Object Oriented Programming – SCJ2153

Object Oriented Principles

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Object Orientation Principles

- Divide and Conquer
- Abstraction
- Encapsulation and Modularity
- Public Interface
- Information Hiding
- Generality
- Extensibility

Divide and Conquer Principle

- The first step in designing a program is to divide the overall program into a number of objects that will interact with each other to solve the problem.
- Break problems (programs) into small, manageable tasks. Identify possible objects.

Abstraction Principle

- *Abstraction* is the ability to focus on the important features of an object when trying to work with large amount of information.
- The objects designed in object oriented programming language will be abstractions in this sense because they ignore many of the attributes that characterize the real objects and focus only on those attributes that are essential for solving a particular problem.

Encapsulation and Modularity Principle

- The next step in designing an object oriented program is to decide for each object, what attributes it has and what actions it will take.
- The goal is that each object is a self-contained module with a clear responsibility and the attributes and actions necessary to carry out its role

Public Interface Principle

- For objects to work cooperatively and efficiently, we have to clarify exactly how they are to interact, or interface, with one another.
- Each object should present a clear public interface that determines how other objects will be used.

Information Hiding Principle

- To enable objects to work together cooperatively, certain details of their individual design and performance should be hidden from other objects.
- Each object should shield its users from unnecessary details of how it performs its role.

Generality Principle

- Objects should be designed to be as general as possible.
- Objects are designed to solve a *kind* of task rather than a singular task.

Extensibility Principle

- One of the strength of the object-oriented approach is the ability to extend an object's behavior to handle new tasks.
- An object should be designed so that their functionality can be extended to carry out more specialized tasks.