

## Unit 5: Linked Lists

### Outline:

- Pointers to Structs
- Linked Lists introduction
- Linked Lists Tasks
  - ✦ T1: Create an empty list
  - ✦ T2: Create a new node
  - ✦ T3: Add a new node to front of list (given newNode)
  - ✦ T4: Traverse the list (and output)
  - ✦ T5: Find the last node (of a non-empty list)
  - ✦ T6: Find the node containing a certain value
  - ✦ T7: Find a node AND it's previous neighbor.
  - ✦ T8: Append to the end of a non-empty list
  - ✦ T9: Delete the first node
  - ✦ T10: Delete an element, given p and n
  - ✦ T11: Insert a new element, given p and n
- Linked List Operations (NumberList class)
  - ✦ Create an empty list
  - ✦ Append to end of list
  - ✦ Insert within the list
  - ✦ Traverse the list (display)
  - ✦ Delete an item from the list
  - ✦ Destroy (deallocate) the list

### References:

- Gaddis: Chapter 11 section 9.
- Gaddis: Chapter 17, sections 1 and 2.

### Practice Problems:

- Gaddis, Chapter 17, Programming Challenges:
  - 1 Your Own Linked List
  - 2 List Print
  - 5 List Search. If x is not found on the list, the search should return -1 (not 21!).
  - 15 pop and push member functions  
(add to front, add to end, remove from front, remove from end)