HW4: Homemade 3D Engine

Due 3/9/15

Overview

- You will create a program that creates an arrangement of 3D objects of various sizes and shapes, sitting on the x-z plane.
- Your program will allow you to navigate this 3D world using the keyboard and mouse.
- Using the mouse to click on an object in the window will cause that object (and only that object) to change colors.

Step 1: geometry specification

Create an array of objects of differing positions and orientations. I've provided code illustrating the use of cubes, teapots and cones.[1] You'll need to add at least 2 more object types. Additionally, these objects must be placed with different rotations. You should draw at least 10 objects.

Step 2: 3D navigation

Following the discussion in class, and the use of `gluLookAt`, your code should allow the user to navigate the 3D world using keyboard arrow keys and use the mouse to look left/right and up/down.

Step 3: item selection

Clicking on an object with the mouse should cause it to change colors.

[1] see colored_objects.cpp on blackboard, under "lecture materials"

Miscellaneous requirements

- use GL depth tests to hide objects in the distance
- draw each object twice to produce solid colors with wire-frame outlines