Fast Food

This question is graded for 0.5%!

Statement

Fluffy has been roped in by fast food chain ZFC[1], to do sales analytics. They want Fluffy to determine which of their products are popular, across their multiple outlets around Singapore.

Often, multiple customers will order the same item consecutively, faster than the back-of-house can replenish. To avoid these situations, management wants to watch out for these kinds of consecutive **streaks** of ordering the same item.

There will be multiple types of operations from ZFC management:

1. A customer purchases a menu item, from a certain ZFC outlet. The name of the outlet, and the item name will be provided.
2. For a given **outlet**, ZFC management wants to know which menu item has had the longest consecutive streak so far. If there are any ties, return the most recent streak.

Input

The first line consists of a single integer `Q`, the number of operations.

Q lines follow, each describing a single operation in order.

1. `OutletName 1 ItemName`

   A customer bought the item `ItemName` from the outlet `OutletName`.

2. `OutletName 2`

   Management wants to know the item with the longest streak for the given outlet, and the length of the streak, given the purchases *so far*.

Outlet names and item names are nonempty alphanumeric strings (only contain characters from `a-zA-Z0-9`), and do not contain any spaces. They are at most 100 characters long.

Constraints

- $1 \leq Q \leq 10^6$

[1] Zermelo Fried Chicken.

Output

For each type 2 operation, print out the corresponding streak item name and length, for the given outlet, in the format `ItemName StreakLength`. If the outlet does not have any orders at all, reply `INVALID`.

Examples

Sample Input	Expected Output

`10`
`Yishun 1 Crispy`
`Yishun 2`
`Clementi 1 Fries`
`Yishun 2`
`Yishun 1 Singer`
`Yishun 1 Singer`
`Yishun 2`
`Clementi 1 Crispy`
`Clementi 2`
`Punggol 2`
	`Crispy 1`
	`Crispy 1`
	`Singer 2`
	`Crispy 1`
	`INVALID`

- In the first `Yishun 2` operation, the only item ordered is the Crispy, with streak length 1. Hence the response is `Crispy 1`.
- After ordering Fries at Clementi, the streak at Yishun remains as `Crispy 1`.
- In the third `Yishun 2`, the longest streak is now `Singer 2`, which was longer than the previous `Crispy 1`.
- In the second-last operation `Clementi 2`, the longest streaks are both length 1, so we choose the most recent one: `Crispy 1`.
- The final `Punggol 2` operation refers to an outlet with no orders, so we reply with `INVALID`.

Notes

1. A skeleton file has been given to help you. You should not create a new file or rename the file provided. You should develop your program using this skeleton file.
2. You are free to define your own helper methods and classes (or remove existing ones) if it is suitable but you must put all the new classes, if any, in the same skeleton file provided.

Skeleton File

You are given the skeleton file `FastFood.java`. You should see the following contents when you open the file:

```
/**
 * Name          :
 * Matric. No    :
*/

import java.util.*;

public class FastFood {
    private void run() {
    }

    public static void main(String args[]) {
        FastFood runner = new FastFood();
        runner.run();
    }
}
```