CSE 167 (FA 2021) Homework 0

Homework 0 is here to make sure that you can compile and run modern OpenGL. In case you're mystified by the compilation process, see Lecture note Chapter 2 and Appendix A for more background about compiling OpenGL and compilation in general.

0.1 Compile

- One Windows, install Visual Studio with C++ support (note that a default installation of Visual Studio only includes C#). You can run the program by opening the `.sln` file. The `.sln` contains two projects, one is "HelloWindow" and one is "HelloSquare." Compile by pressing F5 . (Please use your C++ development environment, *i.e.* Visual Studio, for running, by pressing F5 as mentioned, rather than double-clicking the executable in the folder.)
- On Mac OSX or Linux, you should use the command line (*e.g.* via terminal) to `cd` to the directory containing the files, type `make` which should generate the executables `HelloGL` and `HelloSquare` if the compilation and linking are successful. Run the executables by `./HelloGL`, and `./HelloSquare`. (Don't double click on the executable file using finder in MacOS; that will lead to errors, since the paths would not be set up properly.) On Mac, make sure you have command-line tools installed (see Lecture Note Chapter 2).

If you have problems with compilation, post the problem on Piazza. You can also visit office hours. Note that the TAs/tutors have specialities on different platforms (Windows, MacOS, Linux) so be sure to visit the office hours that fit your operating system when it comes to compilation issues. (Of course, you can visit any office hour for platform-indepedent questions!)

0.2 HelloGL and HelloSquare

`HelloGL` is a minimalistic OpenGL program. It creates an empty window with some background color. `HelloSquare` is a more interesting OpenGL program. `HelloSquare` draws a square, shades the square with some color interpolated from the vertices, and shades a white circle in the middle (Figure 1).

For `HelloSquare`, you can press O to export a screenshot of the viewport.

(Note that the viewport in the window may be off-centered for some display hardwares, such as some MacBooks with Retina Display. In that case, resizing the window can pop the viewport back to fit the window. But if you want to export a screenshot, please do not rescale the window (since the screenshot would be capturing the wrong portion of the viewport). If you are exporting a screenshot, just ignore the fact that the viewport is smaller than the window.)

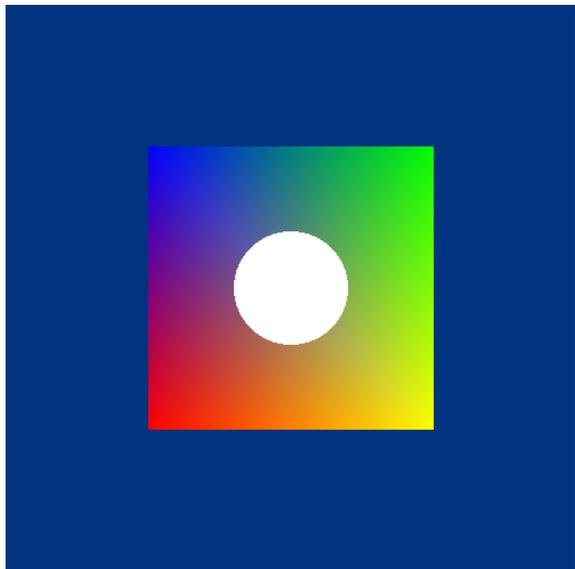> **Exercise 0.1 — 5 pts.** Upload the `.png` file exported from `HelloSquare` by Oct 1, 2021.

Figure 1 `HelloSquare`