

# The Project

8-29-2011

# Opening Discussion

- What did we talk about last class?
- Last class was pretty abstract. Do you have any questions related to the topics we covered?
- Why make object with the same name as a class?
- What was meant by modeling a car?
- Projects

# Software Life Cycle

- We break up the life cycle of software in discrete tasks.
  - Analysis
  - Design
  - Implementation
  - Debugging
  - Maintenance
- In practice, these aren't completely separate. Developers often iterate between them.

# Analysis

- This is figuring out exactly what problem it is that you are going to be solving.
- This step doesn't involve code. You shouldn't even be thinking about code.
- You want to figure out who will use the application, what they can do with it, and what it looks like.

# Design

- After you know what you want to do this is where you figure out how you will do it.
- This step is called design. In OO programming it largely means figuring out what classes you need as well as what they will do and how they will do it.

# UML

- Unified Modeling Language
- Analysis can be aided by Use Case Diagrams.
  - Actors represent outside entities, often users, but not always.
  - Use cases are the things that they do. You can break these down and specify details.
- Design includes many UML diagrams. We will focus on the Class Diagram.
  - Boxes for each class, trait, or object declaration.
  - Shows name, member data, and methods.

# The In-Class Project

- OO works best with big programs.
- For that reason, we are going to have an in-class project that we put together over the course of the semester.
- This will be a single, fairly large program that gets built up over time and can take advantage of OO and abstraction.
- The program is going to be a 2-D drawing program with a scene graph and a command prompt.

# Project Analysis

- What can we do in this program?
  - Add drawable elements to a hierarchy of geometry.
  - Transform groups of geometry in different ways.
  - Enter commands for processing.
  - Standard application options like saving and loading.
  - Include networked collaboration with other users.
  - Produce animations by having geometry change with a “time” setting.



# Project Design

- We won't be able to lay out the entire design right now, but we can start.
- Based on the analysis, what types of different things would we need in this application.

# Constructing the GUI

- One thing we can push all the way into code at this point is the construction of the GUI.
- Let's talk about what this should look like, draw it out on the board, and then make some code to match that.

# Minute Essay

- What questions do you have about today's lecture?
- I highly suggest doing the reading, at least as long as we are covering material I have written chapters for.