CPE360 Homework-1

This homework requires you to design and implement all three basic data structures in C++.

You are to write three separate programs, one each for stacks, queues, and linked-lists that support the following operations for each data structure in question. Each of your program should include a class definition for "Node" (or chunk), a class definition for the data structure (stack/queue/LL) as well as a main function that should give a "menu" like interface to call the various functions. This "menu" like interface can be easily acheived with a "while(1)" loop and a "switch" statement nested within it, like we did in the last lecture. For you reference, the stacks we implemented together during lecture is also attached.

Functions required for each data structure:
1. Linked list:
- insertAtHead(int value) *Hint: Similar to Stacks, insert at position 1*
- insertAtPosition(int position, int value) *Hint: This should insert a node with 'value' at any position in the list as long as that position is valid*
- removeFromPosition(int position) *Hint: Similar to insert above, this should remove a node from a list as long as position is valid*
- displayContents()

2. Stacks:
- push(int value)
- pop()
- displayContents()

3. Queues:
- enqueue(int value)
- dequeue()
- printContents()