

Letter Replacement

Imagine you are working as a secret agent, and you have intercepted a message from an enemy spy network. The message appears to be in a code that you have never seen before. After some analysis, you discover that it is a "Letter Replacement" code where each letter of the message is replaced with another letter. You need to decode the message to uncover their plan. For example

The encoded message you intercepted is: BDM AHE

Decoded message is: ACM FRI

Your task is to decode the message using the "Letter Replacement" algorithm. This algorithm involves replacing each letter in the encoded message with another letter to reveal the original message. For instance, B=A, D=C, M=M, A=F, H=R, E=I.

Input

The input for this problem consists of N ($1 \leq N \leq 500$) data sets. For each data set, you will receive two lines of input: an encoded message and a string of 26 upper case letters. The string represents the mapping for each letter of the alphabet, where the first character corresponds to A, the second to B, and so on. Only upper case letters will be used. The encoded message may contain spaces, and they should be preserved in the output string.

Output

Your task is to generate one line of output for each data set. Each line should start with a decimal integer representing the data set number (start counting at one), followed by a space, and then the decoded message.

Sample Input

```
2
BDM AHE
FAQCIVBRHGDZMNKLEXYJSPWOUT
A
ZIVXHCKLPSOWDUABJMQRYNegTF
```

Sample Output

```
1 ACM FRI
2 Z
```