Data Structure HW2

Problem 2 : Number Chain

Adar is playing a number chain game. The cards consist of numbers 1 to 10 and J, Q, K. He has a list of numbers, and he needs to perform the following operations:

- ***add X***: Put a card X to the front of the card pile.
- ***delete X***: Delete the first card in the card pile that matches the card X. If there is no such number, Adar can skip this operation.
- ***truncateFirst***: Delete the first card from the card pile.
- ***truncateLast***: Delete the last card from the card pile.
- ***reverse***: Reverse the order of the current card pile.

Adar's goal is to manage this list of cards effectively as he plays the number chain game." In this scenario, Adar can think of the list as the ongoing sequence of numbers in the number chain game, and he needs to manipulate it based on the given operations to continue playing the game successfully.

In the first line, the number of operations n is given. In the following n lines, the above mentioned operations are given in the following format:

Input:

n

$command_1$

$command_2$

...

$command_3$

Output:

Print all the element (card) in the card pile after the given operations. Two consecutive card should be separated by a single space.

Example 1:

Input:

8	// # of operations
add 5	// 5
add 2	// 2 5
add 3	// 3 2 5
reverse	// 5 2 3
add Q	// Q 5 2 3
delete 3	// Q 5 2
add 6	// 6 Q 5 2
delete 5	// 6 Q 2

Output:

6 Q 2

Example 2:

Input:

12	// # of operations
add J	// J
add Q	// Q J
add K	// K Q J
truncateFirst	// Q J
add 1	// 1 Q J
delete 2	// 1 Q J
add 5	// 5 1 Q J
add 1	// 1 5 1 Q J
delete 1	// 5 1 Q J
truncateFirst	// 1 Q J
truncateFirst	// Q J
truncateLast	// Q

Output:

Q

Constraints:

- Please do not use C++ STL.
- The number of operations ≤ 2,000,000.
- The number of elements in the card pile does not exceed 106
- .For a truncate, truncateFirst or truncateLast operation, there is at least two card in the card pile.
- Each type of the card is not limited to one. E.g. “1 1 1 1 1 1 1 J J J J J ” is legal.

Program Submission:

- Deadline: 2024/10/30 (三) 23:59
- Submission format: HW2_學號_2.cpp
- Grading: Formosa OJ grading report