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Computer Graphics Project

For this Project, all the demos are based on Space Theme, A Space Skybox has also been given to the Scene.

Demo 1: Competing Space Ships

This demo uses the following Shaders:

- Mid Wall uses the vertex and fragment Shader in order to give a glass effect.
- Left and Right Wall uses Diffuse, Emission, Bumps and Rim Lighting Shader to give a Lava effect.
- UFO uses Diffuse, Normal and Emission Shader to give a UFO texture.
- Particle effect has also been given to this particular demo.

For this demo, the mid wall acts like a finishing line and the two walls beside the mid wall acts like the guarding doors, transform animation has been given to the left and right walls to create a dramatic view. Two spaceships have been included which again uses the transform animation and acts like they are competing with each other.

Demo 2: Swimming Pool Effect

This demo uses the following Shaders:

- The Swimming Pool uses the Vertex and fragment Shader with distortion in the water using sine wave and blending to create a transparent effect with the texture.
- The 4 stands of the swimming pool at the corners just uses Emission effect.
- The Particle effect on the 4 stands displays a fire effect.
- The floor of the Swimming pool just uses the diffuse texture.

For this demo, A cube has been given a water like texture which made it appear like a swimming pool, The vertex and fragment shader uses the sine curve and the `_Time` function which gives the distortion to move the water itself. Two models Zombie duck and Spinning top have been added, the transform and rotation animation has been given to the model which makes them look like swimming models.

Demo 3: Revolving Ring Planet

This demo uses the following Shaders:

- This Planet uses Standard Specular PBR shader to give metallic like texture to the planet.
- This planet also includes a Ring like Particle effect.

For this demo, A sphere object has been added and associated with the Standard Specular PBR Shader which gives metallic texture to the Planet, the rotation script has been given to the planet to make it revolve. Further, A particle effect was created using the donut shape with the donut radius = 0.2. To

make it move in a circular and continuous motion, Loop mode has been added. To Make it appear more like a ring, 4 different gradient colours were added along with start time.

Demo 4: Alien Exhibition

This demo uses the following Shaders:

Magic Box

- Inside the magic box, the simple diffuse texture has been added.
- On the outside of the magic box, 3 faces have been given vertex and fragment shader without the distortion to make it look like a mirror.

Hour Glass

- This vintage Hour Glass uses two Shaders: Rim Lighting Shader and Stencil Window Shader.

Cocoon

- This Cocoon has been added inside the magic box. The Cocoon has a sleeping alien inside, the Cocoon and the lid itself uses Bump Diffuse Stencil Shader which makes the alien appear only through the Stencil Window/ Hour Glass.

For this demo, Cocoon with a sleeping Alien has been added inside the magic box, the Bump Diffuse Stencil is added to the Cocoon and Hour Glass uses Stencil Window and the Rim Lighting. While watching through the Hour Glass, the sleeping alien can be clearly seen, otherwise not. The Alien has been given the Rotation Script which again, can only be seen through the Hour Glass. The Outside of the Magic Box uses the 3 planes associated with the Vertex and Fragment Shader to give it like a mirror effect.