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Comp Graphic and Visualization

1-4 Final Project Review: Shapes and Image Selection

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To replicate the workspace image in 3D, break down the scene into core objects and match them with geometric primitives. Here's how you might approach this with precision and variety:

◇ Major Objects and Shape Mapping

1. **Monitor**
   a. **Box**: For the main body/frame of the monitor.
   b. **Plane**: For the screen surface display.
   c. Could also add a **prism or cylinder** for the stand base depending on its design.
2. **Keyboard**
   a. **Box**: Represents the overall flat rectangular body.
   b. **Cylinders**: Optional for raised keys if you want fine detail.
3. **Coffee Mug**
   a. **Cylinder**: For the mug body.
   b. **Torus**: For the handle to create a smooth grip structure.
   c. ✨ *This object requires multiple shapes* to achieve a realistic form.
4. **Mouse**
   a. **Tapered Cylinder**: Ideal for the ergonomic, domed shape.
   b. **Sphere**: Could be used to add curvature to the top or base junction.
5. **Pen Holder with Pens**
   a. **Cylinder**: For the holder container.

b. **Cylinders or Cones**: For individual pens or pencils. Use **cones** for tips to create more visual distinction.

🧠 Multi-Shape Integration

The **coffee mug** is a clear example that benefits from combining a **cylinder and torus**. Another candidate is the **monitor stand**, which may look like a **prism** supporting a **box**. For finer realism, the **mouse** might need a blend of a **tapered cylinder and sphere** to capture its curvature and click surface.

🖌️ Simplification Opportunities

- **Background Blur**: The scenery outside or behind the desk can be omitted entirely.
- **Pens and Pencils**: Instead of modeling each pen individually, one grouped **cylinder cluster** can represent them collectively.
- **Books**: Stacking individual **boxes** is accurate, but in a simplified model, a single **stretched box** could represent all books as one unit.
- **Keyboard Keys**: Model only a few keys or use a texture map instead of separate **cylinders** for every key.

3D Shape Analysis Based on Workspace Image

To replicate the 2D workspace scene in 3D, I would use basic geometric shapes to model the main elements. The monitor can be built with a box (frame), a plane (screen), and a prism or cylinder (stand). A coffee mug would need a cylinder for the body and a torus for the handle, demonstrating the use of multiple shapes to represent one object. The keyboard could be a flattened box, while individual raised keys could be simplified or modeled with tiny cylinders. The mouse fits best as a tapered cylinder or a sphere-cylinder combination.

To simplify, background objects can be omitted, and books or pens can be grouped into single boxes or clusters of cylinders. This strategy emphasizes efficiency while maintaining

visual accuracy.

Reference Blender Foundation. (n.d.). *Blender manual: Primitive objects*. https://docs.blender.org/manual/en/latest/modeling/