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Assignment 3

Q1.

I have used the same figure as in Assignment1.
At each vertex I have calculated the normal using the formula:

$$n=(df/du \times df/dv) \ / \ ||df/du * df/dv||$$

My parametric equation was :

$x=u*\cos(v);$
$y=u*\sin(v);$
$z=u/constant$

I hard coded the differentiation (using $\cos(v)=-\sin(v)$, $\sin(v)=\cos(v)$, etc

Q1 & Q2
I have added the light source in the main function and I have used
glUniform3f(light_pos, 2.0, 0.0, 0.0); to pass the value to vshader.
Then I have used the formula to do the lighting computations for ambient, diffused and specular shading.
Ia = ka*La;
Id = kd*max((l · n)Ld, 0)
Is = ks*Ls*max ((r · v)^alpha, 0)
To show diffused lighting I have multiplied vColor by Id in vshader.

Q3

I have used the keyword “varying” before vertex and normal vectors so that they can be accessed by both the vertexShader and fragment shader.
Then I have passed the values of light position, eye position and frag colour to the fragment shader then I have done the light computations in the fragment shader.