# CS 311 Data Structures and Algorithms

## Assignment 2

**Due on Friday, February 25, 11:59PM.**

Write a C++ program to implement the function (i.e., *evalExpression*) below. Your program must be able to correctly evaluate a mathematical expression (i.e., the *exp* parameter) containing non-negative numbers (e.g., 16, 33.9, 0.6) and six basic types of operators (i.e., +, -, *, /, (, )). For example, 3.5+20/4, 9.2*(6-31/(2+8)). In addition, your program must be able to detect and report the expression errors (e.g., parenthesis mismatch, unrecognized operators) and the division by zero error.

```
double evalExpression(const char * exp);
```

If you think it is necessary, your program can require that the input expression be embraced by the '#' signs. E.g., #3.5+20/4#. However, this is optional for this assignment.

Note:

1. Space should be allowed between numbers and operators in an expression.
2. Your program MUST implement and use your own Stack class. You cannot use the Stack class provided by the C++ library.
3. Your implementation must be based on the expression evaluation algorithm included in the lecture slides.
4. Put all the code (including the main function) in a .cpp file.
5. Please include your name, student id, and email address as comments in the code that you submit.