**CS311 Yoshii - Homework 1 Part 1 Getting Started (based on Notes-2A)**

**Topics: Stack application**

**\*\* Where you type is always in black! Where I type is in blue.**

**Due: Week 2 Sat before 11:55pm to cougar courses**

**You shall not email me to submit HW**

**Total: 22 points. Your score is:**

**Your Name: Katie Trinh**

**Date Submitted: 9/9/2023 (Note that where you type is always in black)**

**For all HW for CS311 [2pts]\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Your score is:**

1. **1. YOU MUST test your program on empress with g++.**
2. **2. KEEP all files for each HW within the corresponding forHW directory.**
3. **3. Always read @@read-me first and use the corresponding Visualizer before you begin.**
4. **4. TEST RESULTS MUST (.txt file) include the lines for compiling your files or 0 points for the program. (Even if it does not compile!)**
5. **5. YOU MUST answer the State of the Program questions honestly or you will lose the points.**

**Q0) [2pts] Do you understand the above requirements?**

**Program: Write a stack application program to evaluate post-fix expressions.**

**[8+12=20pts] Your score is:**

**Header:**

**Implementation:**

**Client:**

**Test results (always required):**

**Total 12 points:**

**Qs 8 points:**

**Q1) Preparation Qs[2pts]:**

* **What data structure do you plan to use – integer stack or character stack?** I used Integer Stack
* **Why? If I use a character stack, I have to convert** Characters into int

**If I use an integer stack, I have to convert** Integers into characters.

**Therefore,** I used integer stack.

**Q2) State of the Program Statement [2pts]: Must always answer!!!**

* **Does your program compile with g++ without errors? If not, describe:** It complies with g++ without errors. It displays the answer, catches overflow and underflow and catches if chars are above the MAX.
* **List any run-time bugs (incorrect results) you are aware of, or state “No bugs”:** No bugs.

**Q3) [4pts]**

* **Are you using Mac or PC?** I am using Macbook
* **What IDE/compiler do you use while you are still debugging?** I am using g++ through Macbook’s terminal to access empress.
* **What tool do you use to log onto Empress? In CougarApps(Y/N)?** N, I use Macbook’s terminal to access empress.
* **What tool do you use to transfer files between Empress and your machine?** I used FileZila to transfer files between Empress and my macbook

**In CougarApps(Y/N)?** N

* **Make sure you have already used** [**the Stack Visualizer**](http://cgi.csusm.edu/ryoshii/MyVisualizers/stack.html)**. (link)**
* **Complete my stack.h and stack.cpp.**
* **Compile the stack class first and test it with my stacktest.cpp (unchaged) thoroughly.**

**g++ stack.cpp stacktest.cpp (never put the .h file here)**

**./a.out**

**Required Test Cases (MUST TEST IN THIS ORDER): Test1.txt**

**1. display the stack**

**2. push 1,2,3,4**

**3. display the top element**

**4. pop**

**3. display the top element**

**5. display the stack**

**6. clear the stack**

**7. display the stack**

**/cs/recordhw test1.txt**

**g++ stack.cpp 1stacktest.cpp**

**./a.out**

**Do all 7 cases**

**exit**

* **Then, run my solution program first to study the correct output from the client.**
* **Complete client1.cpp : The user will enter a post-fix expression of the form:**

**34+ which means 3+4**

**345+\* which means 3\*(4+5)**

**722+- which means 7-(2+2)**

**as a string. Operators are +, -, and \*. Single digit numbers only. No blanks.**

* **You may assume that no expression will be longer than 12 characters.**
* **Since each element of the string is a character, you will need to convert it to an integer to perform arithmetic operations.**

**Your program will display the evaluated result (a number) and/or an error message describing what is wrong. Make the user interface nice!**

**g++ stack.cpp client1.cpp**

**./a.out**

**Required Test Cases (MUST TEST IN THIS ORDER): Test2.txt**

1. **34+ which means 3+4**
2. **345+\* which means 3\*(4+5)**
3. **722+- which means 7-(2+2)**
4. **34+56++ which means (3+4)+(5+6)**
5. **12+34\*45+-+ which means (1+2) + ((3\*4) - (4+5))**
6. **1234567891234 expression too long**
7. **+ too few operands**
8. **3+ too few operands**
9. **3# invalid element**
10. **2345+ incomplete expression**

**NOTE: Do you think I have listed all possible cases? Always ask yourself if there are other cases you should test to make sure your program is bug free.**

**/cs/recordhw test2.txt**

**g++ stack.cpp client1.cpp**

**./a.out**

**Do all 10 cases**

**exit**

**Download all files to your computer.**

**SUBMIT THESE 6 FILES TO Canvas:**

**Always make sure you submitted all the files. You may not submit them after I start grading them!!!!**

**This file with your answers inserted (docx, doc, or rtf)**

1. **Program** 
   * **Stack.h Header file with good comments.**
   * **Stack.cpp Implementation file with good comments.**
   * **Client1.cpp Client program with good comments.**
   * **Test1.txt Script result of compiling & executing your program on empress.csusm.edu for the required test cases.**
   * **Test2.txt Script result of compiling & executing your program on empress.csusm.edu for the required test cases. (Submit even if it does not compile. Without Test results, you will receive 0 for the program).**

**CHECK LIST before you submit:**

* + **Whether working or not, test result must include the lines for compiling your files or we will not grade your program i.e. 0 points for the program.**
  + **Did you check your comments and style against CS311 How To Comment.doc??**
  + **Did you answer all the questions?**
  + **Always make sure your functions are re-usable and you avoided repeating code!!!!**