CS 150 Programming Assignment 3 Due Tuesday 9/20/11 @ Midnight

There are 6 questions, worth a total of 60 points.

All of your programs must have exactly the name listed in the assignment. Each program should have a comment at the beginning with your name, the date, and a description of the program's intended behavior.

Practice Questions 0 points

These practice questions are **not due**, but recommended. The answers are in the book.

Practice 4.2   Practice 4.4   Practice 4.19/4.33.

factorial.py 10 points

This is Exercise 4.13. Ask the user to input a number, and print its factorial.

starstairs.py 10 points

This is Exercise 4.9. Your program should ask the user to input the number of levels, and then print the staircase with that many levels.

polystairs.py 10 points

This is Exercise 4.11. Your program should ask the user to input the number of levels, and then draw the polygon with that many levels. The stairs should fill most of a 256x256 canvas, no matter how many levels are requested.

british.py 10 points

Write a program that reads a line of text and replaces every occurence of the American spelled words 'color' and 'mom' with the British spellings 'colour' and 'mum'. It would be nice if your program worked for capitalized words (Color, Mom), but it is not required.

Enter a sentence: I wish my mom would let me color with pens. I color very well.

British sentence: I wish my mum would let me colour with pens. I colour very well.

median.py 10 points

The *median* of a list of values is the middle value when they are in increasing order (or the average of the two middle values if there are an even number of values).

Write a program that asks the user for a list of values (which won't be sorted), and then prints the median of that list.

Example:

Enter values: 4 6 -2 3 1 100

The median is 3.5

bounce.py 10 points

Draw a ball (a filled Circle) on a cs1graphics canvas, and animate it bouncing. The ball should start near the top of the canvas, then accelerate downward under constant gravity, bouncing whenever it hits the bottom of the canvas. Run long enough so your ball bounces twice.

This problem extends Exercise 4.41. To get the ball to bounce, detect when the ball is off the bottom of the canvas and reverse its vertical velocity.