Fall 2022 - CS 203 Object Oriented Design
Lab 06

Objectives:

- Learn how to create classes and subclasses
- Implement inheritance feature into your code

This lab is focused on the object-oriented features of Java (especially inheritance). We will develop two different types of calculators: a regular calculator and a scientific calculator.

1. Create a class called `Calculator` that calculates the basic operations of two numbers. The operations that need to be included are addition, subtraction, multiplication and division.

- Your class should have at least two private attributes (int num1 and int num2).
- Create a constructor that takes in two integers
- Create all the required methods within this class (setters/getters/add/subtract/multiply/divide)
- Be careful with divide, dividing two integers will yield an int! (5 / 3 should return 1.33, not 1)

2. In the second problem, you must create a new class named `ScientificCalculator`.

- This class must be a child class to Calculator.
- It shall define two more methods: square root and exponent.

3. In your tester java file, ask the user to input two integer numbers. Create an object from the ScientificCalculator class with these integer numbers (hints: constructor). Call the following methods; addition, multiplication, and square root for this object.

- Notice how you can call Calculator methods (the parent) using an object from the ScientificCalculator class (the child)!

Warnings and Hints for this Lab:

- You must use inheritance in this lab, which means that we should not create the same methods again and again. Instead, we should inherit variables and methods.
- Check the lecture slides for inheritance and be cautious about overriding versus overloading.
- Pay attention to minimizing the dependencies, create setters OR getters, and use inheritance
- Minimizing dependency: Do not use System.out.println inside the classes, print it in the tester.
- A method should either be an accessor (getter) method or a mutator (setter) method, not both!

Good Luck 😁