Josh Clemens
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Homework Stack List and Queue and Deque List

PLEASE SHOW THE UPDATED LIST AFTER EACH PROBLEM.

1. Update the Stack List with the given commands.
   a. Add the following Strings to the Stack using an arrayList: "John", "Juan", "Jon", "Jean", "Jonas", "Johnny", "Joao", "Jani", "Giovanni", "Hans" in that order.
   b. Push "Ivan".
   c. Push "Jhon".
   d. Peek the arrayList.
   e. Pop the arrayList.


2. Update the Queue List with the given commands.
   a. Add the following Strings to the Single-LinkedList: "John", "Juan", "Jon", "Jean", "Jonas", "Johnny", "Joao", "Jani", "Giovanni", "Hans" in that order.
   b. Add "Ivan".
   c. Offer "Jhon".
   d. Peek the Single-Linked List.
   e. Poll the Single-LinkedList.

3. Update the Queue List with the given commands.
   a. Add the following Strings to the arrayList: "John", "Juan", "Jon", "Jean", "Jonas", "Johnny", "Joao", "Jani", "Giovanni", "Hans" in that order.
   b. Add "Ivan".
   c. Offer "Jhon".
   d. Peek the arrayList.
   e. Poll the arrayList.


4. Update the Deque List with the given commands.
   a. Add the following Strings to the Double-LinkedList: "John", "Juan", "Jon", "Jean", "Jonas", "Johnny", "Joao", "Jani", "Giovanni", "Hans" in that order.
   b. addFirst "Ivan".
   c. addLast "Jhon".
   d. pollFirst the Double -LinkedList.
   e. removeLast the Double -LinkedList.

# 1. A Stack using arrayList

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| John | Juan | Jon | Jean | Jonas | Johnny | Joao | Javi | Giovani | Hans |

↑
Top

## B Push() Ivan

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | ← TOP |
|---|---|---|---|---|---|---|---|---|---|----|-------|
| John | Jean | Jon | Jea | Jonas | Johnny | Joao | Javi | Giovani | Hans | Ivan | |

## C Push Jhon

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|----|----|
| John | Juan | Jon | Jean | Jonas | Johnny | Joao | Javi | Giovani | Hans | Ivan | Jhon |

↑
Top

## D Peek()

| 11 |
|----|
| Jhon |

## E Pop()

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|----|
| John | Juan | Jon | Jean | Jonas | Johnny | Joao | Javi | Giovani | Hans | Ivan |

↑
Top

# 2.A    Queue using single-Linked List

Head → John → Juan → Jon → Jean → Jonas → Johnny → Joao → Jani → Giovanni → Hans

tail → Hans → null

## B. Add Ivan

Head → John → Juan → Jon → Jean → Jonas → Johnny → Joao → Jani → Giovanni → Hans → Ivan

Tail → Ivan → null
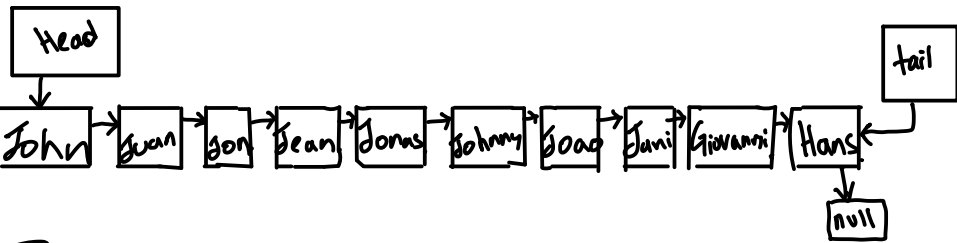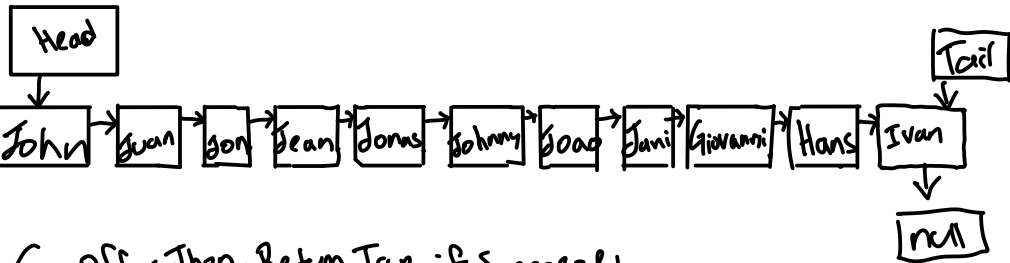
## C. Offer Jhon. Return True if Successful

Head → John → Juan → Jon → Jean → Jonas → Johnny → Joao → Jani → Giovanni → Hans → Ivan → Jhon

