Egyptian Temple

Section1: Goals

The goal of this project is to bulid a world where the user can explore with different lighting/shading methods illuminating the shapes. The objects of the world are set on a ground-plane surface and each of them have individual normal vector that reflected the light from both a user-adjustable light source and a headlight attached to the camera.

The world's name is Egyptian Temple. The motivation for such idea is due to my love for Ancient Egyptian culture. The next section will explain how to manipulate these objects and use the program.

Upon opening the HTML file in the Microsoft Edge, there will be a big canvas at the very begin and instructions as well as input boxes in the following parts about how to alter objects on the screen, move the camera around the world space, and move the light positions. The user has complete freedom of movement around the world space and can alter the light sources through keyboard interaction and input boxes. Below is a starting image of the project for reference.
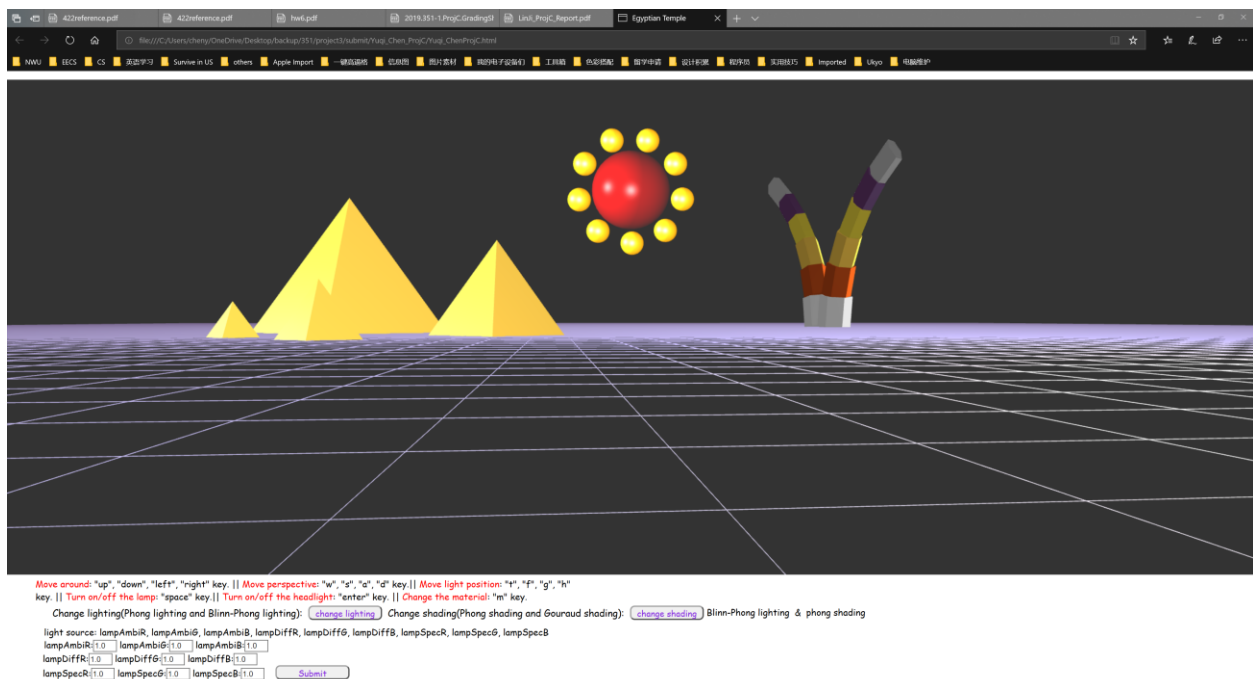

Figure 1 Egyptian Temple

Section2: User-guide

Figure 2.1 Instructions

Press W(up), S(down), A(left), D(right) key to turn the camera up down left and right.

Press up(up), down(down), left(left), right(right) key to turn the camera up down left and right.

Press T(up), G(down), F(left), H(right) key to move light positions.

Press Enter key: Turn on/off the headlight.

