Lucas Swidler

Assignment 5

1. Describe the difference between the Gouraud shading and Phong shading models. Include screen shots from your application (or pictures from lecture or online) to help strengthen your discussion.
2. The Phong reflection model includes several non-physical (non-realistic) components in the model. List and describe these components that are not realistic and describe why they are made.
3. The main difference between the Gouraud shading model and the Phong shading model is the calculation of normal vectors. In Gouraud’s model, each vertex’s light intensity is calculated using ambient, diffuse, and specular light. The colors found at each vertex are then interpolated throughout each polygon. This results in each polygon being the same color.

A picture containing text

Description automatically generatedGraphical user interface

Description automatically generated with low confidence

In Phong’s model, the normal vectors are interpolated across polygons. This becomes more complex, but allows for more detailed shading and lighting since each pixel has its own defined reflection, and the reflection does not look flat.

Graphical user interface

Description automatically generated with low confidence

1. Some of the components of the Phong model that are unrealistic are that it does not account for light reflecting onto other surfaces, there are only three aspects to lighting, and the normal vectors are interpolated. These are all done to simplify the process to make it more manageable in terms of computations. It would seem more unrealistic, but the image is as close as possible to realistic while also not requiring many more calculations.