

# Object Oriented Design

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University of Central Florida

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## Principles

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### Problem Solving Steps:

(from book)

1. Analyze the problem in order to break it up into simpler components.
2. Design a solution.
3. Implement the solution. (write code)
4. Test and fix any problems. (debug)

# Principles

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Encapsulation:

Placing characteristics and routines within

- some hidden from the outside to reduce complexity
- some that are designed to be seen from outside

Abstraction:

Determining characteristics and routines which are pertinent yet not restrictive in order to produce a more simplified view.

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# Principles

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Object Oriented World:

In order to handle complexity, we perceive the world as objects with properties.

What are some examples?

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# Objects and Classes

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Class:

Describes characteristics and variables to be filled in by instances and routines to act on these characteristics

Object:

An instance of a class where characteristics are filled in and routines can actually be run

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# Objects and Classes

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Classes can be abstracted:

abstract (general)

restrictive



many possibilities

few possibilities

Classes may be designed to **inherit** from classes which are more abstract.

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# Objects and Classes

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Constructor:

Creates an instance / object from a class.

Destructor:

Guess....

(no need to worry about in Java)

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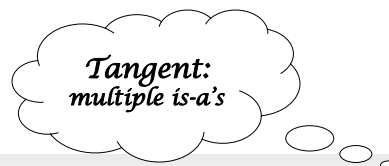
# Objects and Classes

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Relationships:

is-a (inheritance of more abstract class)

has-a (use an instance of another class)



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