21 Permutation Ciphering
9 points

Introduction

Permutation cyphering is an example of symmetric cryptography, a cryptographic approach where both the sender and receiver collaborate using a common encryption key. Such key is an integer of n digits ($n \leq 9$) where each digit must be between 1 and n and appear only once.

For instance, let's consider the 5-digit key '25413' to encrypt the Mandalorian message 'This is the way!!'. Since the key size is 5, the message is divided into four segments, each with 5 characters. In the case where the last segment's size is smaller than the key size, padding characters (represented by '*') are added.

1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
T	h	i	s		i	s		t	h	e		w	a	y	!	!	*	*	*
h		s	T	i	s	h	t	i			y	a	e	w	!	*	*	!	*

During the encryption process, the characters are arranged according to the key's digits corresponding to their own segment. To clarify, let's look at an example: the second character from the original message becomes the first character in the encrypted segment, the fifth character takes the second position, and so on. This pattern is applied to each segment in the process of rearranging characters.

Can you write a simple program that, given a certain key, is able to encrypt a message following the permutation cyphering?

Input

The input is composed by two lines where the first line just contains the ciphering key and the second line has the message to encrypt.

Output

The output is single line with the crypted message.

Example

Input

```
321
The force is with us!!
```

Output

```
ehTof ecrsi iw  ht!su**!
```