Java Programming

2-1: Working with Pre-Written Code

Practice Activities

Lesson Objectives:

- Read and understand a pre-written java program consisting of classes and interacting objects
- Apply the concept of inheritance in the solutions of problems
- Test classes in isolation
- Describe when it is more appropriate to use an ArrayList than an Array

Vocabulary:

Identify the vocabulary word for each definition below.

Setter	A method that can modify an object.
Getter	A method that can access the contents of an object but does not modify that object.
ArrayList	Object that can store multiple object types and can grow and shrink dynamically as required.
Inheritance	The process where one object acquires the properties of another.
Compilation or development environment	Allows you to check the quality of the code for a class independent of the rest of the program code.

Try It/Solve It:

1. If you did not install the JavaBank Case Study during the lesson then please follow the slides from Slide 6 to do so now.

2. Explore JavaBank. Record your observations.

   What happens when you:

   - Display Accounts

   - Create Accounts

   - Delete Accounts

   - Make a Withdrawal Transaction

   - Make a Deposit Transaction

   - Can you display accounts before any are created?   NO

- Can you create an account without entering anything in the fields?   NO

- Can you make a withdrawal transaction with no amount in the Withdrawal field?   NO

- Can you do a deposit transaction with no amount in the Deposit field?   NO

- What other questions do you have about the JavaBank application?   no questions

- What changes would you make to the current application to make it function better?   it works well

- What additions would you make to the current application to increase its functionality?   it works well

3. Download the **bikeproject.zip** file from Oracle iLearning, unzip the file to a directory on your local machine. Import the existing project into Eclipse.

   a. Give an example of two primitive data types that are used to store fields within a class

      Only int

   b. Give an example of where String concatenation takes place.

      in the printDescription () method

   c. What are the names of the objects created in this program?

      bike1, bike2, bike3, bike4

   d. How many constructors does each class have?

      Bike - 2, MountainBike - 2, RoadBike - 3

   e. Inheritance is part of this program. Identify the Super and subclasses from this program.

      Yes, Super - Bike, Subclasses - MountainBike and RoadBike

   f. Mountain bikes and road bikes can be constructer either by using the default values (standard bike) or customized to the client's needs. Using the following table identify sample values assigned to one of each type of standard bike:

Values	Bike (MB)	Mountain Bike	Bike (RB)	Road Bike
handleBars	Bull Horn		Drop	
frame	Hardtail		racing	
tyres	Maxxis		tread less	
seatType	dropper		razor	
NumGears	27		19	
make	Oracle Cycles		Oracle Cycles	
suspension		RockShox XC32		
type		Pro		
frameSize		19		
tyreWidth				20
postHeight				22

4. Working with the Calculator program.

    a. Create a Java Project in Eclipse called calculator.

      ✓

    b. Download and unzip the Calculator.zip file from Oracle iLearning.

      ✓

    c. Import the Calculator.jar file by clicking File, Import, General, Archive File (make sure you specify the location of the zip file and the name of the project you want to import it into - Calculator)

      ✓

    d. Once imported – run the application (CalcMain is the driver)

      ✓

    e. Determine what Calculator does and how it works – investigate.

      ✓

    f. Add multiplication and subtraction buttons to the application.

      ✓

    g. Test to make sure all functionality works as you expect.

      ✓

    h. Export updated Calculator to a "Runnable" JAR file.

      ✓

    i. Go to the location where you put the runnable JAR and double click it to run the application