Press Space key: Turn on/off the lamp.
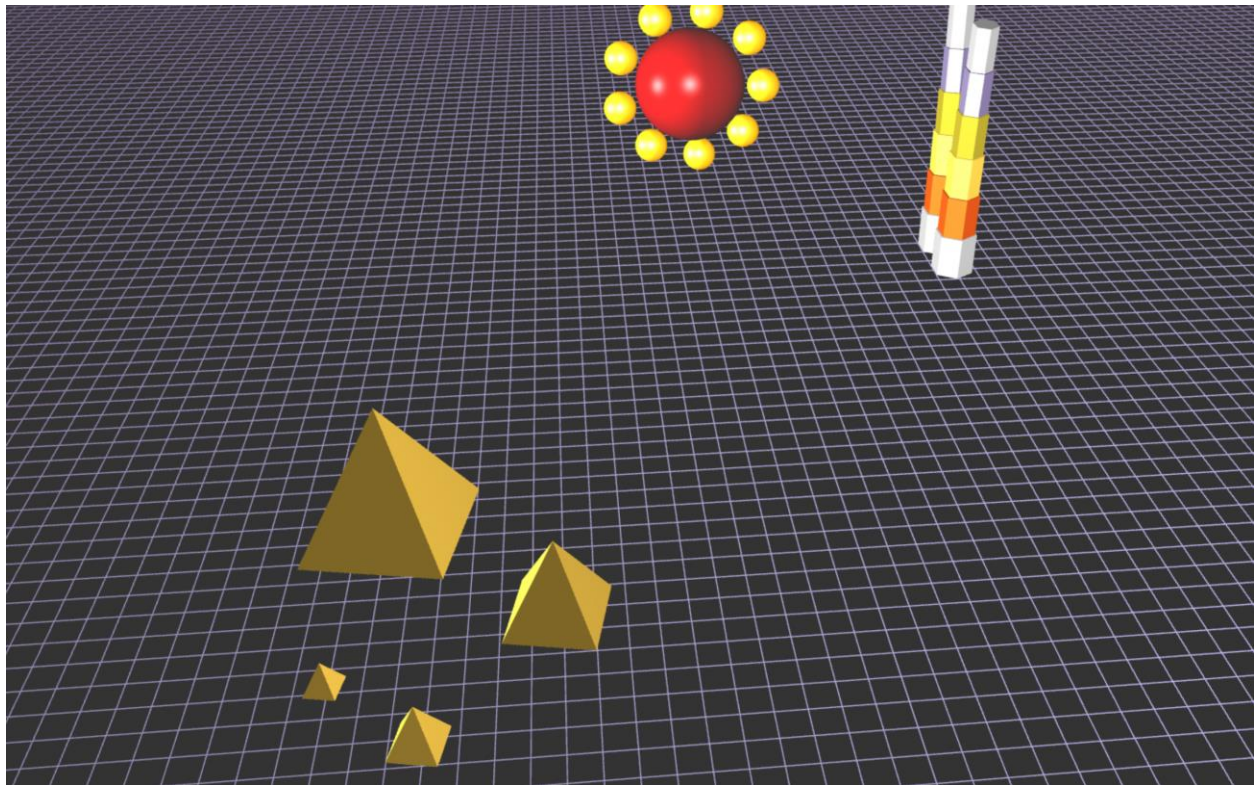
Press M key: Change the material.

