ALGONQUIN COLLEGE

OBJECT ORIENTED PROGRAMMING (JAVA) (CST8284)

Lab #5 - Introduction

- This lab focuses on the OOP concept of **Inheritance and Polymorphism**. You will use the knowledge of the concepts to work with:
  - Super classes
  - Subclasses
  - super keyword
  - toString(), overriding and more

- Review the corresponding resources, and helpful links on the concept.

YOUR TASKS

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You are required to ….

- Download and review the code files and an output sample provided for you:
  - Sample output provided.
  - SalesAgent

    Java code file. This class contains a **name** and **age** of a Sales Agent.
  - SalesAgentTest and SalesAgentTest2

    Empty Java code files. This is for you to write the **test programs** that test all the classes and methods.

You are required to …(2)

- Create a new class called SalesSupervisor that inherits from SalesAgent.
  - Include an instance variable named location, indicating the location for the sales which has type String.
  - Provide a toString method for printing the name of the sales supervisor, his age and his sales location.

You are Required to…(3)

- Create another class called SalesChief which inherits from SalesSupervisor.
  - Include an instance variable named department, indicating the department of the sales chief which has type String.
  - Provide a toString method for printing the name of the sales chief, his age, his sales location and department. Hint: For subclasses, re-use superclass toString() method and then add specific subclass data.

You are Required to…(4)

- You must provide toString methods for all the **classes**.
- Write the test program SalesAgentTest to test the classes you created.
- Use your name as the SalesChief in your output.
- Write the test program SalesAgentTest2 to test the classes you created, using **Polymorphism**.
  - In a loop, use Polymorphism to print all sales agents in an array.

    Hint: when you call println() to print an object, the toString() method of that object is called. Where is the polymorphism?

You are Required to…(5)

- Your output of both test classes must match the sample output.

Part B: To be announced during the lab session

Your Demo & Tasks (1)

- Show your Professor the **two new** classes (SalesSupervisor and SalesChief), and the **test programs** (SalesAgentTest and SalesAgentTest2) that you created, and answer concept questions. (40%)

- Used polymorphism to produce the same output without polymorphism, and knows where is the polymorphic method. (40%).

- Implemented Part B. (10%)

Your Demo & Tasks (2)

- Put **Javadoc style comments** in all your code and explain to your professor any overrides in the classes. (10%)

- Please submit whatever code you have by the end of the lab session to get graded. However, you can still work on your lab and submit an enhanced version before the due date.

Sample Output File

Please see the Sample output file included with documents presented to you.

- This sample contains some data. Yours should contain data too.
- If there are any modifications reflected in your output, please let your Professor know.

References

- Big Java Early Objects, 7/E. Author: Horstmann, C. Wiley. ISBN: eText: 978-1-119-49909-1 or loose-leaf paper: 978-1-119-74020-9.
- Another good resource:

- Java How to Program, Early Objects Plus MyProgrammingLab with Pearson eText -- Access Card Package, 11/E. Author: Deitel ISBN: 9780134800271