Input 4

```
wjfljrglejrfjrlfjejflerjflerjflejwwwwaaaswsxxwqq  
ljrrjfglejrfjljrlfjelrjflerjflerjflejwwwwxxwqq
```

Sample Output 4

```
39  
ljrglejrfjrlfjejflerjflerjflejwwwwxxwqq
```