Project 2 Proposal

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December 22, 2022

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For this project I am proposing to create a scene with several meshes. The first mesh is a cube made of glass material and, as such, it is transparent and refractive. The other mesh is a solid black sphere which is non-reflective (like a mirror) and non-refractive. These 2 meshes will be put together to create a die (1 cube and the black sphere gets repeated several times).

The scene will have a camera orbiting around it allowing the viewer to inspect the scene, zooming in on the object and rotating around it.

The user will have the ability to take a snapshot of the openGL window/scene to a known image format and if there is time, "photorealistic" lighting will be added in the form of Phong lighting.

Refraction is a shader based special effect with normals.

The scene should contain a skybox as well.

The technical challenges are therefore as such:
- [2.0] Generic scene graph.
- [1.0] Saving a snapshot of the application to a known image file format.
- [2.0] Non physically-based "photorealistic" lighting.
- [4.0] Realistic or stylised material with transparencies.
- [3.0] Shader based special effects.

An example of the intended result:

Note: this image does not belong to me and was taken from an Amazon listing.
https://www.amazon.com/Vintage-Dice-Clear-Transparent-Pair/dp/B000UPTRIQ
The brand is called "Vintage Dice" and all rights belong to that entity.

The planned skybox is different from what is displayed in the image.