Decrypting Caesar Cipher

A common cipher is the Caesar Cipher, which shifts a given plaintext message by an amount, then prints it out as an encoded message. Your task will be to take this message, and then figure out, given one word of the plaintext, what number the shift was, and what the message is.

Input

The input will consist of 2 lines. The first line will be the encoded message, which will be case sensitive. The second line will contain one word that will exist in the plaintext message. This word will be longer than one character, and the message will be proper in the way that once you find that proper word, you've decoded the message.

Spaces and punctuation will not be changed from the encryption, or decryption, of the message.

Getting an input of "0" will signify the end of input.

Output

Your output should be 2 lines as well. The first line should be the number of letters the plaintext was shifted to the right by, and the second line should be the message itself, still case sensitive.

Sample

Input	Output
Jrrg hyhqlqj, krz duh brx? are	3 Good evening, how are you?
Uryyb jbeyq Hello 0	13 Hello world