Lab 6 Camera

1. Download the code from Blackboard that contains the Vector3 class. Add the Vector3 class to your project. Create a new camera class (camera.cpp and camera.h). You will need to create an update() function (like that discussed in the lecture) to calculate the required vectors. You will also need functions to return the data (position x, y, z, look at x, y, z and up x, y, z) which can be called from Scene. You will need to set some default values for camera position and rotation. I recommend for position (0, 0, 6) this will position the camera at the same location used in previous labs. For rotation I recommend (0, 0, 0) this applies no rotation so the camera should be looking forward. Once you have created the camera class update the Scene gluLookAt() function to use data from the newly created camera class.
2. Add keyboard controls to the camera. To do this, you will need to detect key presses within the scene class and call functions within the camera class to update position and rotation. You will need keyboard controls for moving the camera forward/backward and up/down. You will also need keyboard controls for rotating the camera left/right and up/down.
3. Add mouse controls to your camera (for looking around). Once you have working mouse control you may wish to hide the cursor. This is one of the few times you should be editing the main.cpp. The below is a code snippet showing the code added to main.cpp to reposition the mouse prior to rendering (glutWrapPointer) and hide the cursor (glutSetCursor).  
   