**Problem 3. Easter Shopping**

*You have decided to go on an Easter shopping spree to take advantage of the promotions.*

Create a program that helps you keep track of the **shops** that you want to visit. You will **receive** the **list** of **shops** you have planned on checking out on a **single line,** **separated** by a **single** **space** in the following format:

**"{shop1} {shop2} {shop3}… {shopn}"**

Then you will receive a number – **n** - a **count** of **commands** you need to execute over your list. There are **four** **possible** **commands**:

* **"Include {shop}":**
* **Add** the shop **at the end of your list.**
* **"Visit {first/last} {numberOfShops}"**
* **Remove** either the "**first"** or the "**last"** **number of shops from your list**, **depending** on the **input**. If you have **less** **shops** on your list than the **given** **number**, **skip** this command.
* **"Prefer {shopIndex1} {shopIndex2}":**
* **If** **both** of the **shop indexes** **exist** in your list, take the shops that are on them and **change** **their places**.
* **"Place {shop} {shopIndex}"**
* **Insert** the **shop** **after** the given **index**, only **if** the **resulted index** **exists**.

In the end **print** the **manipulated list** in the following format:

**"Shops left:**

**{shop1} {shop2}… {shopn}"**

**Input / Constraints**

* On the **1st line**, you will receive the **starting list** with the **names of the shops** **separated** by a **single space**.
* On the **2nd line**, you will receive the number of commands - **n – an integer in range [1…100]**
* On the next **n** lines you will be receiving commands in the **format** **described** above.

**Output**

* Print the **list after** the **manipulations** in the **format** **described** above.

**Examples**

|  |  |
| --- | --- |
| **Input** | **Output** |
| Bershka CandyStore ThriftShop Armani Groceries ToyStore PeakStore  5  Include HM  Visit first 2  Visit last 1  Prefer 3 1  Place Library 2 | Shops left:  ThriftShop ToyStore Groceries Library Armani PeakStore |
| **Comments** | |
| First we receive the "**Include**" and the name of the store and we **add** the store to our **list**. The list should look like this: **Bershka CandyStore ThriftShop Armani Groceries ToyStore PeakStore HM**  After, we receive the "**Visit**" command and "**first**", which means we have to visit **the first 2 stores**, so we **remove** them from our list and the collection should look like this: **ThriftShop Armani Groceries ToyStore PeakStore HM**. After that, we receive the "**Visit**" command again, but this time we need to visit the "**last**" 1 store, so we **remove** it and the collection should look like this: **ThriftShop Armani Groceries ToyStore PeakStore**. After that we receive the "**Prefer**" command, which means we need to find the shop on the first given index – **3** and change it with the one that is on index – **1**, and the collection should look like this: **ThriftShop ToyStore Groceries Armani PeakStore**. At last, we receive the "**Place**" command and we need to **insert** the shop at the **next** index **after** **2**. And our final list looks like this:  **ThriftShop ToyStore Groceries Library Armani PeakStore** | |
|  | |
| Boutique Flowers CandyStore ThriftShop Versace Groceries ToyStore PeakStore  6  Visit first 9  Visit last 4  Prefer 3 8  Prefer 0 1  Place Store 7  Place ShoeAquarium 2 | Shops left:  Flowers Boutique CandyStore ShoeAquarium ThriftShop |