Today - Lecture 18 - CS162

1) Review for the final exam

Rules

- closed book, closed notes
- 1hr 50 min
- bring picture ID

When

Topics To Cover

1) Comprehensive

2) This means: if, logicals, loops (for), arrays
   functions (pass by value & reference)

3) Structures

4) Classes – constructors, destructors, data members
   member functions

* 5) Pointers – creating a pointer variable
   – allocating memory dynamically (new)
   – deallocating the memory (delete)
   – pointer arithmetic

* 6) LLL - create, insert, remove, destroy

* 7) Recursion

Practice

1) Allocate memory dynamically (with new) for a movie. Size the memory just right without having prior knowledge

2) Write a Loop using pointer arithmetic to: ← NO []

   a) display all items in an array

   b) capitalize all items in an array

   c) output just the last character

3) Homework #3

4) Deallocate memory

   a) Know <u>when</u> and <u>where</u> to use the []

delete [] array; ← pointer to the first element

delete ptr; ← Release just the memory that ptr is referencing

LLL Practice

** iteratively & recursively **

* 1) Add a node to the beginning of a LLL
* 2) Add a node to the end of a LLL
3) Remove a node at the beginning
* 4) Remove a node at the end
5) Remove the last two items
6) Remove the first two items
7) Display all items
8) Display just the last item
9) Display all positive values (of a LLL of ints)
10) Add together all values (ints) in a LLL of ints
11) Count the number of nodes
* 12) Copy every node & make a duplicate LLL
13) Copy every node's data and store it in an array
14) Display every other node's data
15) Remove all

Iteratively

Special cases

1) Empty list (head is NULL)
2) Working at the beginning (head gets altered)
3) Working elsewhere (need temporary pointers)

Recursively

Stopping conditions

1) Pointer is NULL — EMPTY / NOT FOUND
2) Any other reason to stop? (match?)
3) Otherwise traverse (via recursive call)

Practice Recursion

1. Display all items in reverse order
   Display all items
2. Add at end
3. Remove an item
4. Remove all
5. Remove at end