

Object Oriented Design

Object-Oriented Design

- Method for designing computer programs
 - Useful for thinking about large problems
- Consider “objects” interacting in the program
 - Example: a zoo, a gradebook

Objects

- Objects have state – what they know
- Objects have behaviors – what they can do
- Example: Car

Classes

- A programming construct to define the state and behaviors of a particular type of object
 - A class is the blueprint
 - An object is an instance of the class

CRC Cards

- Class, Responsibilities, Collaborators (CRC)
- The CRC card method is a mechanism for discovering the classes that will be part of a program.

Example: A Card Game

<http://max.cs.kzoo.edu/AP/OOD/OODPresentation/CRC4.html>

- Classes: Card, Deck, Hand, Dealer
- Class: Card
 - Responsibilities:
 - Display self
 - Report suit
 - Report rank
 - Collaborators
 - None

Example: A Card Game

<http://max.cs.kzoo.edu/AP/OOD/OODPresentation/CRC4.html>

- Classes: Card, Deck, Hand, Dealer
- Class: Deck
 - Responsibilities:
 - Shuffle
 - Deal
 - Report size
 - Collaborators
 - Contains cards

Exercises

1. Form groups of 2 or 3 and use the CRC method to design a coffee machine. Start with a coffee machine that can dispense black coffee or coffee with cream. Each costs 1.00.