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ESOF 322 Homework 1

PART 1

1. Polymorphism is when an object is flexible enough to be able to be used in multiple different ways [2]. In other words, an object is generalized well enough to be reused. This is shown with the following code snippet from my 132 Assignment 4:

// This is a class to create an average employee with a name and ID number.

public class Employee {}

//This is a class that inherits from Employee however it adds a rate and gross sales the employee makes.

public class Commission extends Employee {}

2. Inheritance is when a class calls a separate class to use the same variables and functions that were created therefore creating a child and parent relationship. A public object is open for other classes and functions to access while private only allows certain functions to access.

3. Encapsulation is the OOP idea of pairing data with methods and allowing for private variables to have limited public access. This also allows the class to have the ability to be used in various forms without the class won’t be altered in a way that affects its other uses. [5]

4. Static binding is where the computer knows the type of object is known prior to running the program. Dynamic binding is different from static binding in the sense that the object type is not decided until the program is actually run. [7]

PART 2

i. The prescribed life cycle is a method of creating programs that is defined to a set order [6].

Two examples are the waterfall model and the incremental model. [6]

ii. 1. The waterfall model - Websites, this is a good example for the reason that usually a website only needs minor adjustments and support after it has been initially created.

2. The incremental model - Mobile applications, this shows a good example of this because the app is never truly “complete” and is usually in the process of having updates and sometimes being completely redone almost always.

PART 3

Research Question:

What does low coupling and high cohesion mean?

Low coupling and high cohesion are the elements of programming that we should strive for. We should attempt to have all of the code that relates to each other in the same area, which is high cohesion. While at the same time making sure that our program does not relate too highly on other programs, which is low coupling. This allows for our code to be well versed and useable as well as make sure that we can easily find issues when they arise. [7]

References

[2] <https://www.tutorialspoint.com/java/java_polymorphism.htm>

[4]<https://www.tutorialspoint.com/static-vs-dynamic-binding-in-java#:~:text=In%20Java%20static%20binding%20refers,object%20is%20determined%20at%20runtime.>

[5] Learning UML 2.0 pg 66

[6] These slides are designed to accompany Software Engineering: A Practitioner’s Approach, 7/e (McGraw-Hill, 2009). Slides copyright 2009 by Roger Pressman.

[7]<https://stackoverflow.com/questions/14000762/what-does-low-in-coupling-and-high-in-cohesion-mean>