CSC 217 Lab 11

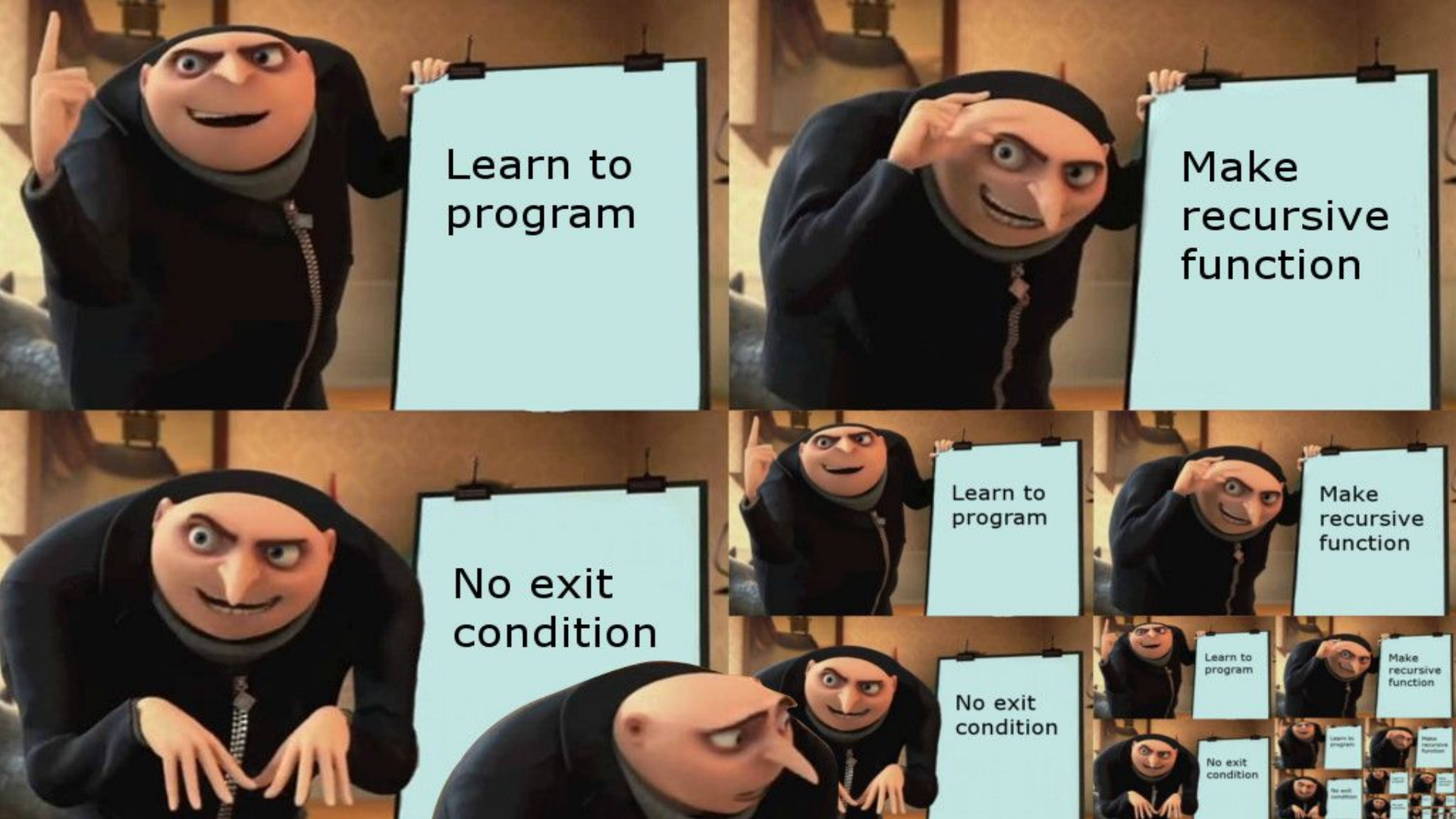
Recursive LinkedLists

Lab Overview

- Deadlines & Reminders
- Recursion Tips
- Activities
  - Implement LinkedListRecursive recursively
    - You will be graded on using recursion through an inspection of your code!
  - FacultySchedule Functionality
    - FacultySchedule - a colleague will help you out here!
    - Faculty
    - Course and CourseRecordIO - to tie together the Faculty and the Courses they are assigned to teach through FacultySchedule
    - RegistrationManager
- Lab Wrap-Up

Deadlines & Reminders

- Deadlines
  - See lab write up for deadlines.
- Reminders
  - Dr. Heckman has decided to drop the lowest lab grade, *except for Lab 11!*
  - This is the last lab of the semester!
  - Lab grades should be finalized and posted to MyPack the last week of April.


