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CS405 PROJECT 3

Task1:

I have implemented draw function in scenenode.js. This functionality that I have implemented ensures that parent transformations, such as translation, rotation, and scaling, are also applied to their children, allowing objects like planets in a solar system to maintain their proper relative positions and motions.

If I go into detail, parent node is sun, child nodes are earth, moon and mars which I explain in task3 part. I have applied transformations to parent node which is sun and it also affects the earth, moon and mars which are child nodes and it preserving their relative positions and rotations.

Task2:

I have updated meshfs function to calculate the diffuse and specular lighting. I have calculated diffuse lighting by finding the dot product between the light direction and the surface normal vectors. And for specular lighting, I have used phong reflection model, which includes a configurable shininess exponent. And with that, they have created a sense of depth and realism to the solar system.

Task3:

I have added Mars as a child node to the solar system by translating it -6 units on the x axis and scaling it to 0.35. I have used mars image from the provided link. Additionally, I have set its rotation to 1.5 times faster than the sun.