COMP5/6400 Programming Assignment 5: Lighting

Duration: **Two Weeks**

Due Date: **Midnight, Wednesday, April 9, 2014**

Requirements:

1. The window size should be at least 800x800.
2. The window's title should be "COMP-5/6400 Assignment 5."
3. This assignment should be an extension of your assignment 4. However, you can always improve what you have in assignment 4.
4. If you feel that you can create more interesting objects than what you already have, e.g., skate-boarders, free-transportation vehicles, posters, more students, etc., please do so.
5. **Define normal vectors for all polygons that are used to create objects in your environment.**
6. Add two light sources to your scene: a white light and a light of another color of your choice. The white light should be a moving spot light mounted on the main-character student and the other light should be a positional light at a location of your choosing.
7. Pressing 'L' should cycle through 4 different lighting conditions: White spot light only (default), the other light only, both lights, and no lights (ambient light only).
8. Add controls to change the amount of light in the scene. Use '+' to increase and '–' to decrease. Both light sources should be controllable.
9. Continue the design from assignment 4 that allows users to move the viewpoint around. The purpose is to see the lighting effect of the environment from different angles. A simple way to achieve this is to set the view point to the student who has the spot light.
10. Again, use your imagination for design.

Description:

In this assignment, we will explore OpenGL's lighting model. You will find that once lighting is enabled, the 3D qualities of the scene become much more apparent. From this point on, all assignments will expect you to use lighting.

Useful hint: As we discussed in class, dividing a large polygon into smaller ones will provide much better lighting effect.