Problem.1 Arriving in Kathmandu

Your friend is a mountaineer and he needs your help. Your first task is to find him, so you went to Kathmandu and found some notes at his quarters.

Write a program that **decrypts messages**, which contain information about coordinates. You are looking for **names of peaks** in the Himalayas and their geohash coordinates. Keep reading lines until you receive the "**Last note**" message.

Here is your **cipher**:

- **Name of the peak**
  - It is consisted of **letters (upper and lower), numbers** and some of the following characters between its letters – "**!**" "**@**" "**#**" "**$**" "**?**". Example for valid names: "!@K?#2!#" (K2).
- **The length of the geohashcode**
  - Begins **after** the "**=**" (equals) sign and is consisted only of numbers.
- **The geohash code**
  - Begins after these symbols – "**<<**", may contain anything and the message always ends with it.

Examples for valid input:

`"!Ma$$ka!lu!@=9<<ghtucjdhs"` – all the components are there – **name of the peek**, **length** of the geohashcode and a **geohashcode**.

"!@Eve?#rest!#=7<<vbnfhfg"

Examples of invalid input:

`"anna@fg<<jhsd@bx!=4"` – **their order is wrong**. The name should be first, the length after and the code last.

`"#n...s!n-<<tyuhgf4"` – **the length is missing** and the **name contains dots.**

"Nan$ga!Parbat=8<<gh2tn – **the length** of the geohash code doesn't match the given number.

The **geohash code** you are looking for is with **length exactly** as much as the **given length** in the message and the information must be in the **exact given order**, otherwise it is considered **invalid**. If you find it, print the following message:

`"Coordinates found! {nameOfMountain} -> {geohashcode}"`

Otherwise print: "**Nothing found!**" after every **invalid** message.

Input / Constraints

- You will be receiving strings until you get the "**Last note**" message.

Output

- If you find the right coordinates, print: "**`Coordinates found! {nameOfMountain} -> {geohashcode}`**".
- If the message is invalid, print: "**`Nothing found!`**".

Examples

Input	Output

`!@Ma?na?sl!u@=7<<tv58ycb4845`
`E!ve?rest=.6<<tuvz26`
`!K@2.,##$=4<<tvnd`
`!Shiha@pan@gma##9<<tgfgegu67`
`!###Anna@pur@na##=16<<tv5dekdz8x11ddkc`
`Last note`
	Nothing found!
	Nothing found!
	Nothing found!
	Nothing found!
	Coordinates found! Annapurna -> tv5dekdz8x11ddkc

Comments	
The first line is invalid, because the length – **7**, **doesn't match** the **length** of the **code**. The second line is invalid, because the **length** should be consisted **only** of **numbers**. The third line is invalid, because the name contains **symbols** that are **not** allowed – **".", ",".** The forth line is invalid, because the **"="** sign before the length is **missing**. The fifth line is valid, so we print the appropriate message.	

`Ka?!#nch@@en@ju##nga@=3<<thfbghvn`
`=9Cho?@#Oyu<<thvb7ydht`
`Nan??ga#Par!ba!t?=16<<twm03q2rx5hpmyr6`
`Dhau??la#gi@ri?!#=3<<bvnfhrtiuy`
`Last note`
	`Nothing found!`
	`Nothing found!`
	`Coordinates found! NangaParbat ->`
	`twm03q2rx5hpmyr6`
	`Nothing found!`