Data Structure and Algorithm Analysis---COP3530
Module 7 Program
Total Points: 25

NO LATE ASSIGNMENTS WILL BE ACCEPTED!!

In this assignment you will write a program called "**infix.cpp**", that uses a stack, **implemented as a singly-linked list**, to convert a postfix expression to the corresponding fully-parenthesized infix expression. Consider the following examples:

1. the postfix expression **a b + c d - *** will be converted to the infix **((a + b) * (c - d))**
2. the the postfix expression **a b +** will be converted to the infix **(a + b)**
3. the postfix expression **a b / c d / /** will be converted to infix **((a / b) / (c / d))**
4. for the postfix expression **a b / c * +** the program should print the error message **"too many operators and not enough operands".**
5. for the postfix expression **a b c d / + e * f** the program should print the error message "**too many operands and not enough operators**".
6. for postfix expression **a** will be converted to the infix **(a)**
7. for an empty (string) expression an empty (string) expression will be returned
8. for postfix **+** the program should print the error message "too many operators not enough operands"

Notes: 1. Include one space between operands (eg. a b c d) and operator (eg. + - * /) in your input to the program.

2. The only operators to consider are +, -, * and /.

Your program should ask the user for a postfix expression as input, and it should output the corresponding fully-parenthesized infix expression. The program should also ask the user if he/she would like to do another conversion. If so, the user should be able to enter another posfix expression; otherwise the program should terminate. **Also, the stack must be implemented using a singly-linked list.** Your driver, infix.cpp, should include the definition and declaration files for the class STACK, stack.cpp and stack.h, respectively.

Your program should do error-checking. For example, if the infix expression is invalid, your program should print an error message stating so.

You should submit the files "infix.cpp", stack.cpp, and "stack.h" to Canvas before the due date and time.

Good Luck....