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Final Project

1. The text from your proposal

Objective:

This project aims to create a 3D OpenGL scene featuring a Martian house inhabited by a robot named "The Wild Robot." The scene will also include a Solar System with a basic orbital representation and a helicopter that "The Wild Robot" uses for interplanetary travel.

Project Scope:
This project will include:

1. **House on Mars**:
    - Simple geometric structure (a box for the main body, cones or spheres for decorations, etc.).
    - Elements that indicate a "Martian" atmosphere, such as reddish textures or sand-colored ground.
    - Basic lighting setup to simulate Mars' ambiance.
2. **Robot(obj file)**:
    - Simplified, boxy robot model using basic shapes (spheres for heads, cylinders for arms, etc.).
    - The robots will have simple animations, such as rotating heads or moving arms.
3. **Helicopter**:
    - I will reuse the sample helicopter model from a previous project, adding textures to make the aircraft appear more realistic.
    - Basic helicopter structure (cylinder body, rotor blades).
    - The helicopter will have simple up-and-down movement to show "takeoff" and "landing."
4. **Solar System**:
    - Basic planets (spheres of different sizes and textures).
    - Orbit paths for a few key planets (e.g., Earth, Mars, Jupiter… 8 planets).
    - Rotations for planets to simulate orbiting and spinning.
5. **Camera Movement**:
    - Simple camera movements to view the Martian house, robots, and Solar System.

2. What you actually do for your project
   I created a solar system with the sun positioned at the center. Seven planets orbit around the sun, each rotating 180 degrees on its axis. I added orbital trails to visualize the paths of the planets. At the outermost layer, I placed a grid and positioned a house on it. Additionally, I incorporated the helicopter from Project 2, placing it to the right of the house. The helicopter, like the planets, also orbits around the sun.

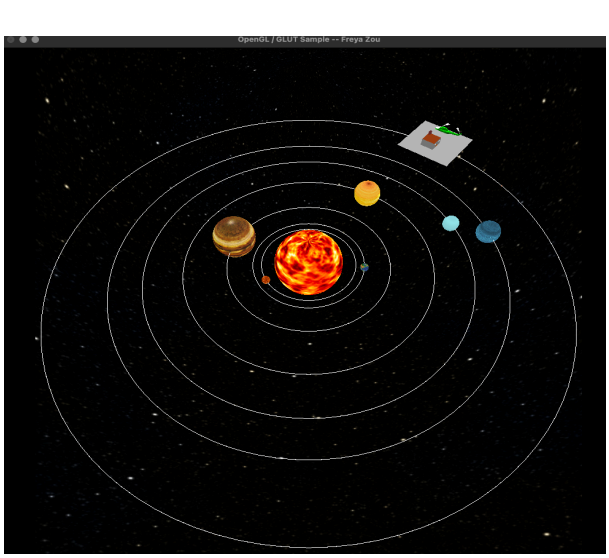
3. How your project differs from what you proposed, and why

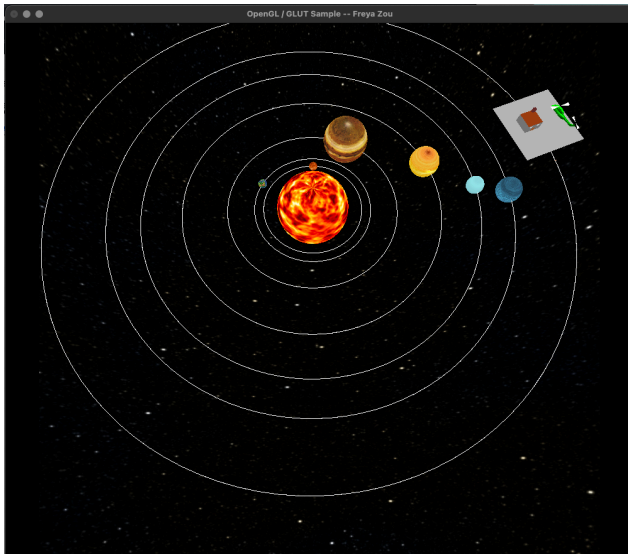
   I realized that my initial proposal was overly ambitious and far exceeded a one-week workload. Given that I had three other finals to prepare for, I did not have enough time to dedicate to the project. As a result, I significantly reduced the scope by cutting out several tasks, such as implementing the robot and animating the airplane to travel between different planets. This adjustment allowed me to focus on the core aspects of the project while managing my time effectively.

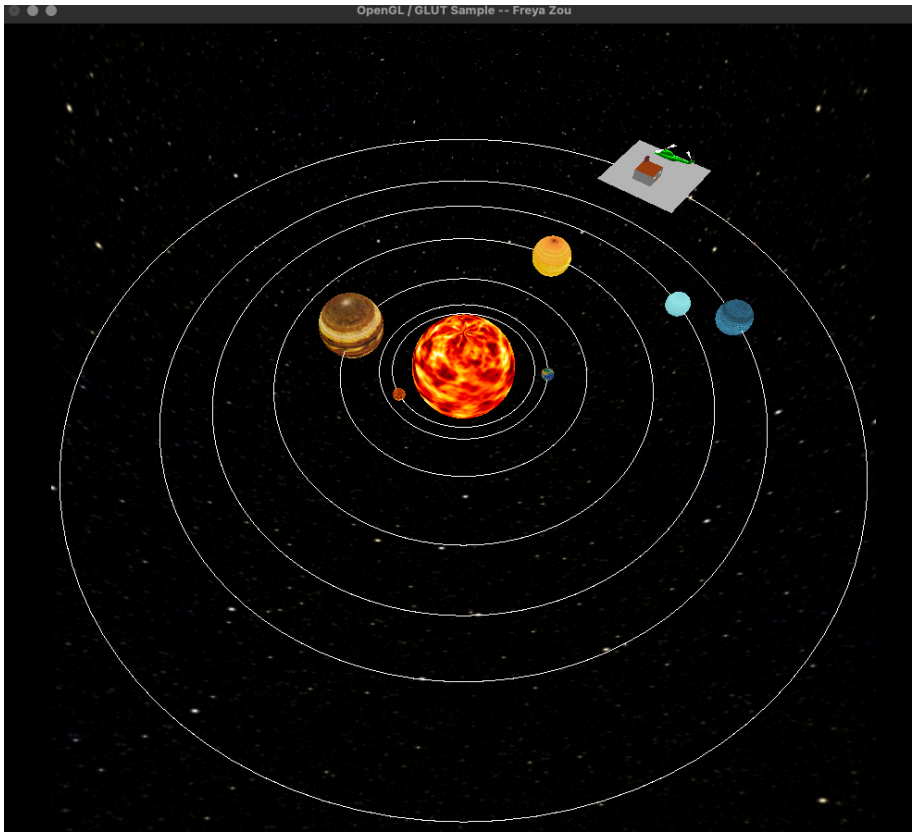
4. (optional) Any impressive cleverness you want us to know about
   I used a BMP file to generate a starry background, giving the appearance of a realistic space environment. Additionally, I placed the entire solar system inside a larger sphere, enhancing the immersive feel of the scene.

5. What you learned from doing this project (i.e., what you know now that you didn't know when you started)
   To be honest, my primary focus for this project was practicing everything I learned from this class. While I was familiar with the concepts when I started, there were many aspects I didn’t fully understand, such as working with textures and animations. However, through this project, I was able to deepen my understanding and enhance the skills I developed throughout the course.

6. Some images that are especially representative of what you did







7. A link to the video showing off your project.
   https://media.oregonstate.edu/media/t/1_nq4v0xra