

## Problem 3 - The Pianist

Problem for exam preparation for the [Programming Fundamentals Course @SoftUni](#).  
Submit your solutions in the SoftUni judge system at <https://judge.softuni.org/Contests/Practice/Index/2525#2>.

*You are a pianist, and you like to keep a list of your favorite piano pieces. Create a program to help you organize it and add, change, remove pieces from it!*

On the first line of the standard input, you will receive an integer **n** – the **number of pieces** you will initially have. On the next **n** lines, the **pieces themselves** will follow with their **composer** and **key**, separated by " | " in the following format: "{piece}|{composer}|{key}".

Then, you will be receiving different **commands**, each on a new line, separated by " | ", until the **"Stop"** command is given:

- "Add|{piece}|{composer}|{key}":
  - You need to **add the given piece** with the information about it to the other pieces and print:  
"{piece} by {composer} in {key} added to the collection!"
  - If the piece is **already in the collection**, print:  
"{piece} is already in the collection!"
- "Remove|{piece}":
  - If the piece is in the collection, **remove it** and print:  
"Successfully removed {piece}!"
  - Otherwise, print:  
"Invalid operation! {piece} does not exist in the collection."
- "ChangeKey|{piece}|{new key}":
  - If the piece is in the collection, **change its key with the given one** and print:  
"Changed the key of {piece} to {new key}!"
  - Otherwise, print:  
"Invalid operation! {piece} does not exist in the collection."

Upon receiving the **"Stop"** command, you need to print all pieces in your collection in the following format:  
"{Piece} -> Composer: {composer}, Key: {key}"

### Input/Constraints

- You will receive a **single integer** at first – the **initial number of pieces in the collection**
- For each piece, you will receive a single line of text with information about it.
- Then you will receive multiple commands in the way described above until the command **"Stop"**.

### Output

- All the output messages with the appropriate formats are described in the problem description.

### Examples

Input	Output
3 Fur Elise Beethoven A Minor	Sonata No.2 by Chopin in B Minor added to the collection!

Moonlight Sonata Beethoven C# Minor Clair de Lune Debussy C# Minor Add Sonata No.2 Chopin B Minor Add Hungarian Rhapsody No.2 Liszt C# Minor Add Fur Elise Beethoven C# Minor Remove Clair de Lune ChangeKey Moonlight Sonata C# Major Stop	Hungarian Rhapsody No.2 by Liszt in C# Minor added to the collection! Fur Elise is already in the collection! Successfully removed Clair de Lune! Changed the key of Moonlight Sonata to C# Major! Fur Elise -> Composer: Beethoven, Key: A Minor Moonlight Sonata -> Composer: Beethoven, Key: C# Major Sonata No.2 -> Composer: Chopin, Key: B Minor Hungarian Rhapsody No.2 -> Composer: Liszt, Key: C# Minor
Comments	
<p>After we receive the initial pieces with their info, we start receiving commands. The first two commands are to add a piece to the collection, and since the pieces are not already added, we manage to add them. The third add command, however, <b>attempts to add a piece, which is already in the collection</b>, so we print a special message and don't add the piece. After that, we receive the remove command, and since the piece is in the collection, we remove it successfully.</p> <p>Finally, the last command says to change the key of a piece. Since the key is present in the collection, we modify its key.</p> <p>We receive the Stop command, print the information about the pieces, and the program ends.</p>	
Input	Output
4 Eine kleine Nachtmusik Mozart G Major La Campanella Liszt G# Minor The Marriage of Figaro Mozart G Major Hungarian Dance No.5 Brahms G Minor Add Spring Vivaldi E Major Remove The Marriage of Figaro Remove Turkish March ChangeKey Spring C Major Add Nocturne Chopin C# Minor Stop	Spring by Vivaldi in E Major added to the collection! Successfully removed The Marriage of Figaro! Invalid operation! Turkish March does not exist in the collection. Changed the key of Spring to C Major! Nocturne by Chopin in C# Minor added to the collection! Eine kleine Nachtmusik -> Composer: Mozart, Key: G Major

	La Campanella -> Composer: Liszt, Key: G# Minor Hungarian Dance No.5 -> Composer: Brahms, Key: G Minor Spring -> Composer: Vivaldi, Key: C Major Nocturne -> Composer: Chopin, Key: C# Minor
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## JS Examples

Input	Output
<pre>[   '3',   'Fur Elise Beethoven A Minor',   'Moonlight Sonata Beethoven C# Minor',   'Clair de Lune Debussy C# Minor',   'Add Sonata No.2 Chopin B Minor',   'Add Hungarian Rhapsody No.2 Liszt C# Minor',   'Add Fur Elise Beethoven C# Minor',   'Remove Clair de Lune',   'ChangeKey Moonlight Sonata C# Major',   'Stop' ]</pre>	<p>Sonata No.2 by Chopin in B Minor added to the collection!</p> <p>Hungarian Rhapsody No.2 by Liszt in C# Minor added to the collection!</p> <p>Fur Elise is already in the collection!</p> <p>Successfully removed Clair de Lune!</p> <p>Changed the key of Moonlight Sonata to C# Major!</p> <p>Fur Elise -&gt; Composer: Beethoven, Key: A Minor</p> <p>Moonlight Sonata -&gt; Composer: Beethoven, Key: C# Major</p> <p>Sonata No.2 -&gt; Composer: Chopin, Key: B Minor</p> <p>Hungarian Rhapsody No.2 -&gt; Composer: Liszt, Key: C# Minor</p>
Comments	
<p>After we receive the initial pieces with their info, we start receiving commands. The first two commands are to add a piece to the collection, and since the pieces are not already added, we manage to add them. The third add command, however, <b>attempts to add a piece, which is already in the collection</b>, so we print a special message and don't add the piece. After that, we receive the remove command, and since the piece is in the collection, we remove it successfully.</p> <p>Finally, the last command says to change the key of a piece. Since the key is present in the collection, we modify its key.</p>	

We receive the Stop command, print the information about the pieces, and the program ends.

Input	Output
[ '4', 'Eine kleine Nachtmusik Mozart G Major', 'La Campanella Liszt G# Minor', 'The Marriage of Figaro Mozart G Major', 'Hungarian Dance No.5 Brahms G Minor', 'Add Spring Vivaldi E Major', 'Remove The Marriage of Figaro', 'Remove Turkish March', 'ChangeKey Spring C Major', 'Add Nocturne Chopin C# Minor', 'Stop' ]	Spring by Vivaldi in E Major added to the collection! Successfully removed The Marriage of Figaro! Invalid operation! Turkish March does not exist in the collection. Changed the key of Spring to C Major! Nocturne by Chopin in C# Minor added to the collection! Eine kleine Nachtmusik -> Composer: Mozart, Key: G Major La Campanella -> Composer: Liszt, Key: G# Minor Hungarian Dance No.5 -> Composer: Brahms, Key: G Minor Spring -> Composer: Vivaldi, Key: C Major Nocturne -> Composer: Chopin, Key: C# Minor