Assignment 4 completed implementations:

- Antialiasing
- Area light sources
- Implement a neat scene (Pacman)
- Report
- 3 advance techniques
    - Handling a non-trivial compound object (cylinder)
    - Glossy reflections
    - Texture-mapping

Assignment Process:

The code was reviewed first to get a brief understanding of how the program worked. The TODO parts in util was first implemented, and the TODO parts in raytracer was done after. Debugging and fixing odd parts of the program was done simultaneously between the two files. Lecture and tutorial slides and notes were very helpful when implementing the harder parts of the project, such as antialiasing and glossy reflections.

Code description:

The implemented code was mostly built upon the topics and pseudocode from the tutorials and lectures. For example, soft shadow, glossy reflections, and antialiasing were implemented from the tutorials, and texture mapping was implemented from the lecture slides.

Assignment reflection:

The hardest part of the assignment was dealing with memory allocation, and debugging the program. When rendering a big scene, the computer would often slow down to unusable standards, freeze or kill the process itself. Debugging for these problems were often difficult, since it's hard to pinpoint where the memory leak is occurring.

The easiest part of the assignment was creating a scene to show. Most of the work for this part was creating an object, and applying transformations to it. It was also really fun to be able to create any chosen scene.

Topic understanding:

Creating a scene and implementing the needed util functions helped with understanding geometry and object transformations, while implementing the camera helped with understanding projection and coordinate frames. Finishing the rshade function was useful way to learn more about Illumination, since we had to implement a Phong model.

Member role:

Project was done individually.