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CSCI 4448: OOAD
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Project 1 - Part 1

1 - Provide a definition of the OO term "class"

Class:
A class is a template for creating objects. Classes typically include instance variables and methods. Each object generated from the class will contain the same variables and member functions (but separate copies of the variables and functions).

Foundations of Object-oriented Languages: Types and Semantics By Kim B. Bruce (hyperlinked)

2) Select any three of the following six OO terms:
abstraction, encapsulation, polymorphism, coupling, cohesion, identity Provide:

a) A definition of the term
b) How the term applies to the OO notion of a class
c) What is a possible positive result of applying the term to a class design
d) What is a possible negative result of applying the term incorrectly in a class design

Abstraction:

a) Abstraction is the ability to only show the important part of an object.

b) For example in a class, you may have a setter method that verifies that the data is valid before setting, and since you may not need to see that verification code, it is abstracted from you.

c) A positive result of applying abstraction to a class design may be that it hides the unnecessary parts of a method so that the programmer can focus on what they actually need to rather than unnecessary information.

d) A negative result of applying abstraction incorrectly may be that if a user doesn't know what's happening in a method or object, they may repeat computations that are unnecessary.

Mozilla Web Docs (Hyperlinked)

Encapsulation:

a) Encapsulation is the ability to pack data and functions into a single object, such as a class.

b) The term applies to the OO notion of a class since encapsulation is what allows classes to be created at all.

c) A positive result of applying encapsulation to a class design is the ability to pack all necessary data and methods into a class.

d) A negative result of applying encapsulation may be that necessary data isn't in the class, or that unnecessary data can be included, making it difficult to find the data or methods needed.

Mozilla Web Docs (Hyperlinked)

Polymorphism:

a) Polymorphism is the ability of a single interface to handle multiple data types.

b) The term applies to the OO notion of a class since it also allows overloading to be possible.

c) a positive result of applying polymorphism is that you can have a subclass that overrides the method of its parent when necessary.

d) a negative result of applying polymorphism is that if you are overloading operators you can have the incorrect method being called if it has been overloaded.

Mozilla Web Docs (Hyperlinked)