Hospital Floor 3D Model - Final Report

1. Assignment Overview

The focus of this project was to develop a detailed 3D model of a hospital floor featuring surgery rooms, using realistic textures and GLB models to create a more realistic design. The model incorporates the following key features:

1. **Dynamic Illumination and Camera Movement:**
   - Ambient lights with editable color and intensity.
   - Options to manipulate the view angles, perspectives and orientation.
2. **Animations**:
   - Simple animations to improve some of the movements made by the camera.
3. **Interactive User Menu:**
   - Users can interact with the model in real time to:
     - Adjust lighting intensity and color.
     - Switch between views and projections.
     - Change orientations and zoom levels.
     - Check room occupancy for a specific date and time.
4. **Room Occupancy Visualization:**
   - Unoccupied rooms appear empty, only having the default GLB models.
   - Occupied rooms display a figure on the operating bed to symbolize ongoing surgeries.

2. Technologies Used

The following technologies were employed to create and integrate the 3D model:

- **Three.js:** For creating and rendering 3D graphics.
- **Tween.js:** To implement smooth and dynamic animations.
- **JavaScript:** The primary programming language for functionality.
- **HTML:** Used for structuring and styling the interface.

3. Interactions Adopted

The project includes intuitive keyboard and mouse interactions.

Keyboard Interaction
- 'i' Key: Displays a toggle with detailed information about a selected room.

Mouse Actions

- Right Mouse Button: Changes the view orientation, enabling different perspectives.
- Left Mouse Button: Selects a room; clicking on a bed triggers a smooth animation, focusing the camera on the selected room.
- Mouse Wheel: Zooms in and out for greater control over the view.