

# **TCSS 491 — Computational Worlds**

## **Winter 2012 — Project 1 (phase 1)**

**Due Date: Monday, Feb. 6**

### **Guidelines**

This project should be completed in small groups of two students. The project deliverables (described below) should be submitted to the instructor electronically by the end of the day on the due date.

### **Project Overview**

Your group will design and implement a distributed virtual world incorporating a basic physics engine. The project is divided into three phases:

- ◆ Phase 1: Implementation of an interactive virtual world.
- ◆ Phase 2: Addition of a physics engine.
- ◆ Phase 3: Distribution of the virtual world across multiple application instances.

The current assignment addresses only the first phases, the remaining phases will be completed later.

### **Phase 1 Design**

In this phase, your group will construct a virtual environment supporting the manipulation of simple 2D geometric objects. The application should permit the user to:

- ◆ View/explore the contents of the virtual world.
- ◆ Add, remove, and move/adjust objects in the virtual world via a combination of menu options and click-and-drag mouse interaction is recommended.

The application should include a variety of available objects that can exist within the virtual world. The required set of objects is:

- ◆ Ellipse (circle or oval)
- ◆ Triangle
- ◆ Rectangle
- ◆ A compound object comprising at least three other objects.

Additional objects are also acceptable, but the application should support at least the four “basic” objects listed above. Objects may be decorated, i.e., lit, shaded, textured, or otherwise made visually appealing, but they do not need to be.

### **Deliverables**

All Java source code should be archived together, e.g., placed in a `.zip` file, and submitted to the instructor. Only one group member need submit the group's deliverable. Please make sure that both group members' names appear somewhere within the deliverables.