Learn to program
Make recursive function
No exit condition
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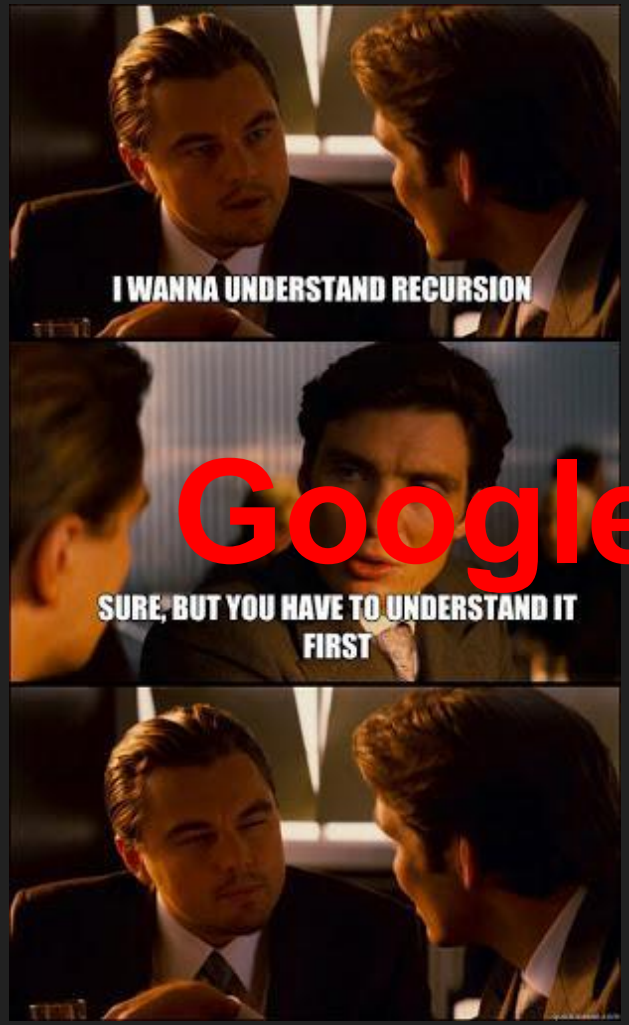
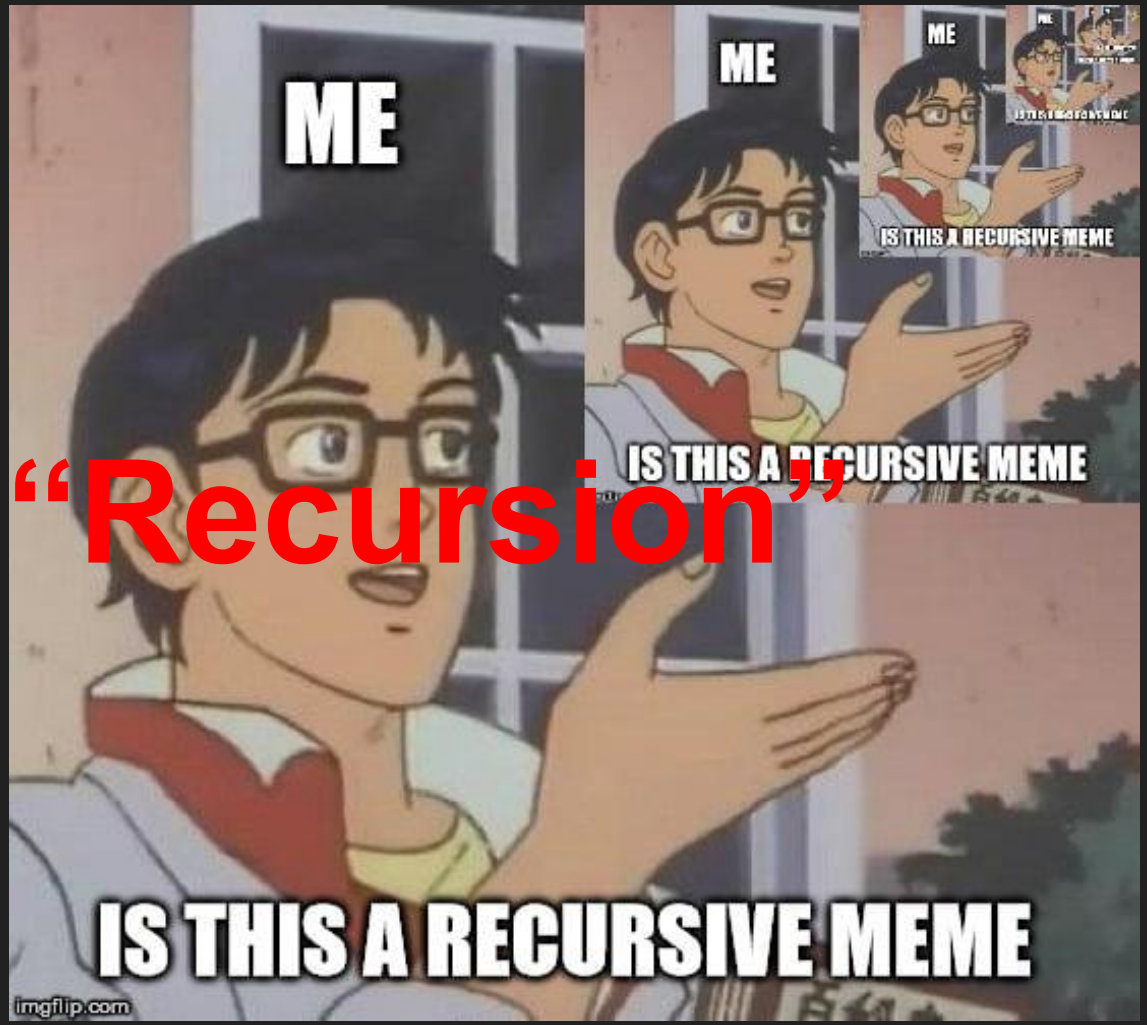


