## Problem 4 – Decrypt the Messages

You are working for a company which is very concerned about its information and communication. For this reason, they have invented an internal approach to communication between different departments – they are communicating to each other via **messages, which are reversed (written backwards) and then encrypted**. In order to be read and understood, each message has to be decrypted. Your task is to write a program, which **receives all encrypted messages** in a specific communication, **decrypts them** and **prints all decrypted messages at the console as well as the total number of messages** that have been received.

**At the beginning** of a communication, you will receive either the keyword “**START**” (upper case) or “**start**” (lower case), which indicates that you will **start receiving reversed and encrypted messages**. At the end of the communication, you will receive either the keyword “**END**” (upper case) or “**end**” (lower case), which indicates that the communication is over and you need to **show the decrypted messages’ content and total count**. Any **non-empty string** between the “start” and “end” keywords is considered a message. If **no messages have been received** between the “**start**” and the “**end**” keywords, you should print on the console: **“No message received.”**

All messages are case-sensitive and consist of **letters**, **digits,** as well as **some special characters** – ‘**+**’, ‘**%**’, ‘**&**’, ‘**#**’ and ‘**$**’. Letters **from A to M** are **converted** to letters **from N to Z** (A 🡪 N; B 🡪 O; … M 🡪 Z) and letters **from N to Z** are **converted** to letters **from A to M** (N 🡪 A; O 🡪 B; … Z 🡪 M). The **converted** letter should keep the **case** of the **original** letter. The **special characters** are converted in the following way: ‘**+**’ is converted to a **single space** (**‘ ’**), ‘**%**’ is converted to a **comma** (**‘,’**), ‘**&**’ is converted to a **dot** (**‘.’**), ‘**#**’ is converted to a **question mark** (**‘?’**) and ‘**$**’ is converted to an **exclamation mark** (**‘!’**). The **digits** (0-9) are **not converted** and stay the same.

For example, you receive the following message – “**$1+rtnffrz+greprF**” and you start decrypting it. Convert the 1st character ‘**$**’ to ‘**!**’, then the 2nd character – ‘**1**’ stays the same, then covert the 3rd character – ‘**+**’ to single space ‘ ’, ‘**r**’ 🡪 ’**e**’, ‘**t**’ 🡪 ‘**g**’, ‘**n**’ 🡪 ‘**a**’, ‘**f**’ 🡪 ‘**s**’, ‘**f**’ 🡪 ‘**s**’, ‘**r**’ 🡪 ’**e**’ , ‘**z**’ 🡪 ’**m**’, ‘**+**’ 🡪 ‘ ’, ‘**g**’ 🡪 ‘**t**’, ‘**r**’ 🡪 ’**e**’ , ‘**e**’ 🡪 ’**r**’ , ‘**p**’ 🡪 ’**c**’ , ‘**r**’ 🡪 ’**e**’ , ‘**F**’ 🡪 ’**S**’. After decrypting all letters, the message is: “**!1 egassem terceS”** and when you reverse it, you get the original message: “**Secret message 1!**”

### Input

The input data should be read from the console. The input will contain a random number of lines. The line that holds the **keyword “START” or “start”** will always be before the line that holds the **keyword “END” or “end”**. The input data will always be valid and in the format described. There is no need to check it explicitly.

### Output

The output data should be printed on the console.

* On the **first line** print the total number of messages that have been received in format: “**Total number of messages: N**” – where N is the number of received and decrypted messages.
* On the next N lines print the decrypted messages.
* If **no messages have been received** between the “**start**” and the “**end**” keywords, you should **print on the console** only one line holding: “**No message received.**”

### Constraints

* The **number of messages** between the “**start**” and the “**end**” keywords will be between 0 and 100.
* The **length of each message** will be between 1 and 1000 symbols.
* Each encrypted message will contain only Latin letters, digits and the special symbols described above.
* Allowed working time: 0.1 seconds. Allowed memory: 16 MB.

## Examples

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| **Input** | **Comments** | **Output** |
| START  $$$byyrU  END | We start conversion from the 1st character: $ 🡪 !, $ 🡪 !, $ 🡪 !, b 🡪 o, y 🡪 l, y 🡪 l, r 🡪 e, U 🡪 H and reverse the newly received string “!!!olleH” to the original message “Hello!!!” | Total number of messages: 1  Hello!!! |

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| **Input** | **Comments** | **Output** |
| start  tsrqpon  1rtnFFrz  end | We start conversion from the 1st character: t 🡪 g, s 🡪 f, r 🡪 e, q 🡪 d, p 🡪 c, o 🡪 b, n 🡪 a and reverse the newly received string “gfedcba” to the original message “abcdefg”.  Then we do the same for the second message. | Total number of messages: 2  abcdefg  meSSage1 |

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| **Input** | **Comments** | **Output** |
| start  END | There is no message received. | No message received. |

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| **Input** |
| Normal communication message.  START  $rtnffrz+tavjbyybs+rug+gclepar+bg+leg+%rfnryC  end |
| **Output** |
| Total number of messages: 1  Please, try to encrypt the following message! |