12. Valet Parking

Program Name: Valet.java   Input File: valet.dat

Drew is working his way through college as a parking lot valet. The "lot" he uses to park the cars is really a long, narrow alleyway. Therefore, to retrieve a car in the middle, he must first move the cars blocking it. Since he can get a car from either end of the alleyway, he always chooses the end that has the fewest cars that he will have to move to get to the car he needs. If there is an odd number of cars parked in the alleyway and he needs the middle car, he always chooses to get the car from the front of the alleyway. The process for his getting a car is to determine if he will get the car from the front or rear of the alleyway, then move the cars that are blocking the needed car, move the needed car, and then return the moved cars to the alleyway in the *reverse* order.

For example, if the cars ABCDEFG are in the alleyway with A being in front and G being in the rear, and he needs to retrieve car E, he must first remove car G and then remove car F before retrieving car E. Then he must return the cars back in reverse order so he first returns G and finally returns car F. So, the order of the remaining cars would be ABCDGF.

You are to write a program that will give John the order of the cars at any given time.

Input
The first line contains a single integer n that indicates the number of cases. Each of the next n lines will contain a string of distinct letters indicating the original parking configuration, followed by a list of single letters denoting the order that the cars are being picked up. There will always be at least one car to be picked up.

Output
Print the original parking order on one line. Then, on separate lines, print the letter of the car being picked up and the order of the cars remaining. If all cars have been picked up, print PARKING LOT EMPTY. Separate each case with whitespace.

Example Input File
```
2
ABCDEFG E C D
REGION N O I E R G
```

Example Output to Screen
```
ABCDEFG
E ABCDGF
C BADGF
D ABGF

REGION
N REGIO
O REGI
I REG
E RG
R G
G PARKING LOT EMPTY
```