CS410C FALL 2019 DUE DATE: 8/31/2019

LAB 1L

Submit code: **1L**

Description

This exercise gives you practice with basic input and output operations, as well using arithmetic operators.

Problem

Write a program that accepts 2 numbers as input and computes and prints the result of the following computations:

1) Sum of the two numbers
2) Second number subtracted from the first
3) Product of the two numbers
4) First number divided by the second
5) Sum of the two numbers subtracted from the product of the two
6) Finally, if a and b are the two numbers compute:

$$a^3 + 3a^2b + 3ab^2 + b^3$$

Solving it Step by Step

Here's a recommended way to proceed (once you've logged in and gotten to a terminal window on agate).

1. Create a directory called `1L` under your cs410 directory (see Lab 0 for how to do this using `mkdir`). Make this your working directory (change directory to `1L`). Remember that you can use the commands `pwd` and `ls` as a sanity check ("Where am I?" and "What files are here?").
2. Copy the file `$public/1L/simple.c` to your directory (using the `cp` command). This file has some prompting and input already done for you.
   Two ways to copy the file over:
   cp $public/1L/simple.c .
   cp ~cs410c/public/1L/simple.c .
3. Compile simple.c (using `gcc`) and run it (`a.out`) to see what it does already.
4. Now start adding code to compute and print every one of the items indicated above
5. It might be a good idea to do this incrementally, i.e. first complete the first computation by assigning the result to a variable. Print the variable value which shows the result of the computation.
6. If you find that using %f for printing a float prints more digits after the decimal place than you need try using %6.2f and see what happens!
7. Here are some points to note about arithmetic operators:
   a. The arithmetic operators that you will need are: + for addition, - for subtraction, * for multiplication and / for division.
   b. Arithmetic operators have precedence when they appear in the same expression – multiplication and division take precedence over addition and subtraction
   c. Parenthesis are used to force evaluation of part of an expression
   d. There is no exponential operator so a^3 will need to be written as: a * a * a
      Alternatively you can use the pow() function from the math library function if you include the appropriate header file
8. Save your program, compile it and make sure you do not get any errors.
9. Run your program and test your results with different inputs.
10. If you are happy with the results, continue to complete the rest of the computations. For every item that needs to be computed, use a variable to hold the result and then print the result.
11. When you are done, save your program, compile and test it with different inputs.
12. Sample input and output files are provided in $public/1L. You have several sample input and output files – in1 and out1 are files that give you one sample pair, in2 and out2 is another, etc.
13. Make sure you put your name on top of the program and indicate what lab assignment this is, all within comments.
14. Remember to submit your program using the code 1L before you get ready to leave—**you can't get credit if you don't submit your lab**!
    Example (if you file is called simple.c):
    ```
    % submit 1L simple.c
    ```
15. Remember to logout before you leave.