

Problem A

Compression

Input File: *testdata.in*

Time Limit: 2 seconds

Problem Description

A simple scheme for creating a compressed version of a text file can be used for files which contain no digits $0, 1, 2, \dots, 9$. The compression scheme requires making a list of the words in the uncompressed file. When a non-alphabetic character, such as punctuation marks, is encountered in the uncompressed file, it is copied directly into the compressed file. When a word is encountered in the uncompressed file, it is copied directly into the compressed file only if it is the first occurrence of the word. In that case, the word is also put in the front of the list. If it is not the first occurrence, the word is not copied to the compressed file. Instead, its position in the list is copied into the compressed file and the word is moved to the front of the list. The numbering of list positions begins at 1 at the front.

For the purposes of this problem, a word is defined to be a maximal sequence of upper- and lower-case letters, i. e. **A-Z** and **a-z**. Words are case-sensitive, i. e., the word “abc” is not the same as the word “Abc”. For example,

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x-ray          contains 2 words: x, ray
Mary's         contains 2 words: Mary, s
It's a winner  contains 4 words: It, s, a, winner
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Your task is to write a program that takes a uncompressed file as input and generates a compressed file as output.

Input Format

The input file is the uncompressed file. The end of the input file is signified by the number 0 on a line by itself. The terminating 0 merely indicates the end of the input and should not be part of the output produced by your program. No word contains more than 50 characters. There is no upper limit on the number of different words in the input file.

Output Format

Output a compressed file corresponding to the uncompressed file using the above compression scheme.

Sample Input

During the journey John asked his teacher for permission to go off by himself so that he could buy something he really needed. By all means the teacher Steve let him go, for he wanted to sit down and relax his aching feet.

Twenty minutes passed easily, but there was still no sign of John. So the teacher started to look for him. He asked a passer-by Jane there whether she saw a little boy in a blue suit or not, and she just shook her head. As the teacher was feeling helpless and becoming worried, he saw John coming toward him, wearing a toy suit and holding a space gun in his hands.

John told his teacher later that his brother who was a soldier and loved our country best influenced what he had done.

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Sample Output

During the journey John asked his teacher for permission to go off by himself so that he could buy something 4 really needed. By all means 24 20 Steve let him 20, 23 13 wanted 23 sit down and relax 29 aching feet.

Twenty minutes passed easily, but there was still no sign of 44. So 30 30 started 24 look 28 30. He 48 a passer-48 Jane 21 whether she saw 8 little boy in 4 blue suit or not, 41 11 just shook her head. As 30 30 37 feeling helpless 12 becoming worried, 54 24 38 coming toward 35, wearing 26 toy 26 13 holding 5 space gun 31 57 hands.

15 told 4 24 later 76 4 brother who 28 14 soldier 17 loved our country best influenced what 31 had done.