CMPS 2143 Object-Oriented Programming
Programming Assignment 1 50 points
DUE: Wednesday, Sept 13, 2017 @ 1pm

Purpose: To implement a dynamic array-based stack and use it to solve a problem; to implement interactive I/O and file output. Program can be done in Java or C++.

Problem: **Palindromes -** Write a program that uses a stack to determine whether a string entered at the keyboard has balanced parentheses. A string of characters has balanced parentheses if each right parenthesis occurring in the string can be matched with a preceding left parenthesis.

Input: ***All input is from the keyboard*** **and is of type string. Run your program on the following sample input. Also, make up your own data for a second run.**

Sample input for one run (not including the prompts):

```
()
(()
(())
(I think(therefore I am))
(()()())
((((()))
(((((())))
((as((b)c)))
((()(())))
((()(()))))
```

Output: ***All output goes to both the screen and to a file*****. Format your output.** As usual, you may be creative with your output design.

C++ vs Java Requirements:

C++

- Must have .h, .cpp files
- Must have output file and display
- Read character by character

Java

- No interface file required
- Only output to display
- Read whole string

Java Hints:

1) Use ch = s.charAt (i) to get a character from a string
2) Use + to concat a string with other types (built-in types will convert to string
3) Use s.length() to get the number of characters in a string

Turn in:
- source code listings (class (1-2), main)
- 2 input files
- 2 output screens and/or files for two runs of the program
- complete project folder on some storage media
- in a 9x12 envelope