The Project

1-18-2012

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?
- 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.