**Santa’s Gifts**

You will be given an **array of integers**, which represent the **house numbers** you should visit. The **commands** will lead you to them. If they lead you to **non-existing** places, **don’t move**.

* **Forward {numberOfSteps}**
* **Back {numberOfSteps}**
  + When you receive the “**Forward**” or “**Back**” command, you **move the given number of times** in this **direction** and **remove** the house in **this position** from your list. Also, when you receive the next command, you **continue from this position**.
* **Gift {index} {houseNumber}**
  + Enter a **new house number**, which the dwarves have left out on purpose, **at** **the** **given position** and move to its position.
* **Swap {indexOfFirst} {indexOfSecond}**
  + Santa wants to rearrange his path and **swap the order of two houses**. You will receive the **numbers of the houses**, that need to be switched and he doesn’t need to move to fulfill this command.

## Input

* On the first line you will receive the number of commands – **integer in the range [1-50]**
* On the second line you will receive the array of integers, that represent the houses, split by a single space – valid **integers in the range [1 – 500]**
* On the next n lines, you will receive the commands in the **following format**:
  + **Forward {steps}**
  + **Back {steps}**
  + **Gift {index} {value}**
  + **Swap {value1} {value2}**

## Output

* Print the **last position** and the **remaining houses** in the following format:

“Position {position}”

“{houseNumber}, {houseNumber}………, {houseNumber}”

## Constraints

* The house numbers will be valid integers in the range [1 - 1000]
* The number of commands will be a valid integer in the range [1 - 50]
* The commands will be given in the exact format as they are written above
* There will always be at least one valid command

## Examples

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comment** |
| 5  255 500 54 78 98 24 30 47 69 58  Forward 1  Swap 54 47  Gift 1 20  Back 1  Forward 3 | Position: 3  20, 47, 78, 24, 30, 54, 69, 58 | First, we receive the “Forward” command, the sleigh will start from the beginning – index 0. He has to move 1 step, so he will move to index 1 and delete the house number, which is stored there – 500. What is left of the list:  255 54 78 98 24 30 47 69 58  and Santa’s position is 1.  The next command is “Swap”. After it, the list looks like this:  255 47 78 98 24 30 54 69 58 and Santa’s position doesn’t change.  The “Gift” command has to insert at index 1 the house with number 20:  255 20 47 78 98 24 30 54 69 58 and move Santa to current index – 1.  The “Back” command has to move Santa back 1 step from his current position. He is at 1 position, so he has to move back to position 0, and remove the house number, which it stores:  20 47 78 98 24 30 54 69 58  The last “Forward” command will move him three steps forward from his current position, which is 0, so he goes to – 3 and removes the house:  20 47 78 24 30 54 69 58 |
| 6  50 40 25 63 78 54 66 77 24 87  Forward 4  Back 3  Forward 3  Gift 2 88  Swap 50 87  Forward 1 | Position: 3  87, 25, 88, 54, 77, 24, 50 |  |