

10th South African Regional ACM Collegiate Programming Contest

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11 October 2008

Problem C - Blue Balloon Fragments

Problem Description

You are part of Q's team, and you are developing a spy pen that can be used to scan documents while no one is looking. Owing to physical constraints, the pen is not able to capture very large images with its camera, thus it was designed to scan narrow strips of text, which will be assembled in the correct order afterwards.

One of your colleagues has already developed the optical character recognition (OCR) software, so your task has been simplified to the point of just figuring out how to string the fragments of text together.

Unfortunately, the field operatives who will be using the pens are not known for their steady hands (too many Martinis, possibly), so it is possible that some of the text fragments appear twice, or that one of the fragments is completely subsumed by another fragment. Your program must be able to handle these cases correctly.

Input

Your input will consist of a number of records, with each record ending with the special string "*****". Each record will contain a number of lines, where each line represents a single fragment. The final record of your input will be terminated by the special string "+++++" instead of the usual "*****".

Output

Your output must be the reconstructed string of text, one for each record in the input. Each string of your output must appear on a new line.

Your reconstruction must have maximal length (given the input fragments), subject to the constraint that each fragment may only be used once.

Sample Input

```
the quick brown fox
brown fox jumped over the
over the lazy dog
*****
brown fox jumped over the
the quick brown fox
over the lazy dog
the quick brown fox
quick brown
lazy dog
+++++
```

Sample Output

```
the quick brown fox jumped over the lazy dog
the quick brown fox jumped over the lazy dog
```

Time Limit

5 seconds