Google “Recursion”



Recursive LinkedLists

Implementation will have public/private pairs

- Public method, in LinkedList
  - handles special cases
  - performs error checks
  - delegates to `ListNode.method()` once done checking
- Private method, in ListNode, handles the recursion
  - next is the rest of the list
  - If there's an index parameter, that typically changes with each recursive call!

Recursion Tips

Each recursive method has 2 components:

- Base case
  - contains(E data):
    - if this node has the data, list *does* contain data
    - if this node has no next node, rest of list *does not* contain data
- Recursive case
  - contains(E data):
    - if this node doesn't have the data, and has a valid next:
      check the rest of the list
  - One step at a time

Patterns of Recursion

Method	Base Case			Parameter Values			Return Value		
	Empty	Head	Index	Same	Vary	None	Same	Vary	None
contains(E)	X			X			X		
size()	X					X		X	
get(idx)	X		X		X		X		
set(idx, E)	X		X		X		X		
add(E)	X	X		X			X		
add(idx, E)	X	X	X		X				X
remove(E)	X	X		X			X		
remove(idx)	X	X	X		X		X		

Activities

- Implement LinkedListRecursive recursively
  - You will be graded on using recursion through an inspection of your code!
- FacultySchedule Functionality
  - FacultySchedule - a colleague will help you out here!
  - Faculty
  - Course and CourseRecordIO - to tie together the Faculty and the Courses they are assigned to teach through FacultySchedule
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Wrap-Up

General Wrap-Up

- Deadline Reminder - deadline in writeup is for ALL SECTIONS! Lab 11 grades are NOT dropped!
- Exchange contact information with your partner
- Make a plan for finishing up the lab

Participation Outside of Lab (Guess which the teaching staff prefer?)

- If you pair program/design, **note that in the commit comments so everyone gets credit!**
- If you split the work, at least one contribution by each partner

REMINDER: We are expecting a significant contribution from all team members outside of lab!

- If you pair program/design, you **MUST** note it in your commit messages or there will be deductions
- Students who don’t allow their partners to contribute will receive deductions
- Students who don’t contribute will receive deductions

Record Tasks & Owners

Tasks only get done when someone owns them!

Identify the tasks required to complete Lab 11

- Edit README.md to list the tasks required to complete Lab 11(at top of README - should come before Lab 10 tasks)
- Add an owner to each task
- Add a deadline to each task

Deadlines should be at least 48 hours before the lab deadline so team members can help out and finish the lab if a team member runs into issues.

Notify team early if you run into problems with your tasks!