CS405 – PROJECT 3 REPORT

In this project there were three main tasks, focused on enhancing a basic solar system simulation using JavaScript and WebGL. Here's a brief summary of what I did for each task:

1. **Scene Graph Implementation (sceneNode.js)**: In this first task, I implemented the “**draw”** function for the scene graph in the “**sceneNode.js”** file. This function was crucial for applying transformations from parent nodes to their children in the scene graph. My implementation ensures that transformations like rotation, scaling, and translation are propagated correctly from parents to children nodes.
2. **Shader Programming (meshDrawer.js)**: In the second task, I updated the fragment shader in “**meshDrawer.js”** to incorporate diffuse and specular lighting, making the scene more realistic. In this task, I needed to focus on shader programming, which was essential for rendering illuminated objects in WebGL.
3. **Scene Graph Expansion (project3.html)**: In the final task, I modified “**project3.html”** to add a new node representing Mars in the solar system. This task required me to correctly position, scale, and texture the Mars node, and ensure it is correctly integrated into the existing scene graph as a child of the Sun node.

After all these changes I did my project demonstrates a comprehensive application of scene graph theory, shader programming, and 3D transformations in WebGL.