# Problem 3 - Spy Master

You are the spy master of a guild of spies, since you’re all carefully watched, your spies communicate with you by leaving **encoded messages**. You will receive a **special key** and **lines of text** which you must comb in order to find the **encoded messages**.

The special key will consist only of **one or more** **English letters**.

* The special key must be preceded by either a **space** or the **start of the string** in order to be considered valid in the string.
* The special key may appear in **any casing** (its letters could be a random mix of lower and uppercase) in the **lines of text**.

Valid encoded messages must meet these requirements:

* An **encoded message** must immediately follow the **special key**, being separated from it only by **one or more spaces**.
* An encoded message must be **at least** **8 symbols long** and consist only of the symbols **!**, **%**, **$**, **#** or **Capital English letters**.
* The encoded message must be followed by a **space**, a **dot (.)**, a **comma (,)** or the **end of the string**.

After finding the correct **encoded messages**, you must **decode** and **replace them in the original text**. The decoding should be as follows:

* The symbol **!** becomes the number **1**
* The symbol **%** becomes the number **2**
* The symbol **#** becomes the number **3**
* The symbol **$** should become the number **4**
* **Capital English letters** should become their **lower case counterparts**

### Constraints

* A pair of a **special key** and **encoded message** will never be split between multiple lines.
* The preceding space before a **special key** will never overlap with a trailing space after an **encoded message**.
* There will never be an **encoded message** equal to the **special key**.

### Input

The **input** comes as an array of strings - the first element is the **special key**, each element after it is a **line of text**.

### Output

The **output** should be printed on the console - consisting of the entire text with the **correct** **encoded messages** replaced with their **decoded** versions, each **line of text** on a new line.

### Examples

|  |
| --- |
| **Input** |
| specialKey  In this text the specialKey HELLOWORLD! is correct, but  the following specialKey $HelloWorl#d and spEcIaLKEy HOLLOWORLD1 are not, while  SpeCIaLkeY SOM%%ETH$IN and SPECIALKEY ##$$##$$ are! |
| **Output** |
| In this text the specialKey helloworld1 is correct, but  the following specialKey $HelloWorl#d and spEcIaLKEy HOLLOWORLD1 are not, while  SpeCIaLkeY som22eth4in and SPECIALKEY 33443344 are! |
| Input |
| enCode  Some messages are just not encoded what can you do?  RE - ENCODE THEMNOW! - he said.  Damn encode, ITSALLHETHINKSABOUT, eNcoDe BULL$#!%. |
| **Output** |
| Some messages are just not encoded what can you do?  RE - ENCODE themnow1 - he said.  Damn encode, ITSALLHETHINKSABOUT, eNcoDe bull4312. |