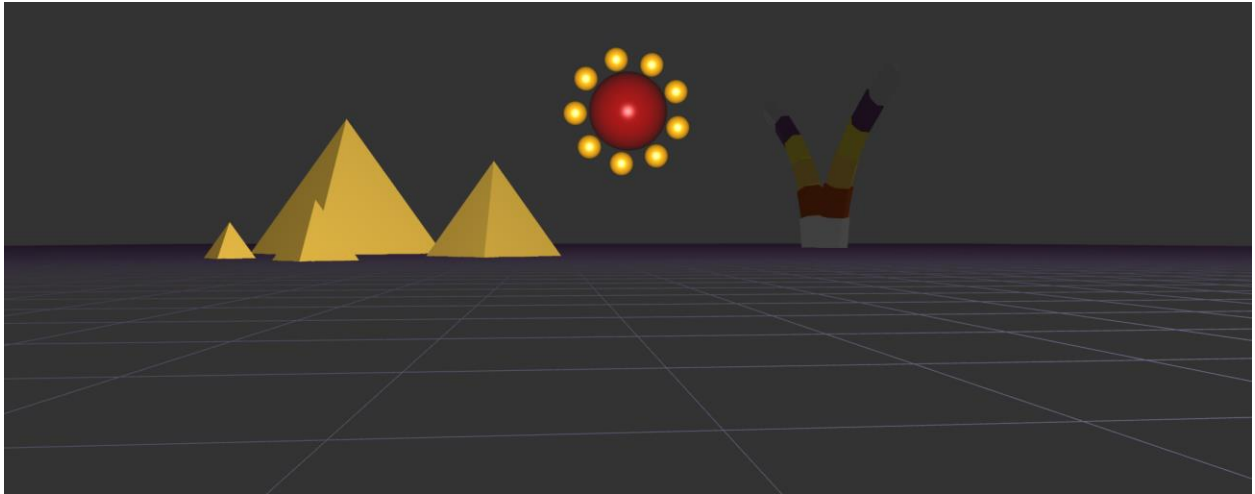Figure 2.1 The transformation of camera

Figure 2.2 Turn off the lamp, Turn on the headlight
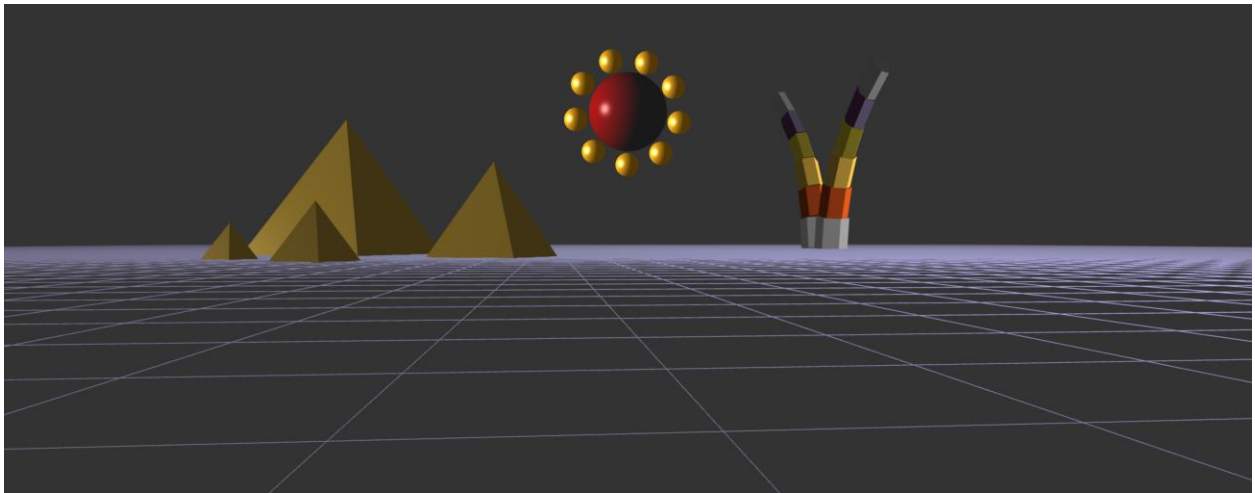

