

1 Introduction

Zip up all your work into a single zip file and upload the project to the MyClasses site for this class. In these exercises you need to update the DoxyGen documentation. Fully document all new data members and methods to any of the classes, and update the documentation for anything that has changed, including the documentation in the main that gives an overview of the program.

2 Exercise

This exercise is an extension of the picture cube exercise. You will be creating a picture cube of images that are textured onto each of the six faces of a cube and incorporating both object and texture transformations. There are screen shots of the program running below. The textures that were used for the program are included in the zip file. This exercise will require you to do some shader programming. You may start with the shaders from the examples we did in class but they will not be able to be used verbatim for this exercise, some editing will be required.

There is a cube map (sky textures) mapped onto a sphere as the background image. There is a horizontal plane as well in the scene, this should have a dull green material and a single (repeated) texture of the stone wall. There is a cube object that will be repeated 50 times in the scene, so 50 cubes. The cubes are to be placed at random positions in the scene but all are to be above the stone wall ground. The faces of the cubes are to all have different images on them.

The program has the standard spherical and YPR cameras, selected with F11 and F12. It also has the standard M mode toggle key. When the user hits the R key it will toggle the cube rotation. Each cube should rotate around a randomly generated vector but their center should be fixed in its original position. If the user hits the T key this will toggle the ticker-tape like scrolling of the image on its panel. The F1 key will turn lighting on for the stone ground, F2 will turn the ground lighting off. The F3 key will turn the ground texture on and F4 will turn the ground texture off. The F5 key will turn lighting on for the cubes and F6 will turn lighting off for the cubes. The F7 key will turn the cube textures on and F4 will turn the cube textures off. Some of the screen shots below show several of the different modes.

I am going to leave the design and implementation decisions up to you. There are many ways to go about this and many different designs.

3 Screen Shots



