

Problem 9 – Uppercase Words

Write a program to **reverse the letters of all uppercase words in a text**. In case an uppercase word stays **unchanged** after reversing its letters, then **double each of its letters**. A word is a sequence of Latin letters separated by **non-letter characters** (e.g. punctuation characters or digits). For example, the text "*PHP5 is the latest PHP currently, YES*" consists of the following words: *PHP*, *is*, *the*, *latest*, *PHP*, *currently*, *YES*.

Input

The input will be read from the console. It will consist of a variable number of lines, ending with the command "END".

Output

The output should hold the **result text**. Ensure you escape correctly the HTML special characters in the output with the `SecurityElement.Escape()` method.

Constraints

- The text will be in **ASCII encoding** (texts in Cyrillic, Arabic, Chinese, etc. are not supported).
- Allowed working time: 0.2 seconds. Allowed memory: 16 MB.

Examples

Input
Companies like HP, ORACLE and IBM target their platforms for cloud-based environment. IList<T> implements IEnumerable<T>. GoPHP is a PHP library. END
Output
Companies like PH, ELCARO and MBI target their platforms for cloud-based environment. IList<T> implements IEnumerable<T>. GoPHP is a PPHPP library.

Input
IBM announced it delivered the first shipment of its Enterprise Cloud system to a U.K.-based managed service provider. PHP5 is the latest PHP currently, YES END
Output
MBI announced it delivered the first shipment of its Enterprise Cloud system to a UU.KK.-based managed service provider. PPHPP5 is the latest PPHPP currently, SEY