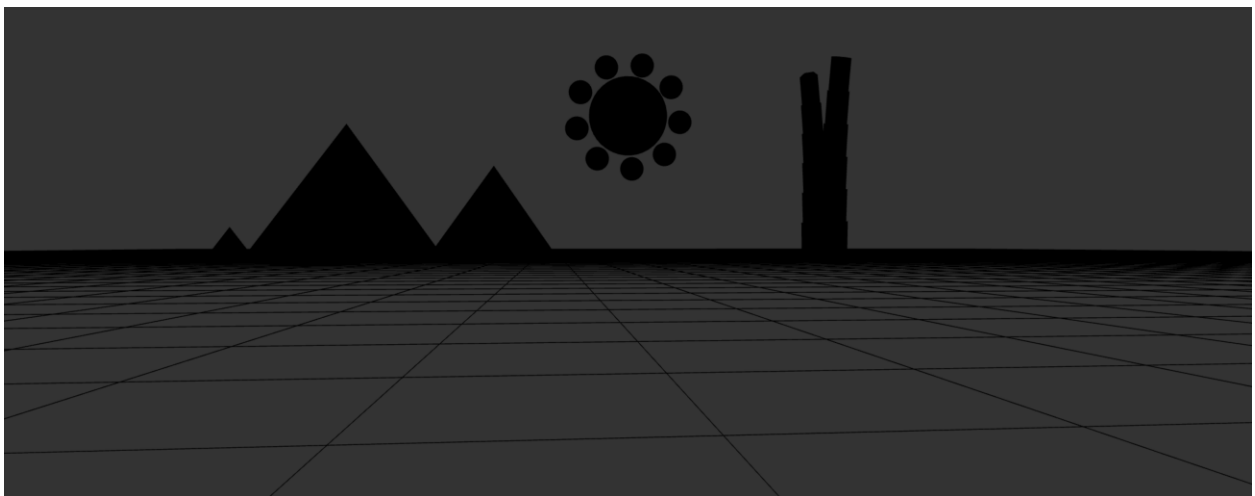Figure 2.3 Turn on the lamp, Turn off the headlight

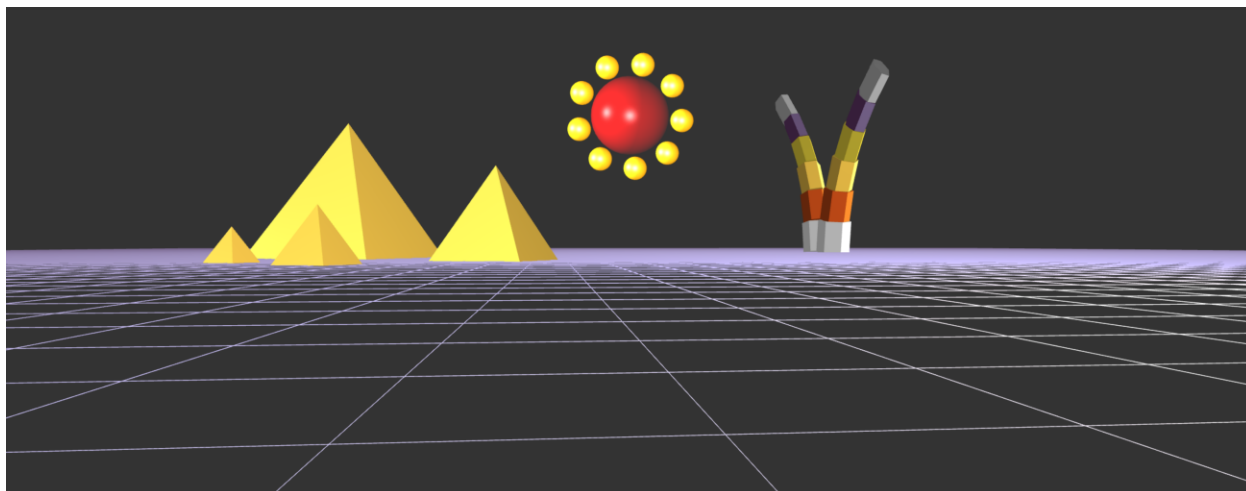Figure 2.4 Turn on the lamp and the headlight

