CSE 167 Final Project: Shadow Map
Proposal
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Overview:
Shadow mapping is a technique in rasterization that uses two passes of rendering to create the effect of shadows. The first pass is from the view of the light, then the render from that view is used in the second pass from the view of the camera to determine if a fragment is in a shadow. The goal is to use a rasterizer to model the effects of shadows.

Design:
The base files of the assignment will be the same as HW3. To implement the two pass system, some changes will need to be done to the Main file. The first pass results need to be stored in a texture that can be accessed by the shadow shader. The scene will also need to be able to switch shaders for the first and second renders. For the depth mapping in the first pass, write a new shader that shades based on distance to the camera. For the shadow mapping, write a new shader that uses the texture rendered from the first pass and computes the shading at a particular color.

New components:
- Shadowshader
- Depthshader

Modify:
- Main
- Scene
- Shadow map storage in light
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Objectives:
Milestone:
- Finalize the files needed and write skeleton code
- Code the depth shader shade based on depth from camera
- Put the depth image into a texture
- Possibly create a toggle or method to display the depth image for debugging

Final project complete:
- Render first and second pass images
- Make shaders swappable depending on pass
- Code the shadow shader
- Tune parameters to make sure that shadow acne and z-fighting is minimal
- Test several scenes
- Work on bonus