14 La casa de papel
6 points

Introduction

The main safe-deposit of the Royal Mint is extremely secured against robbery. The famous group led by the Professor that wears Salvador Dalí masks has attempted several money heists.

To avoid these kinds of assaults, the main door allowing access to new banknotes is protected by a list of keywords that must be entered in proper order. To test the current level of security, you receive the sequence of keywords used but knowing that the words were shifted a certain number of positions. Can you write a program that prints out the list of keywords in the correct order to open the door?

Input

Several lines, each with a single keyword
Followed by a positive number referring to the shift to be applied. Such number is lesser than the number of keywords received.

A single character '#' marks the end of the input lines

Output

The list of the keywords properly shifted.

Example

Input

```
Berlin
Madrid
Paris
Rome
London
Tokyo
2
#
```

Output

```
Paris
Rome
London
Tokyo
Berlin
Madrid
```