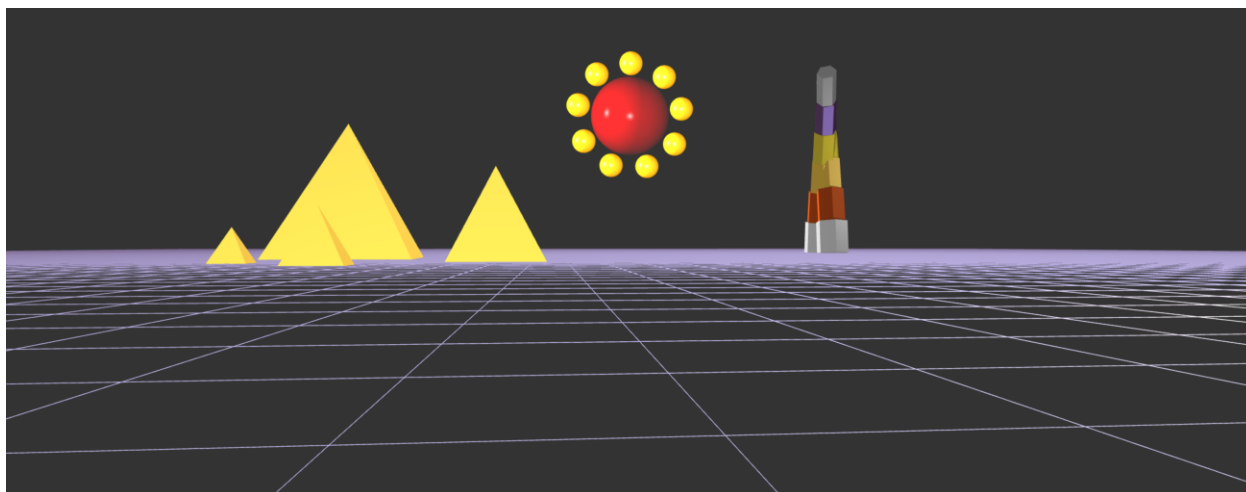Figure 2.5 Blinn-Phong lighting & phong shading

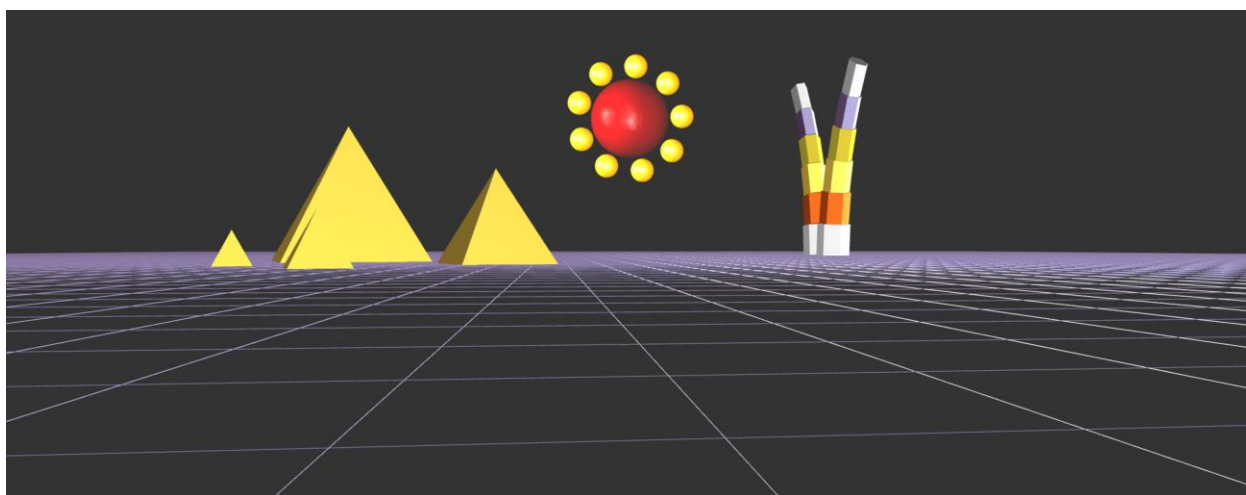Figure 2.6 Phong lighting & phong shading

