CISC 181 Lab 1 (30 pts)

Due: Feb 22 at midnight
(This is a one-week lab)

Because this lab involves installing Eclipse on your computer, this lab should be done individually. Labs are to be turned in via Sakai by midnight on the Monday, Feb 22 (the midnight between Monday and Tuesday and Wednesday). Late labs will only be received 1 day late, with 10% off. After that, labs will no longer be accepted.

In this class I ENCOURAGE students to help each other. However, it does you no good to turn in labs that you don't understand. You all know the line between helping and copying. Don't cross it.

Part A: Installing Eclipse

Download instructions for installing Eclipse from my web site at:
http://www.eecis.udel.edu/~yarringt/181/

Follow the instructions for installing Eclipse on your computer.

Part B: Using Eclipse (5 pts)

1. Your workspace is divided into individual projects.

    - To start a new project: File->New->Java Project
    - Give the project a name (call it Lab1), allow it to use the default options
    - Click Finish

2. To add a class to the project, push the "New Java Class" button in top tool bar (letter C in green circle with '+', and pick class) or File->New->Class (I found this option easier)

    - Under Source Folder, make sure Lab1/src is there
    - Under Name: Type in name of class (call it Transition)
    - Under "Which method stubs would you like to create, leave "Inherited abstract method" selected and also select "public static void main(String[] args)
    - use defaults for all other options for now
    - Modify your new class to match the Transition class example on page 1 of the transition.pdf (from my web site)
    - In Eclipse, run your Transition class example using Run->Run As ->Java Application (this is also the same as the green "play" button on the toolbar).
    - Go through the code transition .py or transition.rkt. (on my web site). Work through each of the examples and get it to work in java. Make sure to write down any questions you have about Java syntax and ask them in lecture!
    - You will be turning in transition.java

Part C: Translating Code (12pts)

1. Create a new class in your Lab1 project called Lab1.
2. Translate the Python/Racket program posted on Sakai (Lab1.py or Lab1.rkt) into a Java program.
3. Make sure to add some output to your Java main method that prints the results of calling your methods. Run your program to ensure the output matches your expectations.
4. Submit your Lab1 project to Sakai as a single archive file (.zip). In Eclipse, click on your project and then choose File->Export, and General->Archive File. In the next dialog your project should already be checked, you just need to specify an archive file to create. Once created, upload this archive file as your submission to Sakai.

Part D (13 pts):

1. How cold is it outside? The temperature alone is not enough to provide the answer. Other factors including wind speed, relative humidity, and sunshine play important roles in determining coldness outside. In 2001, the National Weather Service (NWS) implemented the new wind-chill temperature to measure the coldness using temperature and wind speed. The formula is:

   $$t_{wc} = 35.74 + 0.6215t_a - 35.75v^{0.16} + 0.4275t_av^{0.16}$$

   where t_a is the air temperature in Fahrenheit and v is the wind speed in mph.

   Write an implementation for a static method, **`windChillTemperature`**, that computes this formula. Hint: you will need to use the static method, Math.pow from the built-in Math class (see http://docs.oracle.com/javase/7/docs/api/java/lang/Math.html). You also must compute this efficiently (do not call Math.pow more than once!).
2. Write a method that takes as input an integer, and returns a boolean value indicating whether the integer is evenly divisible by 7 or evenly divisible by 6, but not evenly divisible by both. The method should be named **check76**. Note: my method had 1 line of code. To receive full credit, yours should too.

To Turn In:

- Transition.java
- Lab1.java