**CSE1322 – Java Lab 1A – Review**

*This lab may contain intentional minor errors; they should be reasonably easy to find and exist so that you must think as you go through the lab.  Like many things in life, "trust but verify."  Ideas will always be correct; only minor code and syntax may be incorrect.*

**Lab 1: Programming Review**

**Objectives**

* Familiarize yourself with the Eclipse IDE

For this lab, you should work alone.  The intent is to allow you to familiarize yourself with the Eclipse IDE.

**Background**

Like most IDEs Eclipse offers many features - so many that we won't touch most in this course.  But all modern Integrated Development Environments (IDEs) allow the programmer to write code, manage projects (and all the files within the project), compile, execute, and debug their programs.

For this lab, you'll need access to the Eclipse IDE.

**Directions**

This lab has two parts:

1. Writing a simple console application

2. Writing a console application with arrays

**Part 1 -** Console App

First, you'll need to create a simple console project.  Understand that, on **many exams**, I'll expect that you know how to read strings and ints from the user, as well as print to the screen.  So let's do that, shall we?

* 1. Start Eclipse.  It may ask you if you want the default language to be Java, C, C++, Python.  If it does, just choose Java.
  2. Go to the *File* menu and select *New -> Java*
  3. Notice that you have a choice of languages.  Let's choose a Java project
  4. Change the directory location to something "safe".  You may want to temporarily choose the Desktop and then save the file to something permanent once you're done (e.g. flash drive).
  5. You should now see an open file.
* Put your name as a comment on the top of the class.
* Import the scanner package
* Write the name of the class, perhaps Lab1AConsole
* Write the main method header (psvm)
* Inside main, create the scanner object using System.in as the parameter
* Ask the user to provide their name and age using the appropriate prompts, and scanner commands.
* Then print the user’s name and age
  1. Save the file if you haven’t already done so. Then compile the file and run it.

Notice the difference between *print*( ) and *println* ( )?  *println* ( ) drops down to the next line when it's done printing, while *print*( ) does not. Also remember with scanner that if you are using nextLine() and nextInt() that order is important. If you have a nextLine following a nextInt, if you don’t put in an extra nextLine to flush the stream, your next line will only get the end of line character from the stream. Don't forget how to do this stuff.  You're responsible for it now.

**Part 2 – Array Operations**

For this part of the lab, you'll be writing methods to work with 1D arrays.

* Add a new java class to your existing folder.
* Put your name as a comment on the top of the class.
* You will be generating random numbers so import java.util.Random.
* You should consider developing the methods for this project incrementally.
* In main, use an initializer list create an array of ints called nums holding the following values: 1, 4, 13, 43, -25, 17, 22, -37, 29
* Write a method, called findLargest, that returns the largest value in the array and have the client print the result
* Create an int array of size 20, called data and write a method to fill the array with random ints [-100, 100]. Recall that random’s nextInt( x) method returns a value from 0 to x-1. The upper bound is exclusive. Modify the values to fit the required ranges.
* Use the findLargest method you previously wrote to return the largest value in data for the client to print
* Print the sum of the largest values from nums and data
* Print the contents of data.
* Find the length of the longest continuous series of positive numbers in the array data. If the contents were: 4 5 0 2 . . . -1 88 78 66 -6. The length would be 3. For this problem, 0 is considered non-negative but not positive.

**What to Turn In**

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