



Arcane Rivalry

Time Limit: 1.0 s | Memory Limit: 512 MiB

You are an operative for the Natural Zodiac Patrol Corps (NZPC), the intelligence agency for arcane and cryptographic threats. Your latest assignment: two rival alchemists have been exchanging encrypted messages, and your superiors want them decoded. You have intercepted one such message — intelligence reports indicate they are using a modified Caesar cipher to obscure their notes.



At great cost, our spies discovered that only 27 unique characters are ever used in the alchemists' messages: the lowercase characters and the underscore character. This encryption process assigns each character a value, where $a = 1, b = 2, \dots, z = 26, _ = 27$, and then increases each character's value by some integer offset. If a the value exceeds 27, it wraps around to 1 and continues.

For example, the letter 't' is encoded as 20. With a shift of 5, it becomes a 'y' (which is the character encoded as 25).

You do not know the secret offset value, but your spies have intercepted a decrypted keyword that is guaranteed to appear at least once as a contiguous substring within the original plaintext message for all possible offsets.

Write a program to fully decrypt the alchemist's secret. There will be exactly one valid offset that yields a plaintext containing the keyword.

Input

The first line contains a string W with $4 \leq |W| \leq 30$, representing the unencrypted mystery keyword discovered by your spies.

The second line contains a string S with $|W| \leq |S| \leq 10^3$, representing the encrypted ciphertext message.

Both strings will contain only lower case letters from a-z and the underscore character.

Output

Output a single line containing the completely decrypted plaintext string.

Explanation

In the first sample below, shifting the entire ciphertext forward by 22 results in the plaintext string

`this_is_a_string_of_gold`

No other shift results in the string `gold` appearing in the plaintext string.

Sample Input 1

```
gold
ymnxenxefexywnsletkeltqi
```

Sample Output 1

```
this_is_a_string_of_gold
```

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