Final Project First Draft

CS 200, Fall 2015

Due Tuesday, October 20

There will be a final project due at the end of the semester. The project is a chance for you to demonstrate your mastery of the 2D rendering techniques covered in CS 200. In the final project, you will render completely in software. However for the first draft, which is due after the midterm exam, you will use OpenGL/Glut to do the rendering. Here are the requirements.

- There must be a total of at least 50 objects in the scene. All objects must be represented by 2D triangular meshes. At least two of these objects must be moving (see below).
- One of the moving objects must be a rotating figure. The center of rotation need not be the center of the object.
- The other moving object must be a rectangle. This object will be used as a camera, so the rectangle must have the same aspect ratio as the screen.
- There must be two cameras. The space bar on the keyboard should be used to alternate between the two different camera views.
- The first camera should be a stationary camera. Both the rotating figure and the moving camera rectangle should be visible using this camera.
- When the second camera is selected, the scene should be viewed using the moving rectangle.
- Whenever the screen window is resized, the scene should be rendered with the proper aspect ratio. Note that this means that the dimensions of the moving rectangle will change as a result of resizing the window.

Note that the project will not be graded on artistic merit, although I will give a bonus point or two if it looks nice. You will be graded primarily on the correctness and efficiency of your code.

Your submission for this project should consist of three files: (1) the main driver file named `cs200_project1.cpp`, (2) the header file for your 2D triangular mesh `MyMesh.h`, and (3) its implementation file `MyMesh.cpp`. You may create as many different triangular meshes as you wish. However, they should all be declared and implemented in `MyMesh.h` and `MyMesh.cpp`. You may include the header files

`Affine.h` `Mesh.h` `QuadMesh.h` `Camera.h` `MyMesh.h`

as well as `GL/glut.h` and any standard C++ header file. Be aware that I will compile and link your code using my implementations of the above packages (except for `MyMesh`).