**COSC 236 Lab 0: Introducing Java**

This lab is designed to provide exposure to lab policies, procedures, best practices, and the DrJava Integrated Programming Environment. Note that it's numbered Lab Zero (not Ooh), since programmers often start counting at 0 for some things instead of 0 instead of 1, like the rest of the population.

All labs require you to pay close attention to the requirements and specifications. **You must develop a habit of reading with precision, not skimming and hoping for the best.** Programming is an art and science that relies on careful analysis and developing step-by-step instructions for the computer to follow. You need to master that skill before you can expect the computer to follow your orders.

By tradition, a "milestone" moment is when a programmer is able to master enough talent to get the program to do something as simple as say hello. In the finest historical tradition, the first problem is your "Hello World" program, which you will then enhance and extend to include other Java constructs.

**Before getting started, see the Lab Tips document in Blackboard -> Resources.** It lists the other documents you will need to have available, either on a laptop/tablet, in other open windows on your computer, or in printed hard-copy. You cannot "wing it" at this stage of learning; instead, read, cross-reference, and check.

Now let's get to work. Open the “Using DrJava” document in Blackboard > Resources.

**Problem 1 (name this Lab0\_Problem1)**

This problem will help you gain experience using the DrJava environment to create your first Java application. The application will simply output a line of text to the console (which most people call a monitor). "Console" is a term that has carried over from mainframe days in the last millennium.

**Step 1:**  Follow the instructions for creating a new Java application in Using DrJava. Continue step by step through Section II.

**Step 2:** Examine the code in the screenshot in Using DrJava, Section II.D.3. Type the code in the screenshot into your DrJava source code window beginning with public class Lab0\_Problem1. Do not copy and paste for this lab. Verify that your code exactly matches.

**Step 3:** Above the code you just typed, copy and paste the identification section (top part in green) from II. B. into your DrJava source code window above your class definition statement.

**Step 4:** Compile your program (click **Compile**), fix any errors, then Run (click **Run**)..

**Step 5:** Examine the output window, specifically the **Interactions** and **Console** tabs.

**Step 6:** Now, go back to your source code and add the statement to instruct Java to display "Hello World."   
  
System.out.println ("Hello World");  
  
**Step 7:** Time to explore. Try these things, one at a time. After you make the change, click **Compile**. Any errors? If not, then click **Run**. If your program "breaks" at any point, then change it back it to the way it was before:

* Replace the text in double quotation marks inside System.out.println();
* Replace the double quotation marks around "Hello World" with single quotes, as in 'Hello World'
* Replace a curly brace somewhere with a parentheses
* Change S in System.out… to lowercase
* Leave out the double quotes surrounding "Hello World."
* Try copying and pasting a few System.out.println(); statements after the Hello World line to see what it does; don't put anything inside the parentheses
* Leave out a semicolon

**Step 8:** You will now modify your program by adding new lines and changing the output as follows.   
  
A. Go to the starter code in Using DrJava. Select all the text inside the public static void... statement in the code that’s included in the document, Using DrJava. Copy it. Then paste it where you typed System.out.println("Hello World"); Delete the System.out.println… line and paste in the comments you copied from Using DrJava. Then, type in the two lines below in yellow highlighted in the "Other variables" section EXACTLY as shown:  
  
// Other variables:  
int iValue1;  
int iValue2;  
  
B. Find the section in the starter code INITIALIZE VARIABLES and add these lines highlighted in yellow, again directly underneath, aligned as shown:  
  
// INITIALIZE VARIABLES:  
iValue1 = 10;  
iValue 2 = 25;  
  
Compile and run the program to make sure this change works properly.

C. Delete the System.out.println("Hello World"); statement.  
  
D. Create a series of eight (8) System.out.println(); statements and, for each one, substitute one of the lines below inside the parentheses::  
  
"A variable is a named region of memory to which"   
"a value can be assigned using the Java assignment"   
"operator which is the = character. The variable must"

"always be on the left of the = and the value or expression"

"must always be on the right."

""   
"The value stored in the variable iValue1 is " + iValue1  
"The value stored in the variable iValue2 is " + iValue2  
  
E. Compile and run the program; fix any syntax errors you discover.  
  
  
**Step 9:** Close down DrJava Follow the instructions Section III of the instructions in Using DrJava.

**Step 10:** Copy your file folder (with the above files) to your H: drive (if on campus or connected by VPN). Make sure you've done everything Section III calls for before leaving lab. There is nothing to grade or turn in.

**Step 11:** Make an additional backup copy to another network location if desired.