

11.1 Circular Linked Lists

a circular list has the tail point back to the head instead of NULL

affects insertion, deletion & traversals

traversals cannot use "while not NULL"

also can't use "while not head"

because you start at the head

use a do-while

set ptr to head

do

traversal action

set ptr to head's next

while ptr is not head

insertion

head insertion

tail must be updated to point to new head

empty list insertion

creates one element list

element is both head & tail

must point back to self

deletion

must check for one element list to transition back to empty

list

cannot rely on head = head->getNext()

"next" of one element list is itself

11.3 Doubly Linked Lists

Adds a previous pointer to the list node

points back to the element before this one

Adds a "tail" pointer so List class

Can traverse list forward & back now

Also makes deletion easier because you don't have to find-previous

Insertion

head insertion

set new node's previous to NULL

set new node's next to head

set head's previous to new node

set head to new node

other insertions-inserting after prev

Create var called next that is pointing to prev->getNext()

So have vars: prev, next, new node

set prev's next to new node

if prev is tail

set tail to new node

else

set next's prev to new node

set new node's next to next

set new node's prev to prev

Deletion

head deletion
 set tmp to head
 set head to head->getNext()
 set head's prev to NULL
 delete tmp

tail deletion
 set tmp to tail
 set tail to tail->getPrev()
 set tail's next to NULL
 delete tmp

other deletions
 set tmp to node to delete
 set next to node->getNext()
 set prev to node->getPrev()
 set prev's next to next
 set next's prev to prev
 delete tmp