7-1 Project Reflection CS330

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The module 7-1 Project in CS-330 was a scene involving four objects cast in ‘3D’, lit correctly and made so you can navigate around it and see the scene from various angles and lengths. The programming language is C++ and the api is openGL. I chose four objects for my scene a prescription pharmacy bottle, a DVD, a can of Grizzly Dip and a plastic triangle. I chose these objects because they represented a good description of all the objects openGL works in to create a final product. I was able to program some of the functionality using openGL by passing the correct vertices in through the source code and compiling it using Visual Studio 2019 on the virtual lab’s computer. Some of the scene is mixed up and it lacks a good plane, but the concept of multiple objects, lighting and navigation are all in there. Overall, I feel the projects scene was a success.

I set up control for navigation by using the mouse and the W, A, S, and D keys to make the camera move in orbit and throughout the piece and as for the keys the camera moved left, right, forward, and backward. The scene is meant to be navigated from front to back. Starting at the pyramid and ending at the code with the cylinder in between all setting on a plane. I was unable to accomplish all of this but feel I made a good start on it. Each of the items is approached through the navigation keys and can be seen in ‘3D’.

I developed no custom functions in the project but see how they would be useful. A function is needed to create the cylinders calculating radius and height. Also, a function is needed for the rectangle to create the triangles that form it. Also, there is a need of a function to create the shader as it needs to take in different textures the wrap the objects. Most of the functions involved code that I simply didn’t understand but I did my best to get the project on its feet. These functions can be reusable because they have separate header files and are constructed in a separate class. They also contain code that allows them to be called from the main and run.

Overall, this project was a good way to demonstrate mastery of the openGL api and C++ in general. I feel that object creation, lighting and navigation were clear factors in success. openGL is a vast library that allows for extensive work in graphics, as defined by Wikipedia “**OpenGL** (**Open Graphics Library**[[3]](https://en.wikipedia.org/wiki/OpenGL#cite_note-glspec40core-3)) is a [cross-language](https://en.wikipedia.org/wiki/Language-independent_specification), [cross-platform](https://en.wikipedia.org/wiki/Cross-platform) [application programming interface](https://en.wikipedia.org/wiki/Application_programming_interface) (API) for rendering [2D](https://en.wikipedia.org/wiki/2D_computer_graphics) and [3D](https://en.wikipedia.org/wiki/3D_computer_graphics) [vector graphics](https://en.wikipedia.org/wiki/Vector_graphics). The API is typically used to interact with a [graphics processing unit](https://en.wikipedia.org/wiki/Graphics_processing_unit) (GPU), to achieve [hardware-accelerated](https://en.wikipedia.org/wiki/Hardware_acceleration) [rendering](https://en.wikipedia.org/wiki/Rendering_(computer_graphics)).” Rendering graphics is a difficult and time-consuming set of procedures that most programmers need to understand at the very least. C++ is a powerful programming language that is defined by Wikipedia as “**C++** ([/ˌsiːˌplʌsˈplʌs/](https://en.wikipedia.org/wiki/Help:IPA/English)) is a [general-purpose programming language](https://en.wikipedia.org/wiki/General-purpose_programming_language) created by [Bjarne Stroustrup](https://en.wikipedia.org/wiki/Bjarne_Stroustrup) as an extension of the [C programming language](https://en.wikipedia.org/wiki/C_(programming_language)), or "C with [Classes](https://en.wikipedia.org/wiki/Class_(programming))". The language has expanded significantly over time, and modern C++ now has [object-oriented](https://en.wikipedia.org/wiki/Object-oriented_programming), [generic](https://en.wikipedia.org/wiki/Generic_programming), and [functional](https://en.wikipedia.org/wiki/Functional_programming) features in addition to facilities for [low-level](https://en.wikipedia.org/wiki/Low-level_programming_language) [memory](https://en.wikipedia.org/wiki/Memory_(computing)) manipulation. It is almost always implemented as a [compiled language](https://en.wikipedia.org/wiki/Compiled_language), and many vendors provide [C++ compilers](https://en.wikipedia.org/wiki/List_of_compilers#C.2B.2B_compilers), including the [Free Software Foundation](https://en.wikipedia.org/wiki/Free_Software_Foundation), [LLVM](https://en.wikipedia.org/wiki/LLVM), [Microsoft](https://en.wikipedia.org/wiki/Microsoft), [Intel](https://en.wikipedia.org/wiki/Intel), [Oracle](https://en.wikipedia.org/wiki/Oracle_Developer_Studio), and [IBM](https://en.wikipedia.org/wiki/IBM), so it is available on many platforms.[[10]](https://en.wikipedia.org/wiki/C%2B%2B#cite_note-stroustruptcpppl-10)”