

Username

Pesho has decided to finally make an account on social media. His problem is that too many people are called Pesho too, so he needs a program that will help him generate an original username and he is asking you for help.

First, you are going to **receive the username** that he wants to use in the first place, then commands.

You will be receiving **commands** until the "**Sign up**" command. There are **six** possible commands:

- "**Case {lower/upper}**"
 - **Replace** all letters with lower case or with upper case, then **print** the result.
- "**Reverse {startIndex} {endIndex}**"
 - **Reverse** the substring from the **startIndex** until the **endIndex**, then **print** it. Do **NOT** change it in the username.
Note: Check if the indexes are valid. If they aren't - skip the command. The indexes are inclusive.
- "**Cut {substring}**"
 - **Check** if the string **contains** the **substring** and if yes, **cut** it out and **print** the result.
 - If the string doesn't contain the given substring, **print**:
"The word {string} doesn't contain {substring}."
- "**Replace {char}**"
 - **Replace** all occurrences of **char** with **astericks (*)** and **print** the result.
- "**Check {char}**"
 - In order for a username to be **valid**, it must contain the given **char**.
 - If the password is **valid**, print "**Valid**". If it is **not valid**, print: "**Your username must contain {char}.**"

Input

- On the **1st line** you are going to receive the **string**.
- On the next **lines**, until the "**Sign up**" command is received, you will be receiving commands.
- All commands are case **sensitive**.

Output

- **Print the output** of every **command** in the **format described above**.

Examples

| Input | Output |
|---|--|
| Pesho Case lower Cut ES Check @ Sign up | pesho The word pesho doesn't contain ES. Your username must contain @. |
| Input | Output |
| ThisIsMyString Reverse 1 4 Replace i Cut My Sign up | Isih Th*sIsMyStr*ng Th*sIsStr*ng |