Assignments

1. Hacking Assignment

This is a first day exercise in which I show the students a selection of student work from the previous year, show them how to download it and run it, and show them what the code looks like. Then without knowing anything else, their job is to run the programs, pick one, change it in some way that does not break it, and hand it in to my electronic dropbox.

2. Karaoke Assignment

To be Assigned Monday, September 13.

This is a **Two-Class Exercise**. That means you have this class and the next to work on it before it is due.

Exercise: Write a karaoke program that displays lyrics from a song (1 verse & chorus only - max 15 lines).

- Format the output using different colors
- Use c.print(), c.println(), c.setCursor(), c.clear() at least once each.
- Use Thread.sleep() and/or c.getChar() to give the program some rhythm.
- Try to time the output of the lyrics or poem to match the speed at which it would be sung or recited (you can time it by listening on headphones while it runs).
- Make it look as flashy as you can.

Code Organization: This program should be in a package called UnitOneExercises or something similar. This entire package will be handed in as a zip file at the end of the unit.

Work Time: You will have the rest of this class, plus most of next class to work.

3. Logo Assignment

To be assigned Tuesday, September 21.

This is a One Class Exercise. That means it is due in the drop box next class.

Create a Logo for Computer Science Class

- Use setFont, setColor, and drawString to print out the name of the course: ICS3U
- Create the rest of the logo using graphics methods (use at least 3 other graphics methods from the handout).
- If you have time, add some timing effects to make it flashy

Note: This is just a quick exercise to get some experience using graphics methods. Don't spend too long on it. But if you make something good, I might use it to advertise the course.

4. Trading Card Assignment

To be assigned Friday, September 24.

This is a Unit Assignment. That means that most of your mark for this unit will be based on this assignment.

A Constellation "Trading Card"

Create an on-line "trading card" program **that celebrates and informs the user about one of the star constellations**. Here is what the program should do:

1. Resize the console so it is the right size and shape for a trading card

2. Display a "front page" with an appropriate design, title, your name, and the date.

3. Wait for the user to press a key to "open" the card

4. Clear the screen and display the inside of the card
    a. An **accurate** display of the constellation
    b. Some nicely formatted text with a paragraph about the constellation. You may copy this text from a web source, but if you do that you MUST cite the source in a small font at the bottom of the card (e.g. "text from 'Zodiac Signs, the signatures of your destiny' at http://www.zodiac-signs.org/")
    c. You must have some timing effects (e.g. twinkling stars, scrolling text, a starfield where the other stars fade out leaving your constellation there, etc)

Here are some more rules...

- Make it as authentic as you can - research the constellation and draw it carefully so that the lengths of each segment are to scale
- The design for both the front and the inside should combine text and graphics.
- Make sure you use at least 2 different fonts and 4 different colors.
- Use a minimum of 12 different console methods in the program.
- Use Thread.sleep() to add some timing effects to the inside page (and optionally the front page as well).
- You must put comments in your code according to the commenting standards.
- No images. Draw it all yourself.
- You will have a lot of class time for this. **Try to make it really cool!**

Optional (you don't have to do this, but it would be cool)...

- Have some kind of appropriate music play when the card is opened, or perhaps a sound effect.

Here are web sites with a bunch of constellations listed. You may have to use Google images to get a picture, though.

http://www.zodiac-signs.org
http://en.wikipedia.org/wiki/List_of_constellations

5. Fireworks Assignment

In the loops unit, I usually have them do a simple animation as part of a package of basic loop exercises.

Sometimes I also have them make a “Winter Fireworks Display”. The basic idea is to use loops to make a small object move upwards and then “explode” in some way. But I often challenge them to go further and try to make as elaborate a display as possible.

6. Game Engine Assignment

To be Assigned Tuesday, February 8

These are Two Class Exercises. That means they are due next Tuesday.

1. Get an object under user control (easy)
Using an image file, a basic shape, or even a more complicated set of shapes, get something moving in response to user input.

2. Get a monster to chase the user (harder)
Use another image file or a basic shape to get a monster chasing the user. Hint: if the player's x coordinate is less than the monster, the monster should move up. And vice versa. Same for the y coordinates.

3. Detect when the monster catches the user (even harder)
This is called collision detection. You have to find some way to tell when the monster and the player are close enough that they are touching. HINT: If you have done Analytic Geometry in grade 10 math, try using the length of a line segment formula. This will work best if the monster and user are roundish or squareish in shape. If not, try comparing the x, y, height and width of the user with the x, y, height and width of the monster.

4. More stuff (hardest) - OPTIONAL
Fire a bullet at the monster! Kill it if the bullet hits. Add more monsters! Trigger sound effects, have background music. Let the user move diagonally by holding down two arrow keys at once! The sky's the limit here...