

+LinkedList

-Node

+data  
+next

-head  
-tail  
-size

+iterator

new LLIterator

-LLIterator

-nextNode  
-removeOK  
-posToRemove

nextNode ← head  
removeOK ← false  
posToRemove ← -1

+hasNext

nextNode ≠ null

+next

assert hasNext  
result ← nextNode.data  
nextNode ← nextNode.next  
removeOK ← true  
posToRemove++  
result

+remove

assert removeOK  
removeOK ← false  
LinkedList.this.remove(posToRemove)  
posToRemove--

+makeEmpty

head ← tail ← null  
size ← 0

+remove(pos)

assert 0 ≤ pos < size

Pos = 0

result ← head.data  
head ← head.next  
size = 1 ? tail ← NULL

Pos ≠ 0

temp ← head  
1 ≤ i < pos  
temp ← temp.next  
result ← temp.next.data  
temp.next ← temp.next.next  
pos = size - 1 ? tail ← temp

size--  
result

+get(pos)

assert 0 ≤ pos < size

Pos = size - 1 ?

result ← tail.data

else

temp ← head  
1 ≤ i < pos  
temp ← temp.next  
result ← temp.data

result

+insert(pos,obj)

assert 0 ≤ pos < size

Pos = 0 ?

addFirst(obj)

Pos = size ?

add(obj)

else

temp ← head  
1 ≤ i < pos  
temp ← temp.next  
newNode ← new Node(obj, temp.next)  
temp.Next ← newNode  
size++

+add(obj)

newNode = new Node(obj, NULL)

size = 0 ?

head ← newNode

else

Tail.Next ← newNode

result

+addFirst(obj)

assert 0 ≤ pos < size

size = 0 ?

add(obj)

else

newNode ← new Node(obj, head)  
head ← newNode  
size++

+ toString

Join data with space from head by next