LAB #1 - Creating Java Applications with Eclipse IDE

Due Date: **Week 2.**

Purpose: The purpose of this Lab assignment is to:
- Become familiar with Eclipse IDE
- Create simple Java Applications
- Create and use a simple Java classes

References: Read the course's text "Java How to program, 10th edition", chapters 1 to 3 and the lecture notes. This material provides the necessary information that you need to complete the exercises.

Instructions: Be sure to read the following general instructions carefully:
This lab should be completed individually by all the students. You will have to demonstrate your solution in a scheduled lab session and submitting the project **through dropbox link on eCentennial**.

You must name your Eclipse project according to the following rule:

YourFullName_COMP228Labnumber
Example: **JohSmith_COMP228Lab1**

Each exercise should be placed in a separate package named *exercise1*, *exercise2*, etc.

Submit your assignment in a **zip file** that is named according to the following rule:
YourLastName_COMP228Labnumber.zip
Example: **JohSmith_COMP228Lab1.zip**

Apply the naming conventions for variables, methods, classes, and packages:
- *variable names* start with a *lowercase* character
- *classes* start with an *uppercase* character
- **packages** use only *lowercase* characters
- *methods* start with a *lowercase* character

Exercise #1:

Create a class *Patient* that contains instance variables for *patient id*, *first name*, *last name*, *address*, *city*, *province*, *postal code*. Provide also multiple argument constructor to allow the initialization instance variables. Provide all *getter* and *setter* methods. Provide also a default constructor. Provide a *getPatientInfo* method to return patient's data in a nicely formatted string.

Write a driver class to test class Patient. Let the user enter patient's data. Instantiate objects of class Patient and call its methods to display the results in a *message dialog box*. Use the methods of JOptionPane class to provide input/output in the driver class.

(3 marks)

Exercise #2:

In this exercise you will develop a Java application that allows the user to process account information. Create a class named *BankAccount*. A bank account contains information about *account number*, owner's *name*, and the *balance*. Provide a *constructor* that allows the user to initialize account data. Provide all *getter* methods. Provide the *necessary* methods that allow the user to *withdraw* or *deposit* money. Provide a *getAccountInfo* method to return account information in a nicely formatted string.

Write a driver class to test the bank account. The driver class (main class) interacts with the user and calls BankAccount methods to *initialize* or *update* the account.

Use the methods of *JOptionPane* class to provide input/output in the driver class.

(4 marks)

Exercise #3:

In this exercise you will develop a Java application that allows the user to process game objects. Create a class named *GameObject*. A game object should contain information about object *center*, *velocity*, object state (alive or dead), and object *rotation*. The object center is defined by its **x** and **y** coordinates.

Provide a *constructor* that allows the user to initialize game object information. Provide all *getter* methods. Provide a *getGameObjectInfo* method to return game object information in a nicely formatted string.

Write a driver class to test the GameObject class. The driver class (main class) interacts with the user and calls GameObject methods to *initialize* or *update* the game object.

Use the methods of *JOptionPane* class for providing input/output in the driver class.

(3 marks)

Evaluation:

Functionality	
Correct implementation of classes (instance variable declarations, constructors, getter and setter methods, etc.)	40%
Correct implementation of driver classes (declaring and creating objects, calling their methods, interacting with user, displaying results)	40%
Comments, correct naming of variables, methods, classes, etc.	5%
Friendly input/output	15%
Total	100%