

Problem 3 - School Library



Your task is to do an online book library.

On the first line, you will receive a **string** representing a **shelf with books** in the library. Every book is separated with "&".

On the next lines until the **"Done"** command, you will be receiving the commands separated with " | ":

- **"Add Book | {book name}"**:
 - Add the book in the **first place** on the shelf.
 - If the book is **already present** on the shelf, **ignore the command**.
- **"Take Book | {book name}"**:
 - Remove the book with the given name only **if the book is on the shelf**.
 - Otherwise, **ignore this command**.
- **"Swap Books | {book1} | {book2}"**:
 - If both books **are on the shelf**, swap their places.
 - If at least one is **missing**, **ignore the command**.
- **"Insert Book | {book name}"**:
 - Add the given book at the **end of the shelf**.
 - If the book is **already present** on the shelf, **ignore the command**.
- **"Check Book | {index}"**:
 - Print the **name of the book**, which is **at the given index**.
 - If the index is **invalid**, **ignore the command**.

Input

- On the **1st line**, you will receive a **string** representing a **shelf with books** in the library, separated by "&".
- On the **following lines**, until you receive **"Done"**, you will be receiving **commands** in the **format described** above.

Output

- Print the **collection** of books joined by ", ":
"{firstBook}, {secondBook}, ... {lastBook}"

Constraints

- You won't receive duplicate book names in the initial list of books.

Examples

Input	Output
Don Quixote&The Great Gatsby&Moby Dick Add Book Ulysses Take Book Don Quixote Insert Book Alice's Adventures in Wonderland Done	Ulysses, The Great Gatsby, Moby Dick, Alice's Adventures in Wonderland

Anna Karenina&Heart of Darkness&Catch-22&The Stranger Add Book Catch-22 Swap Books Anna Karenina Catch-22 Take Book David Copperfield Done	Catch-22, Heart of Darkness, Anna Karenina, The Stranger
War and Peace&Hamlet&Ulysses&Madame Bovary Check Book 2 Swap Books Don Quixote Ulysses Done	Ulysses War and Peace, Hamlet, Ulysses, Madame Bovary

JS Examples

The input will be provided as an array of strings.

Input	Output
<pre>(["Don Quixote&The Great Gatsby&Moby Dick", "Add Book Ulysses", "Take Book Don Quixote", "Insert Book Alice's Adventures in Wonderland", "Done"])</pre>	Ulysses, The Great Gatsby, Moby Dick, Alice's Adventures in Wonderland
<pre>(["Anna Karenina&Heart of Darkness&Catch-22&The Stranger", "Add Book Catch-22", "Swap Books Anna Karenina Catch-22", "Take Book David Copperfield", "Done"])</pre>	Catch-22, Heart of Darkness, Anna Karenina, The Stranger
<pre>(["War and Peace&Hamlet&Ulysses&Madame Bovary", "Check Book 2", "Swap Books Don Quixote Ulysses", "Done"])</pre>	Ulysses War and Peace, Hamlet, Ulysses, Madame Bovary