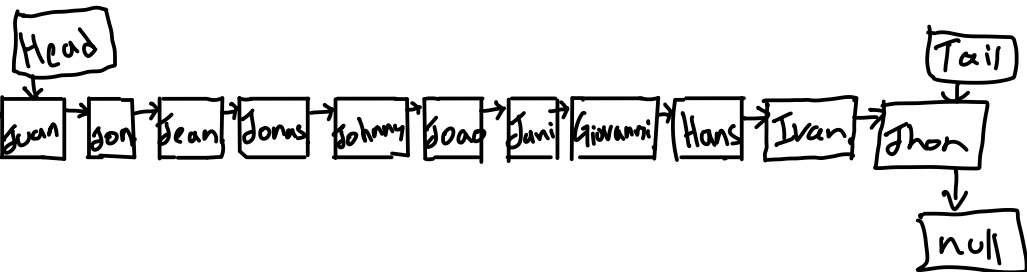Tail → Jhon → null
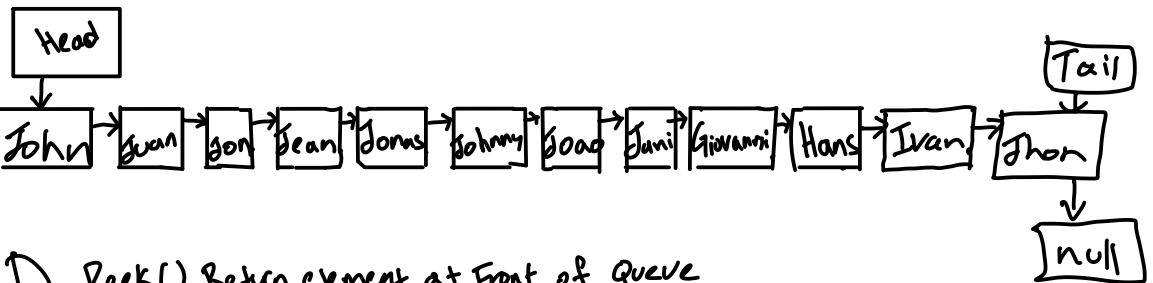
## D. Peek() Return element at Front of Queue

John

## E. Poll() Remove element at Front of Queue. Return null if empty.

Head → Juan → Jon → Jean → Jonas → Johnny → Joao → Jani → Giovanni → Hans → Ivan → Jhon

Tail → Jhon → null

## 3A. Queue using arrayList

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| John | Juan | Jon | Jean | Jonas | Johnny | Jojo | Javi | Giovanni | Hans |

↑ Front     ↑ Rear

## B. Add Ivan

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|----|
| John | Juan | Jon | Jean | Jonas | Johnny | Jojo | Javi | Giovanni | Hans | Ivan |

↑ Front     ↑ Rear

## C. Offer Jhon

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|----|----|
| John | Juan | Jon | Jean | Jonas | Johnny | Jojo | Javi | Giovanni | Hans | Ivan | Jhon |

↑ Front     ↑ Rear

## D. Peek()

| John |
|------|

## E. Poll() Returns John

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|---|---|---|---|---|---|---|---|---|---|----|----|
| John | Juan | Jon | Jean | Jonas | Johnny | Jojo | Javi | Giovanni | Hans | Ivan | Jhon |

↑ Front     ↑ Rear

# 4.A. Deque using Double-Linked List

Head → John ⇄ Juan ⇄ Jon ⇄ Jean ⇄ Jonas ⇄ Johnny ⇄ Joao ⇄ Jani ⇄ Giovanni ⇄ Hans ← tail
John → null   Hans → null

## B. add first Ivan

Head → Ivan ⇄ John ⇄ Juan ⇄ Jon ⇄ Jean ⇄ Jonas ⇄ Johnny ⇄ Joao ⇄ Jani ⇄ Giovanni ⇄ Hans ← tail
Ivan → null   Hans → null

## C. add Last Jhon

Head → Ivan ⇄ John ⇄ Juan ⇄ Jon ⇄ Jean ⇄ Jonas ⇄ Johnny ⇄ Joao ⇄ Jani ⇄ Giovanni ⇄ Hans ⇄ Jhon ← tail
Ivan → null   Jhon → null
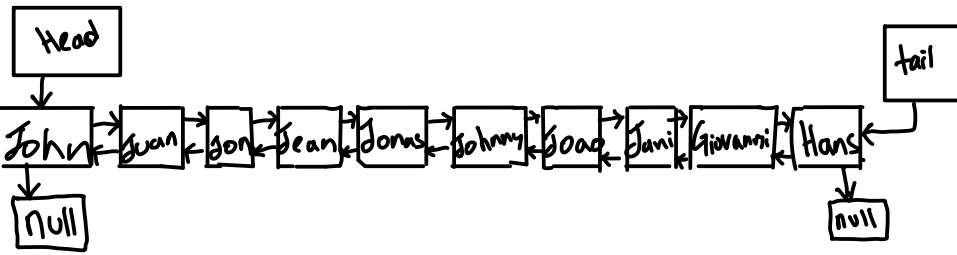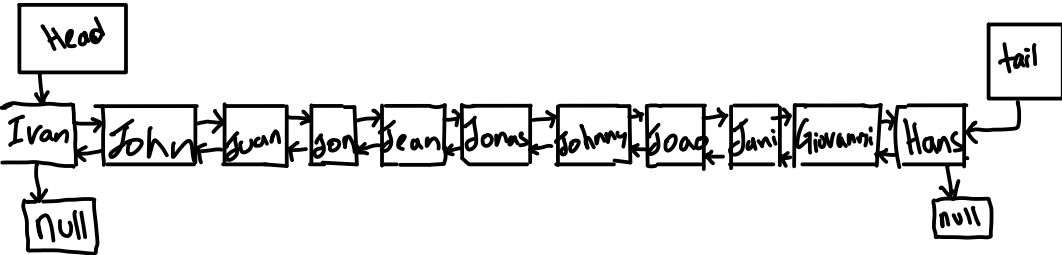
## D. PollFirst() Remove first and Return Value

Ivan

## E. Remove Last()

Head → John ⇄ Juan ⇄ Jon ⇄ Jean ⇄ Jonas ⇄ Johnny ⇄ Joao ⇄ Jani ⇄ Giovanni ⇄ Hans ← tail
John → null   Hans → null