2-3 Milestone One: Project Proposal

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**Selected 2D Image**

For this milestone, I have selected an image of an open book on a wooden desk accompanied by a coffee cup and a pen. This scene offers a simple yet engaging composition that balances realism and technical feasibility. The image includes four primary objects: the book, the coffee cup, the pen, and the wooden desk.

**Objects to Replicate in 3D**

The objects chosen for replication in 3D are:

1. Open book: The book will be the scene's central object and provide an opportunity to demonstrate attention to detail, such as the curvature of open pages and the thickness of the cover.
2. Coffee cup: The cup adds variety in shape and texture and allows for exploring cylindrical and toroidal forms.
3. Pen: The pen introduces a slender, elongated object that is simple but essential for completing the scene.
4. Wooden Desk: The desk will serve as the scene's grounding plane, adding realism and context for the other objects.

These items are a good choice because they combine simplicity and diversity in shape, ensuring the project remains achievable while offering opportunities to showcase different modeling techniques.

**Basic 3D Shapes to Be Used**

Each object will be broken down into its basic 3D shapes, as follows:

1. Open Book:
   1. Plane: The open pages of the book.
   2. Box: The hardcover base of the book.
   3. Cylinder: For added detail, if needed, for the book spine.
2. Coffee Cup:
   1. Cylinder: The body of the coffee cup.
   2. Torus: The handle of the cup.
   3. Plane: The circular coffee surface within the cup.
3. Pen:
   1. Cylinder: The main body of the pen.
   2. Cone: The pen’s tip.
4. Wooden Desk:
   1. Plane: The flat wooden surface that grounds the scene.

**Justification and Scope**

The selected shapes make sense for the chosen objects because they are fundamental geometric primitives that can be combined and transformed to achieve the desired forms. For instance, the coffee cup’s cylindrical body and toroidal handle reflect straightforward 3D shapes, while the book demonstrates how planes and boxes can be integrated to represent real-world objects.

The scope of work is manageable because each object involves a limited number of shapes and transformations, allowing for a focus on accuracy and visual appeal. Additionally, the objects complement each other in scale and composition, resulting in a cohesive scene.

**Plan of Action**

1. Start with the Plane to create the desk surface.
2. Model the Box and Plane for the book, ensuring proper alignment and dimensions.
3. Construct the Cylinder and Torus for the coffee cup, applying textures to enhance realism.
4. Assemble the Cylinder and Cone to create the pen, ensuring proper proportions relative to the other objects.
5. Apply lighting and textures to unify the scene and render it effectively from various camera angles.

Following this plan, the resulting 3D scene will replicate the 2D image while adhering to the assignment requirements. This approach ensures the project is exciting and achievable within the given constraints.

Reference

* LearnOpenGL. (n.d.). Transformations. Retrieved from https://learnopengl.com/Getting-started/Transformations
* Principles of 3D Shape Creation, Transformation, and Rendering. (n.d.). Retrieved from https://learn.snhu.edu/content/enforced/1798871-CS-330-13188.202511-1/course\_documents/CS%20330%20Principles%20of%203D%20Shape%20Creation%2c%20Transformation%2c%20and%20Rendering.pdf?isCourseFile=true
* Shutterstock. (n.d.). Open book, pen, and coffee cup on wooden desk. Retrieved from <https://www.shutterstock.com/image-photo/open-book-pen-coffee-cup-on-324686060>