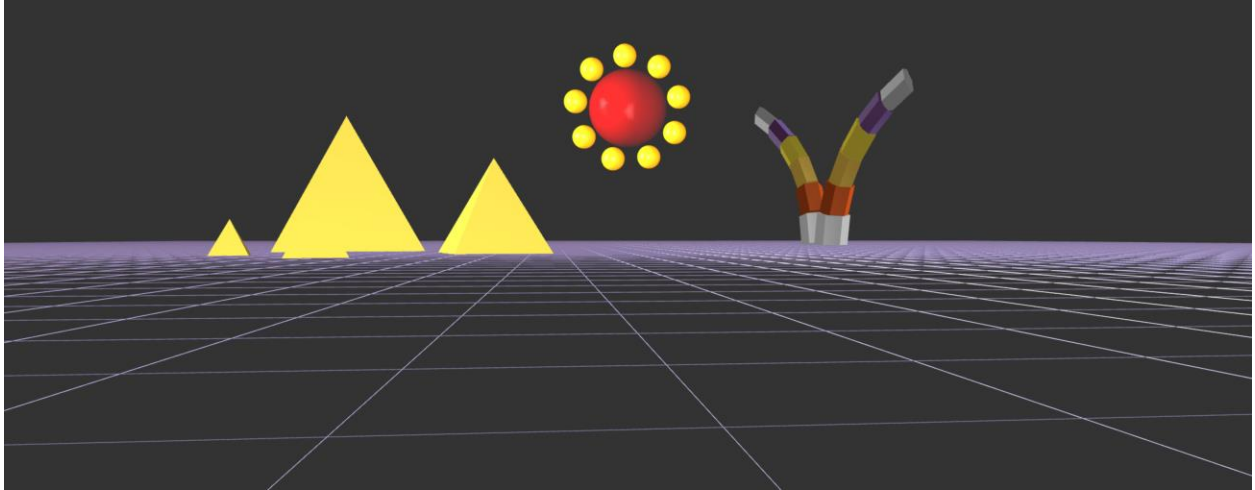Figure 2.7 Blinn-Phong lighting & Gouraud shading

