

NYU School of Continuing and Professional Studies  
Course Title: Object Oriented Analysis and Design  
Fall 2011

**Homework #8**

**\*\*Optional Extra Credit\*\***

- 1) In your design, you've decided to implement classes that have a composition relationship. Give one way of enforcing the major rule of the composition relationship.
- 2) What is the signature of a function or method?
- 3) What is overloading?
- 4) What is overriding?
- 5) What is an abstract class? Give one reason why we may want to create such a class.
- 6) What effect does a constructor have on an object?
- 7) What are two differences between instance fields and class fields?
- 8) What provides the behaviour of an object?
- 9) What are accessor methods? Why would we use them?
- 10) What are the differences between private, public and protected attributes?
- 11) What is the interface of a class?
- 12) What constitutes an object's state?
- 13) What is one technique to enforce a "one-to-one" association relationship between two classes?
- 14) Can references of a subclass type be used to manipulate objects of its superclass type?

- 15) What is a copy constructor? Give 2 reasons to incorporate a copy constructor in your design
- 16) Why/when would you use a protected constructor?
- 17) Why/when would you use a private constructor?
- 18) Describe two techniques for improving the robustness of your design, i.e. programming defensively.
- 19) Many “utility” classes only have static members. On what would you base a decision to have only static members in a class?
- 20) If you have a class with only static members, it does not need to be instantiated. Give one way of making sure a class cannot be instantiated
- 21) In your design, you want to control how and when objects are instantiated. Give an example of one strategy you could adopt to include such a feature in your design
- 22) In an inheritance hierarchy, there are static methods defined in the superclass. Can these be overridden in subclasses?
- 23) Which UML diagram would you choose to communicate how an object’s attributes’ values changed throughout its lifetime?
- 24) Which UML diagram would you choose to communicate the structure of the objects in your design?