COSC 2436 Lab 3: Stacks

1. **Introduction**

   You will implement a C++ program to perform the push and pop operations of Stacks to evaluate what the unknown variable x is. The purpose of this lab is for students to get familiar with using stacks to solve a problem. Please name the folder on the server as "lab3".

2. **Input File**
   - The input file will contain an equation with one unknown variable, x.
   - Each operator/operand is separated by a single space.
   - The left side of the equation will be an expression.
   - The right side will be a real non-negative number.
   - Assumptions:
     - The unknown variable will always be on the left side
     - The right side will only contain one real number
     - The only algebraic operations are +, -, *, and /
     - The left side will only have single digits 0-9 and a single x

3. **Output File**
   - Print the value of x formatted to include two decimal places.

4. **Examples**

   input1.txt
   (2 + 4) * x = 24

   output1.txt
   4.00

   input2.txt
   x / (6 * (1 + 1)) = 3

   output2.txt
   36.00

   input3.txt
   (8 * 9 - (0 + (9 / 3 * 2) * 2 * 3) * 2 + 9) / x = 4

   output3.txt
   2.25

5. **Turn in your lab assignment**

   Lab 3 needs to be turned into our Linux server, follow the link here
   https://rizk.netlify.app/courses/cosc2430/2_resources/
   Make sure to create a folder under your root directory, name it lab3 (the name must be lower case), and only copy your code to this folder, no test cases or other files are needed.
   PS: This document may have typos, if you think something is illogical, please email the TAs for confirmation.