Queues of a supermarket (3)   P79292_en

Simulate the behavior of the queues of the supermarket of a military headquater: Initially, there are n queues $(1, 2, \ldots, n)$, each one with some customers. Afterwards, two events can happen:

- A costumer arrives to a queue: If the queue is between 1 and n, the customer goes to the end of that queue. Otherwise, the event is ignored.

- A customer leaves a queue: If the queue is between 1 and n, and that queue is not empty, the customer with the highest graduation leaves the queue (in case of a tie, the one that entered first leaves the queue). Otherwise, the event is ignored.

Input

Input starts with the number of queues n (a strictly positive natural number). Follow n lines, one per queue, each one with its customers (a word) and their graduations ("soldier", "sergeant", "captain", or "colonel"), in the order in which they arrived to que queue. Follow an empty line and the description of several events, one per line: the word "ENTERS" followed by the customer, the customer's graduation, and the queue; or the word "LEAVES" followed by the queue.

Output

First, print the name of the customers that leave the queues, in the order that they departed. Afterwards, print the final content of the n queues, using the order in which the customers would leave. Follow the format of the example.

Sample input

```
4
Cristina soldier Tomas captain
Francesc sergeant Damia soldier Domenec colonel

Teresa captain Toni sergeant Carles captain

LEAVES 1
LEAVES 1
ENTERS Amalia sergeant 4
ENTERS Pep soldier 4
LEAVES 2
LEAVES 1
ENTERS Leo captain 1
ENTERS Maria sergeant 4
LEAVES 4
LEAVES 4
LEAVES 4
ENTERS Carme soldier 4
LEAVES 2
LEAVES -1
LEAVES 2
```

Sample output

```
DEPARTS
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Tomas
Cristina
Domenec
Teresa
Carles
Toni
Francesc
Damia

FINAL CONTENTS
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queue 1: Leo
queue 2:
queue 3:
queue 4: Amalia Maria Pep Carme
```

Problem information