Test 3

Information:
- Tuesday 4/28, During class: 11:00-12:20
- Online (Canvas), open book, open notes
- 15% of your final grade
- 70 minutes to complete it.
- NO: collaboration of any kind.
- NO: apps or browsing the internet.

Test format:
100 points total:
- 12-16 multiple choice questions (48 points total)
- 2-4 questions: implement some linked list tasks/operations and some stack/queue functions (52 points total)
- I will provide suggested time per question to pace yourself (you will not be able to review previous questions).

Content:
These lectures:
- Unit 5: Linked Lists
- Unit 6: Stacks & Queues

Sample questions:

Multiple choice:

1. See squarecap questions.
2. Which C++ statement implements a certain linked list task.
3. Questions about pointers to structures.
4. Demonstrate push/pop or enqueue/dequeue operations (what is the output or what is left on the stack or in the queue).
5. How do we know when the stack (or queue) is empty for an array (or linked list) implementation.

Sample coding questions:

1. Given the definitions of a Node struct and head pointer, write C++ statements to perform the following tasks:
   a. output the count of all the numbers in the list that are greater than 20
   b. output the value of the node preceding the node containing the value 100.
   c. assuming p is already pointing to a node, insert a node containing 25 after that node.

2. Given a class declaration for a list implemented using a linked list (like NumberList) implement some of the functions (like the constructor, the destructor, append a node to the end, remove the last node, remove the node in position i, etc).
3. Given the class declaration (from a .h file) for a stack (or queue) implemented as a static array (or linked list), implement certain modified stack or queue functions. For example: peek() that returns the top value in the stack but does not remove it.