C. Anagram

time limit per test: 1 second
memory limit per test: 256 megabytes
input: input.txt
output: output.txt

String x is an *anagram* of string y, if we can rearrange the letters in string x and get exact string y. For example, strings "DOG" and "GOD" are anagrams, so are strings "BABA" and "AABB", but strings "ABBAC" and "CAABA" are not.

You are given two strings s and t of the same length, consisting of uppercase English letters. You need to get the anagram of string t from string s. You are permitted to perform the replacing operation: every operation is replacing some character from the string s by any other character. Get the anagram of string t in the least number of replacing operations. If you can get multiple anagrams of string t in the least number of operations, get the lexicographically minimal one.

The lexicographic order of strings is the familiar to us "dictionary" order. Formally, the string p of length n is lexicographically smaller than string q of the same length, if $p_1 = q_1, p_2 = q_2, ..., p_{k-1} = q_{k-1}, p_k < q_k$ for some k $(1 \le k \le n)$. Here characters in the strings are numbered from 1. The characters of the strings are compared in the alphabetic order.

Input

The input consists of two lines. The first line contains string s, the second line contains string t. The strings have the same length (from 1 to 10^5 characters) and consist of uppercase English letters.

Output

In the first line print z — the minimum number of replacement operations, needed to get an anagram of string t from string s. In the second line print the lexicographically minimum anagram that could be obtained in z operations.

Examples

input
ABA CBA
output
1 ABC

input
CDBABC ADCABD
output
2 ADBADC

Note

The second sample has eight anagrams of string t, that can be obtained from string s by replacing exactly two letters: "ADBADC", "ADDABC", "CDAABD", "CDBAAD", "CDBADA", "CDDABA", "DDAABC", "DDBAAC". These anagrams are listed in the lexicographical order. The lexicographically minimum anagram is "ADBADC".