Lab Exercise 12

Software Design **Allen B. Downey**
Fall 2004

Due: never!!!

12.1 Teapots

Download the latest and greatest version of

```
wget http://wb/sd/code/Teapot.py
```

If you run the new version, the objects should be shiny and there should be a big blue triangle sticking out of the sun. Watch the blue triangle for a while; it has a special feature!

Depending on your interests, try some or all of the following:

1. Fiddle with parameters:
   (a) Positional and directional lights.
   (b) Colors, transparency, and material properties.
   (c) Fog.
2. Play with the objects:
   (a) Write a new object type based on one of the other shapes GLUT can draw.
   (b) Use `glutSolidCube` along with `glScale` to write a general function that can draw rectangonal polyhedra with arbitrary dimensions.
   (c) Create more cameras and see what the world looks like from different angles. (Prepare yourself for a game of "where's my teapot?!")
   (d) If you are in the mood, think of a better way for worlds to work with multiple cameras.
3. Create new objects:

   The Triangle and Orbit objects demonstrate two ways to create objects by specifying vertices. Read the documentation of `glBegin` and `glVertex`, and then read Triangle and Orbit.
   (a) Modify Triangle so that it draws a square.
   (b) Modify Orbit so that it draws a pleated orbit by raising and lowering alternate vertices by a small amount.
   (c) Use one style or the other to create a new kind of object. Suggestion: try making a cylinder using `GL_TRIANGLE_STRIP`.
4. Make an OpenGL world that is also a RemoteObject, and write a client that can access it.