CSU0021 Computer Graphics
Assignment 2

Due: November 7, 2013
(10% penalty for each day late)

In this assignment, you will learn to load a large building 3D model using the GLM tool, and then design your own GLUT keyboard or mouse callbacks to "walk through" the building.

1. Download `HW2.zip` from the course website. In the ZIP file, you will find a building model called `sponza.obj`. It is in the same OBJ format as the `unit_cube.obj` file in the Lab 1. However its size is much larger than the unit cube. Fortunately, the GLM tool (`glm.c` and `glm.h`) in `HW2.zip` has a `glmUnitize()` function to help you resize the model easily.
2. Modify your program in Lab 1, so that it can read in the Sponza model, unitize it, and then display it properly. Now the building should be rotating in the GLUT window. Please also add the vertex color as you did in Assignment 1.
3. Viewing a building from the outside is not a pleasant experience. Therefore, we will implement GLUT callback function to allow us to look at the building from the inside. This will give us a "walk through" experience as if we are touring within the building. First, we must stop the idle callback that is rotating the model. Then we may implement interaction methods to achieve at least the following:
   - Walking forward and backward.
   - Turning the viewing direction to the left or the right..
4. Here are some milestones for this assignment:
   - You will get 60% grade of this assignment if your program can handle display a properly unitized Sponza model.
   - You will get the additional 20% grade if your program can look at the Sponza model from within the building.
   - The remaining 20% depends on your design of the keyboard and mouse interaction methods. The quality of the interaction is subjective, and will be at the TA's discretion.
5. Note that **a README.txt file for this assignment is required**. Please describe your interaction method, such as which key or mouse button controls the movement and turning of the viewing direction. Please also describe which compiler you have used to develop your code in the README file.

Please submit your program source files by logging onto your Moodle account at

http://moodle.ntnu.edu.tw/course/view.php?id=36914. Please DO NOT include the 3D models (2% penalty if you do). If you submit multiple files, then please pack them into a single ZIP or RAR file.