

CS 535 Computer Graphics
Programming Assignment 2 (40 points)
Due: 11/03/2024

[3D Scene]

1. Assignment Description

You job here is to convert a given traditional OpenGL program that generates a 3D scene of a bedroom with a floor fan (see the left figure below) to a **modern** OpenGL program. The term “**modern**” means your C++ program needs to use shaders of your graphics card to do the computation and rendering. The given OpenGL program can be downloaded from the class website using the link “3D Scene” underneath “Sample Programs for Programming Assignments” on the right panel of the class website.

If the last digit of your ID is even, your floor fan should have FOUR blades and rotate in a CLOCKWISE direction. If the last digit of your ID is odd, your floor fan should have THREE blades and rotate in a COUNTER-CLOCKWISE direction. See the following figures for examples of a floor fan. As you can see in the sample program, each item in the room can be built using simple primitives such as cubes, cylinders, cones and spheres through simple transformations such as scaling, translation and rotation.



The sample program can do shading, it cannot generate shadows yet (shading and shadow generation will be covered in just a few days). You need to find out how many (positional) light sources are provided in the sample program and keep those light sources for your own program.

You are encouraged to use a bird's view to render your 3D scene, that is, the view point is not fixed, but floating. But a fixed view point is acceptable.

Mail your program (in one file) to "cheng@cs.uky.edu" on or before the due date. Then do a demo during my office hours (in-person or online) between 11/03/2024 and 11/11/2024.