COMP-2120 - Fall 2020

Lab 6 Activities

Activity 1.

Make a class `Person`, with instance variable name, age, and gender. Make a class `Employee` inherit from `Person`, with extra data for salary, and hiring date. Make another class `Student` inherit from `Person`, with data for program name, level (undergraduate/graduate), and program year. Supply required methods for the superclass and the subclasses. Make a subclass `Manager` from `Employee`, with bonus salary, and override the corresponding method(s). Provide `tostring` method for the `Employee` class and its subclass, Manager, such that it returns employee name, type of the employment, and salary. For instance if you create an object, manager1, from `Manager` class, with name="John Smith" and annual salary of $125,000 and bonus weekly bonus of $200, and then write a print statement like `System.out.println(manager1);` , the output will be:

```
John Smith, Manager, Salary = $125,000/year, Weekly bonus = $200
```

Activity 2.

Download the three classes, Shape, Circle, Triangle, and Square from this lab. Then provide a tester class, in which create an ArrayList of Shape. Then, inside a loop, get one character from the user input. If user enters T, add a new Triangle object into the ArrayList with random values for its base and height. If user enters C, add a new Circle object into the ArrayList with random value for its radius. If user enters Q, add a square object into the ArrayList with random value for its side. If user enters E, then exit the loop.

Create another subclass of the Shape class for Oval and override its area method. Then update the tester class you provided in the previous step such that if user enters O, then add a new Oval object into the ArrayList with random values for its two horizontal and vertical radiuses.

Add another loop into the tester class to show the name, properties (instance variables) and areas of all the shapes you added into the ArrayList?