

The Final Quest

After walking through fire, the group has reached the final step of the quest. They have received a list with instructions that will help them resolve the last riddle that will lead them to the truth about the Hunting Games.

Create a program that **follows** given **instructions**. You will receive a **collection of words on a single line**, split by a **single space**. They are not what they are supposed to be, so you have to **follow the instructions** in order to find the **real message**. You will be receiving commands. Here are the possible ones:

- **Delete {index}** – removes the word after the given index if it is valid.
- **Swap {word1} {word2}** – find the given words in the collections if they exist and **swap** their places.
- **Put {word} {index}** – add a word at the previous place {index} before the given one, if it exists.
- **Sort** – you must **sort** the words in descending order.
- **Replace {word1} {word2}** – find the **second word {word2}** in the collection (if it exists) and **replace** it with the **first word – {word1}**.

Follow them until you receive the **"Stop"** command. After you have successfully **followed the instructions**, you must print the words on a single line, split by a space.

Input / Constraints

- **On the 1st line**, you are going to receive the collection of words, split by a single space – **strings**
- **On the next lines**, you are going to receive **commands**, until you receive the **"Stop"** command

Output

- Print the words you have gathered on a single line, split by a single space

Examples

Input	Output
Congratulations! You last also through the have challenge! Swap have last Replace made have Delete 2 Put it 4 Stop	Congratulations! You made it through the last challenge!
Comments	

First, we receive the command **“Swap”**, so we change the positions of the words **have** and **last**. The text at this point should look like this:

Congratulations! You have also through the last challenge!

After that, we receive **“Replace”** and we have to replace the **second word** – “have” **with the first** – “made”. Afterwards we have to **delete** the **word**, which is **after the second index**. And finally, we have to put a word on the **previous position before 4**.

Input	Output
This the my quest! final Put is 2 Swap final quest! Delete 2 Stop	This is the final quest!