Hacettepe University Computer Engineering Department

BBM 414 Computer Graphics Lab. Experiment 4

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Part 1

In the first part of the assignment, it is expected to run the example 1 from chapter 4 which is an example from the book's codes. First off all, we add the shader files, library files and InitShader file to the project. To run the code, we made some changes on the code which are;

- The cube model was appearing at the up, right corner of the scene. We changed the code with the code which is given at piazza course page.
- We changed the second parameter of the glDrawArray function which is the starting index of the array. We changed 0 value with 1 value.

While we are working on part 1, we started by adding GLUI library to project similarly to previous project. Like in the other projects, we got few error messages and we added " glewExperimental = GL_TRUE; " line to the code and we changed the readShaderSource method with the given code on piazza. Additionally, we changed the code in vec.h which is "vec4(const vec3& v, const float s = 1.0) : w(w)" as "vec4(const vec3& v, const float s = 1.0) : w(s)" to carry the model to center.

Finally, we changed the controls of the left, right, bottom, top, zNear, zFar, radius, theta and phi functions by adding buttons and implementing the functions to the project.

Part 2

Part a

In the first part of the experiment's part 2, it is expected to read the Stanford Bunny model with .smf extension. We decided to work on the model which ending with _1k. Then, we searched about how to read the given document. While we started to write the code to read document, we got index problem and we solved that problem by decreasing the indexes by 1. After that, the bunny was appeared on the screen.

Then, we changed the color of the bunny as expected from experiment. We added the plane and initialize a different color to it. Similar to part 1, the model appeared at the corner of the screen. We solved the problem by changing the code with the code which is shared at piazza course site.

Part b

In the second part of the experiment's part 2, it is expected to control the camera with the w, a, s, d keys and a trackball. While we are working on camera, we started by adding trackball to the project with the help of glui library. Then we set the camera location and looking point

with the codes. After that, we implement the w, s, a, d buttons by the help of codes in part 1. We set the x, X, y and Y functions as the movements of the camera.

The second challenge of the part 2 was adding a trackball to the project and implement it as a camera controller. We could add the track ball but we could not implement it. We learned that from the user manual of the glui library we need to create an array and the movement of the trackball needs to point an element of that array. We add the get_float_array_val function and set the size of the array as 16. When we tried to add these functions and the functions that needs to add as glui manual says, we got lots of error and we even did not get any output scene.

P.s: The code includes some unnecessary functions and variables, but we especially did not delete them. Because we wanted to show what we are tried to do to control the camera with trackball.