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Virtual Art Gallery using Three.js

Introduction

The Virtual Art Gallery is a 3D render of an art exhibition space using the Three.js library. It showcases various art frames on the walls, a centerpiece rotating diamond on a table, and architectural features such as walls, windows, and a grid-patterned floor.

Features

Perspective Camera Setup: Offers a wide-angle perspective of the gallery space.

Texture Mapping: High-resolution textures mapped onto surfaces like the wooden floor, concrete walls, and art frames.

3D Models:

- Art Frames: 3 different art pieces displayed in the gallery.
- Diamond: A centerpiece rotating diamond showcased on a table.
- Table: A table displaying the diamond.
- Poles & Red Strips: Decorative elements around the table.

Architectural Elements: Includes walls (both full and half-sized), windows, and a transparent glass roof.

Dynamic Lighting: Directional sunlight casting shadows in the gallery to enhance the 3D feel.

Interactive Controls: The user can interact with the 3D space using the OrbitControls functionality from Three.js.

Implementation Details

- **Texture Loader:** All the textures used in the project are loaded using the `THREE.TextureLoader()`.
- **Materials:** Different materials were created to impart specific visual properties to various objects like `MeshBasicMaterial`, `MeshStandardMaterial`, `MeshLambertMaterial`.
- **Geometry:** Different geometrical shapes like `BoxGeometry`, `OctahedronGeometry`, and `CylinderGeometry` have been used to create objects in the gallery.
- **Shadow:** Objects like the diamond, table, glass box, and walls have been set up to cast and receive shadows to give a realistic feel.
- **Lighting:** A `DirectionalLight` source has been added to simulate sunlight, which casts shadows in the gallery.

How to run?

1. **Install Node.js:** Ensure you have [Node.js](#) installed on your machine.
2. **Navigate to the project directory** on your computer.
3. **Install the necessary dependencies:** If you have a `package.json` file in your project directory, you'll need to install the dependencies listed there.
4. **Start the server:** Run the `server.js` file using Node.js.
5. After starting the server, you should see a message indicating that the server is running and providing a link to access it.
6. **Access the website:** Open a browser and navigate to the displayed link.

Future Enhancements

- Adding interactivity to the art frames. When a user clicks on an art frame, it could show details about the artwork.
- Introducing more lighting sources and variations.
- Increasing the gallery size or adding more rooms and levels.

Credits

- All textures and images are sourced from Unsplash (<https://unsplash.com>). All the images and textures are copyright free.