

# **CSCI-UA-102-011-Spring-2025**

Recitation - 3

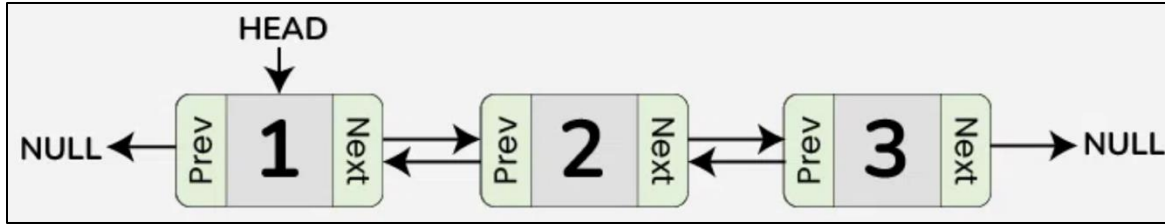
## Note

- Office hour + Contact
  1. Office hour: Tuesday 1:00 - 3:00PM, Location: 60 Fifth Ave Room 204
  2. Email: [rb5719@nyu.edu](mailto:rb5719@nyu.edu)

## Agenda

- Doubly Linked Lists, Position Lists
- Q3.11
- Problem Statements
- Quiz (Last 20 mins)

# Doubly Linked List, Positional Lists



Functions used here are `first()`,  
then `getElement()` and lastly,  
`after(val)`

## Q3.11

```
class Node:
    def __init__(self, data=None):
        self.data = data
        self.prev = None
        self.next = None
```

```
class DoublyLinkedList:
    def __init__(self):
        self.head = None
        self.tail = None
```

```
    def size(self):
        current = self.head
        count = 0

        while current != null:
            count += 1
            current = current.next

        return count
```

`size()` method  
for Doubly  
Linked List  
class, assuming  
that we do not  
maintain size as  
an instance  
variable.

```
1 Position<String> cursor = guests.first();
2 while (cursor != null) {
3     System.out.println(cursor.getElement());
4     cursor = guests.after(cursor);           // advance to the next position (if any)
5 }
```

**Code Fragment 7.6:** A traversal of a positional list.

`getElement()`: Returns the element stored at this position.

`first()`: Returns the position of the first element of  $L$  (or null if empty).

`last()`: Returns the position of the last element of  $L$  (or null if empty).

`before(p)`: Returns the position of  $L$  immediately before position  $p$   
(or null if  $p$  is the first position).

`after(p)`: Returns the position of  $L$  immediately after position  $p$   
(or null if  $p$  is the last position).

`isEmpty()`: Returns true if list  $L$  does not contain any elements.

`size()`: Returns the number of elements in list  $L$ .

## Problem Statements (10-15 mins)

- Q3.16 - Group 1
- Q3.26 - Group 2
- Q3.31 - Group 3
- Q7.11 - Group 4
- Q7.12 - Group 5
- Q7.13 - Group 6
- Q7.36 - Group 7
- Q7.39 - Group 8