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11/8/2024

CS 330

I decided to create a 3D reproduction of a straightforward still life scene for this project.

Four separate items make up the scene: a table, a book, a ball, and a vase. Because they

offer a fair balance of complexity and simplicity and let me employ at least four distinct

fundamental 3D shapes, these items are perfect for 3D exploration. I'll dissect each item

and describe the fundamental 3D shapes I'll be using to make it.

Choosing Items

The following items were chosen for this scene:

Table (Plane): This item acts as the other things' foundation or grounding component.

Since it provides the 3D scene with a stable surface on which all other objects rest, the

plane is an obvious choice.

Vase (Cylinder + Cone): The vase is a useful tool because it contains two basic forms that

may be used to make it: a cone for the neck and a cylinder for the body. This satisfies the

need to employ a minimum of one multi-shaped object.

Ball (Sphere): The ball is a great choice to symbolize something that is spherical by nature.

One of the fundamental 3D shapes is the sphere, which offers a chance to show how a

circular object can be depicted in three dimensions.

Book (Box): A box is a suitable representation of a book, which is another really simple

object. I can give the box the right proportions to resemble a book by scaling it.in a variety of shapes.

Dissection of Shapes and Objects

Basic 3D forms will be used to deconstruct each object in the scene. The things will be made using the shapes as follows:

Table:

Utilized Shape: Plane

Since the table will be depicted as a flat plane, the other items will have a strong base. As the "ground," the plane will be positioned horizontally and positioned at the bottom of the scene.

Because it offers a straightforward and efficient method of grounding the picture while preserving the simplicity of the 3D representation, the choice of a plane makes sense.

Vase:

Shapes Employed: Cone + Cylinder

A cylinder, a simple 3D shape that is useful for depicting cylindrical things, will be used to create the vase's body. The vase's neck will be shaped like a cone, tapering as it rises to give it its recognizable form.

Since the vase usually has a broader base and narrows toward the top, the cylinder and

cone combination makes perfect sense. I can simply duplicate the object's proportions while maintaining an acceptable level of complexity by utilizing these two forms.

Ball

Sphere was the shape used.

The most obvious choice for any spherical item is a sphere, which will be used to represent the ball. The sphere, which will be positioned above the table in the scenario, is perfect for simulating the ball's roundness.

Because a sphere accurately replicates the appearance of a ball in the actual world, using it is easy and efficient.

Book:

Used Shape: Box

A box form will be used to build the book. The box can be made to resemble a book by adjusting its Y-axis to give it the proper thickness and rectangular dimensions.

The most natural option for depicting rectangular objects is the box. By properly scaling it, I can create a book-like shape without adding more intricate geometry to the model.

Justification for Object Selections

These items were chosen with simplicity and usefulness in mind: table, vase, ball, and book. Basic 3D shapes can be used to represent each object, making the task doable while still showcasing a variety of 3D modeling approaches.

Table (Plane): Grounding the entire scene makes the plane crucial. The scene would be less realistic if there were no plane since the things would float.

Vase (Cylinder + Cone): This multipurpose item satisfies the need to integrate fundamental shapes by enabling the usage of two distinct shapes. Additionally, it adds intricacy, which adds interest to the project.

Work Scope

Using OpenGL or another 3D rendering engine to model these four items is part of the work's scope. To achieve a balanced composition, the table will be positioned at the scene's base, with the other items arranged above it and spaced out. The book and ball will be positioned off to the side for aesthetic appeal, while the vase will be in the middle.

In order to properly arrange the objects, I will employ fundamental transformations including translation, scaling, and rotation. For instance, the book will be gently turned to provide realism, and the vase will be transferred upwards to stand on the table. I'll also use simple lighting to provide depth to the items and improve the scene's aesthetic appeal.