CGS 3460 Computer Programming Using C, Spring 2008
Homework 2

Due Thursday, February 7 2008, before 11:59:59pm

Notes

- All submissions must be done electronically via the Courseworx system linked from the website.
- Create a separate C source file for each problem. Problem 1 must be in `p1.c`, Problem 2 in `p2.c` and Problem 3 in `p3.c`.
- Use `tar` to combine all the files into the file `H2.tar`. To do this, type `tar -cvf H2.tar p1.c p2.c p3.c` on the command line. You must only upload H2.tar to Courseworx.
- Once you've uploaded the file, download the file and untar it using the command `tar -xvf <filename>`. Display each extracted file to verify your programs are intact.
- Submit C source files *only* (files with .c extension). We will compile and run them.
- The first three lines of each C source file must contain your Full Name, UFID and Gatorlink ID as comments.
- Make sure that your code compiles and runs correctly on one of the following CISE machines: `sand.cise.ufl.edu, rain.cise.ufl.edu, shine.cise.ufl.edu, bay.cise.ufl.edu`.
- When obtaining input, be sure to prompt the user appropriately.

1. C does not have an exponentiation operator. Write a C program that allows the user to enter the base a and the exponent b and prints the value of a^b. You may not use any library functions other than `printf` and `scanf`. Assume b is an integer.
2. Write a program that obtains a number n from the user and prints the first n prime numbers, with one number printed per line.
3. You wish to write a (very basic) calculator program that asks the user to choose if they would like to performs an addition, subtraction, multiplication or division and depending on the user's choice asks for the operands, performs the computation and outputs the result. It then asks the user if they want to perform another computation (y/n). If the user inputs `y`, this process is done again, else the program halts. For division, check if the second operand is zero, and if so, report an error and prompt if the user wants to perform another calculation

   Your program should first display the following prompt:
   ```
   1.  Addition
   2.  Subtraction
   3.  Multiplication
   4.  Division
   Enter choice:
   ```
   The user enters a number between 1 and 4, and is now asked to enter two numbers. The appropriate operation is peformed and the result printed. After this ask:
   ```
   Another computation?  <y/n>:
   ```
   If the user enters `y`, display the first prompt again and start over.