Be a Movie Director

Description:

Today you're going to Hollywood! You will use your knowledge of 3D transformations to help the director get the right camera shots for a scene. You will be implementing various transformations that explore how the camera can be manipulated with OpenGL.

Your Task:

- Fill in the public functions for the movie cameras. There is lots of room for creativity in this lab assignment, but there should be at least 5 unique uses of the camera. Here are some examples
  - Orthogonal camera
  - Perspective
  - Different field of views
  - Follow cameras

- Close up shots
- Spinning around a point, or moving point
- You will note that I have named some functions, but you can create your own or change the names of them to match your implementation.
  - Add to the movieCamera class as you need! This assignment is open ended.

- You can use (and are encouraged to) your camera class that you have created previously in order to orient your camera!

Files Given:

main.cpp – Main movieCamera.cpp and movieCamera.h – Fill in the empty public functions

C++ Refresh -- Helper functions:
(Using your Camera class--if you choose to do so)

Inheritance

```
1. #include "Camera.h"
2. #include "Algebra.h"
3. class movieCamera : public Camera
4. {
5.   // We will now have access to all
     public members of Camera within
     movieCamera
6. };
7. // We can call functions as such
8. movieCamera myCamera();
9. myCamera.Orient(…);
```

Adding Camera to movie class

```
10. #include "Camera.h"
11. #include "Algebra.h"
12. class movieCamera{
13. …
14.   private:
15.   Camera myCamera
16. …
17. };
18. // We can then implement our
      movieCamera functions using
      myCamera's public members.
```

Finished Early?

- Load more ply objects into the scene
- Add more views into the camera class
- Add a special tessellate function for the ply loader. Then you can call it anytime the camera views models that are close up.
- Draw the viewing volume from the camera when the scene isn't running.

Going Further:

Did you enjoy this in class assignment? The techniques here are very similar to how animation systems, and in-game cinematic cut-scenes are created. Try exploring (i.e. "googling") the following topics.

- Waypoint systems
- Moving along a path
    - After completing lab 5, you will have some tools to do this.
- Adding physics to your camera (acceleration and deceleration).