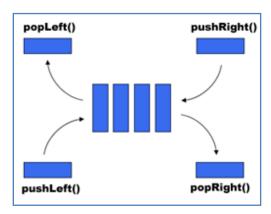
## 1212 - Double Ended Queue

A queue is a data structure based on the principle of 'First In First Out' (FIFO). There are two ends; one end can be used only to insert an item and the other end to remove an item. A Double Ended Queue is a queue where you can insert an item in both sides as well as you can delete an item from either side. There are mainly four operations available to a double ended queue. They are:

- 1. **pushLeft():** inserts an item to the left end of the queue with the exception that the queue is not full.
- 2. **pushRight():** inserts an item to the right end of the queue with the exception that the queue is not full.
- 3. **popLeft():** removes an item from the left end of the queue with the exception that the queue is not empty.
- 4. **popRight():** removes an item from the right end of the queue with the exception that the queue is not empty.



Now you are given a queue and a list of commands, you have to report the behavior of the queue.

## Input

Input starts with an integer  $T (\leq 20)$ , denoting the number of test cases.

Each case starts with a line containing two integers n, m ( $1 \le n \le 10$ ,  $1 \le m \le 100$ ), where n denotes the size of the queue and m denotes the number of commands. Each of the next m lines contains a command which is one of:

pushLeft x pushes x (-100  $\le$  x  $\le$  100) in the left end of the queue pushRight x pushes x (-100  $\le$  x  $\le$  100) in the right end of the queue

popLeft pops an item from the left end of the queue popRight pops an item from the right end of the queue

## **Output**

For each case, print the case number in a line. Then for each operation, show its corresponding output as shown in the sample. Be careful about spelling.

Sample Input	Output for Sample Input
1	Case 1:
3 8	Pushed in left: 1
pushLeft 1	Pushed in left: 2
pushLeft 2	Pushed in right: -1
pushRight -1	The queue is full
pushRight 1	Popped from left: 2
popLeft	Popped from right: -1
popRight	Popped from left: 1
popLeft	The queue is empty
popRight	