COSC 2436 Lab: Stacks

1. Introduction

Create a C++ program that utilizes a stack to evaluate the given prefix or postfix expression. You must create your own stack structure.

2. Input Files

- An input file will have two lines
  - the type of expression
  - the expression to evaluate
- Line 1 will either have "infix", "postfix" or "prefix" which will describe the expression on Line 2
- Line 2 will be an expression with each operand and operator separated by a space.
  - Operators will be any combination of the following: + - * / ^ ( )
  - Operands will be integers greater than or equal to 0

3. Output Files

- Output the evaluation of the expression to 2 decimals.

4. Examples

input1.txt postfix 5 2 3 * + 6 2 ^ + 4 1 - - 5 2 / /		output1.txt 17.60

input2.txt infix 16 - 1 * ((2 ^ 2) ^ 3)		output2.txt 0.25

input3.txt prefix + / 1 3 + / / 2 5 / 2 5 + 1 * 9 ^ 14 0		output3.txt 2.33

6. Submitting

- Turn in your lab assignment to our Linux server
- Make sure to only have 1 .cpp file with the main() function in your working directory; otherwise, your program will fail the grading script.
    - Create a folder named **lab3** (case sensitive) under your root directory
    - Make sure your .cpp and .h are **lowercase and have no spaces**.
    - Upload your program and ArgumentManager.h
    - **ONLY INCLUDE NECESSARY FILES** (.cpp and .h files) in your final submission
- To test your program, copy the input files and the answer files into the server and run your program with the commands

    chmod u+x test.sh

    sh test.sh
- After verifying that they pass, delete ALL .txt files.
- Remember to run the command **chmod -R 775 lab3/** in your root directory before signing off.

Please reach out to the TAs via email or teams for any clarifications or typos.