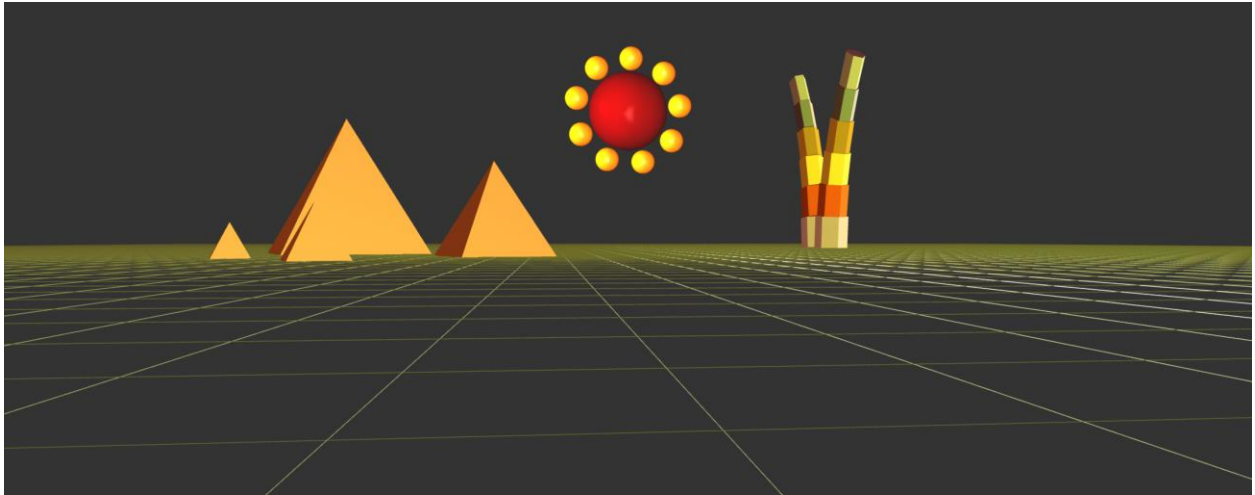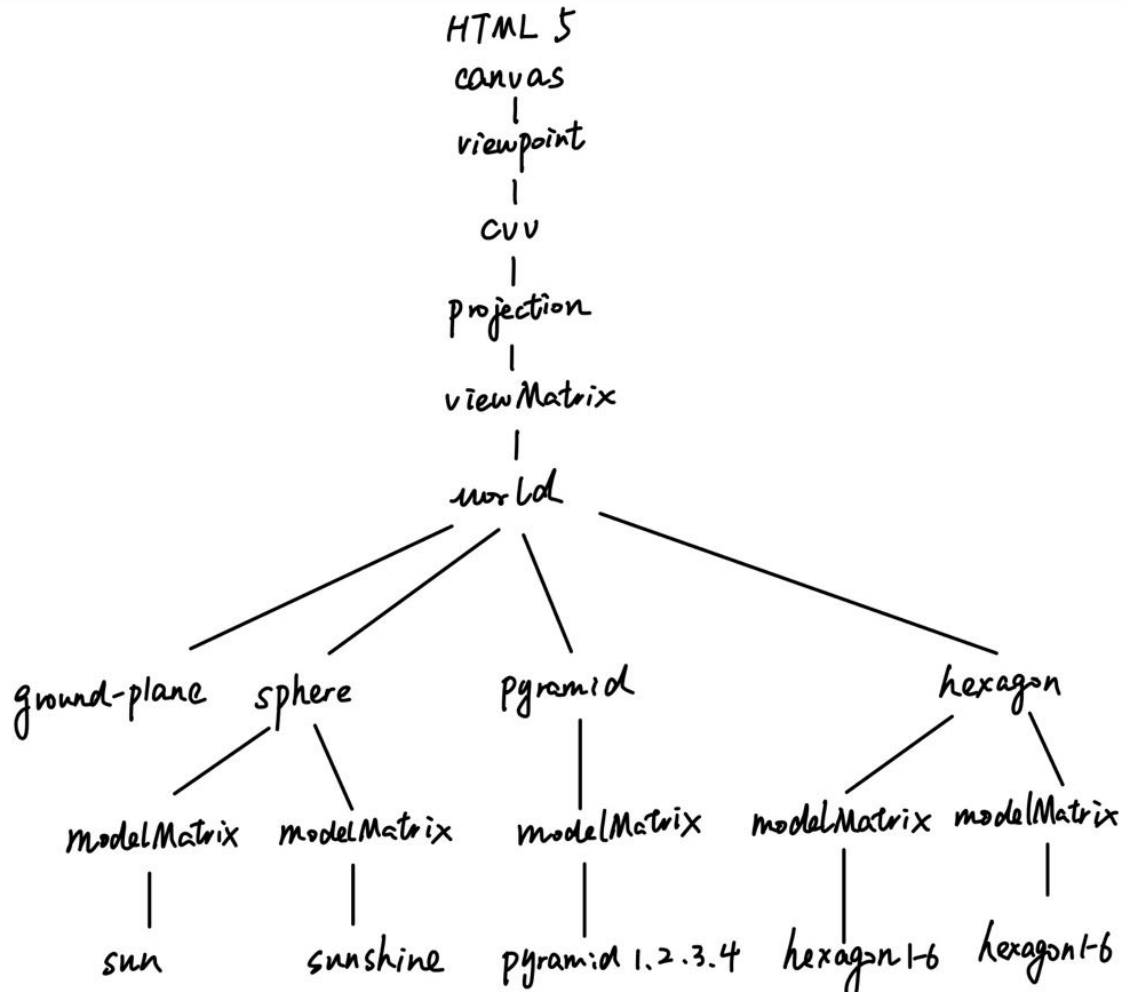Figure 2.8 Phong lighting & Gouraud shading

Figure 2.9 Change the color of lamp

Section 3: Scene-graph

Figure 3.1 The scene-graph