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I used attribute based shading for this assignment. This type of shading uses a texture map to determine the color of the pixels of an object. The UV coordinates of the texture map are calculated in the following way.

$$UV = (\text{dot}(N, L), \text{abs}(\text{dot}(N, V)) ^ r)$$

where N is the normal for that fragment

L is the light for that fragment

V is the view position currently

r is a user controlled variable that is greater than 0

Note: $\text{dot}(N, L)$ cannot be negative. If it does become negative I have set up to be changed to 0.1

The only major data structure that I used for this assignment was vectors that would allow for different textures to be used at run time.

USER MANUAL:

Pressing the K key will decrease the r value

Pressing the L key will increase the r value

Pressing the T key will change the texture that is being used for Attribute based texture mapping