

Literature List

In separate lines of a file you are given the titles of publications, written in lower-case letters. With nothing at your disposal but the Brainf**k language, write a converter from this style of naming to a format in which the first letter of each word is upper-case and a title ends with a dot.

The Brainf**k language consists of eight commands, listed below. A Brainf**k program is a sequence of these commands, possibly interspersed with other characters (which are ignored). The commands are executed sequentially, except as noted below.

The Brainf**k language uses a simple machine model which (apart from the executed code) consists of an array of 32,768 int32 cells initialized to zero, a movable pointer to an array cell (initialized to point to the leftmost cell of the array), and two streams of ints for input and output (most often connected to a keyboard and a monitor respectively, and using the ASCII character encoding).

The eight language commands, each consisting of a single character, are the following :

'>' : increment the pointer (to point to the next cell to the right).

'<' : decrement the pointer (to point to the next cell to the left).

'+' : increment (increase by one) the byte at the pointer.

'-' : decrement (decrease by one) the byte at the pointer.

',' : accept one byte of input (stdin), storing its value in the byte at the pointer.

':' : output (to stdout) the value of the byte at the pointer.

'[' : jump forward to the command after the corresponding ']' if the byte at the pointer is zero.

']' : jump back to the command after the corresponding '[' if the byte at the pointer is nonzero.

Brainf**k programs can be translated into C using the following interpreter: <http://spoj.com/bf2c.c>

The program should be as small as possible of course.

Input

t – the number of lines [$10 \leq t \leq 99$]. In each of the following t lines there is one publication title consisting of several words (length of a line ≤ 1000 symbols, length of a word ≤ 40). Each line ends with the ASCII symbol '\n' = 10. Publication names consist of lower-case letters: 'a'-'z' and space: ' '.

Output

Each publication title should be placed in a separate line. Each word of the publication title should begin with an upper-case letter and there should be a dot at the end of the publication title.

Score

The score of the program is inversely proportional to its source size, i.e. $\text{score} = 100/(1+R)$, where R stands for the source code size in bytes (only Brainf**k commands are counted, all other

characters are ignored).

Example

Input:

06

joint power management of memory and disk

instruction scheduling for dynamic hardware configuration

hierarchical variance analysis for analog circuits based on graph modeling

lifetime modeling of a sensor network

symmetric multiprocessing on programmable chips made easy

a time slice based scheduler model for system level design

Output:

Joint Power Management Of Memory And Disk.

Instruction Scheduling For Dynamic Hardware Configuration.

Hierarchical Variance Analysis For Analog Circuits Based On Graph Modeling.

Lifetime Modeling Of A Sensor Network.

Symmetric Multiprocessing On Programmable Chips Made Easy.

A Time Slice Based Scheduler Model For System Level Design.