15 Lost Letters Staircase
7 points

Introduction

Have you ever wondered what happens to letters when they are not used in a text? Such letters become lost letters. Subsequently, they disappear, as they are no longer useful to a specific text, and they cascade down the exit staircase. The lost letters staircase is constructed from these lost letters, arranged in alphabetical order, one after the other. Each step consists of a letter followed by an underscore (_) character, except for last step, which comprises just the very last letter. To add a touch of humor to their disappearance, the letters are set alternatively in uppercase and lowercase, always starting with a capital letter.

Would you code a program to build up the lost letters staircase for a given text?

Input

The input will be formed by several lines of text composed exclusively by English alphabet letters, spaces and character # which marks the end of the text.

Output

The lost letters staircase formed by letters not used in the text alphabetically ordered. Just one letter per step followed by an underscore (_) character, except for last step. If there are no lost letters in the text just print out the message "There are no letters lost!".

Example 1

Input

```
It is a period of civil war Rebel spaceships
striking from a hidden base have won their
first victory against the evil Galactic
Empire#
```

Output

```
J_
   q_
     U_
       x_
         Z
```

Example 2

Input

```
Sphinx of lack quartz judge my vow#
```

Output

```
B
```

Example 3

Input

```
The quick brown fox jumps
over the lazy dog#
```

Output

```
There are no letters lost!
```