GAME2012 - 3D Graphics Programming
Assignment 1

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Due: See Blackboard

1 Introduction

In this assignment you will start by importing Hooman's OpenGL, familiarize yourself with the project structure, and design a few new 2D shapes.

2 Logistics

This assignment is to be completed individually. All submissions for this assignment are electronic via the Assignment link on D2L. This assignment is worth 10% of the course grade.

3 Instructions

There are two parts to this assignment. In the first part, you will open a template project. Alex will go over the first part with you in the lecture. You can use any of Hooman's examples and wrapper. In part two, you will apply everything we learned so far to render some fun shapes. Feel free to ask me any questions either in class, via e-mail or Discord.

4 Deliverables

Submit your **entire project** zipped through the Assignment link on D2L, make sure that your project includes the following:

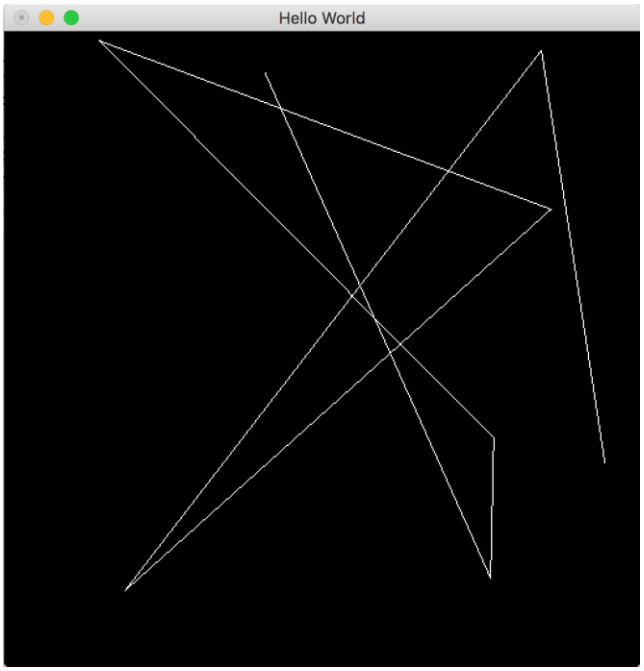
a. The sources file: .cpp/.h files (including those that load shaders)
b. Your shader files
c. Name it: GAME2012_A1_YourlastnameYourfirstname.zip

5 What you need to do

Part 1 (worth 3%)

1. Windows:
    a. Download the A1 start project from D2L.
    b. Decompress the file.
    c. Open the solution.
    d. Compile and run.

2. The output should look like the following figure (but red):



3. Change the title of the window to: (Last name, First name, Student ID) (1%)

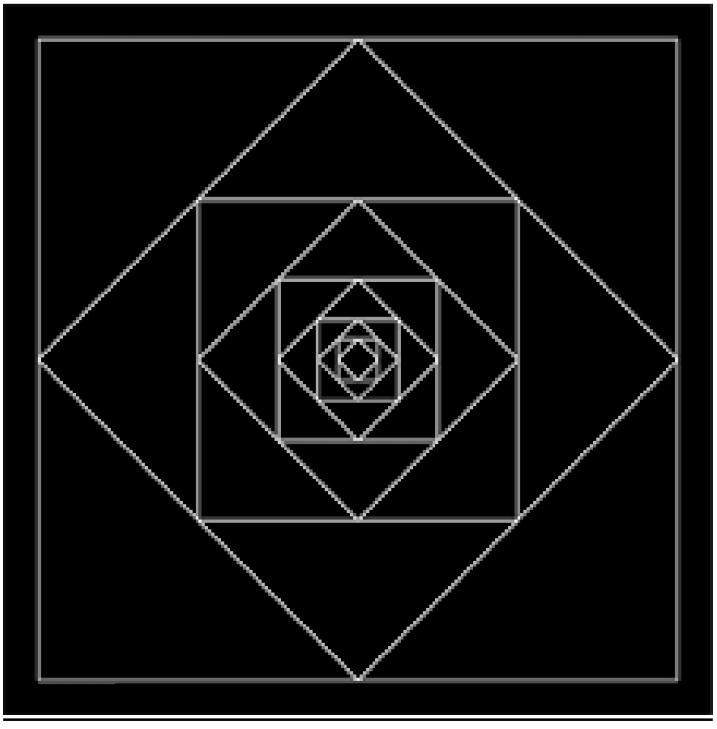
4. Change the original source file name to the following format: GAME2012_A1_LastnameFirstname.cpp. The files that load the shaders can remain the same, as can the shader files themselves.

5. Add the following comment header in your main source file and make sure to change the name to your name and add your ID. Also, make sure to add some useful description to your file. (1%)

```
//*************************************************************************
// GAME2012 - Assignment1 by YOURNAME - 1234567890
//
// Assignment 1 submission.
//
// Description:
//   Click run to see the results.
//
*************************************************************************
```

6. Customize the project according to your taste: (1%)
    a. Change the background color from black to a different color.
    b. Change the window size to a different size.
    c. Change the color of the points/lines.

Part 2 (worth 7%)



1. You need to create vertices and connect them in such a way that produces the following scene. Every 4 vertices represent a square. (5%)
    a. Create the transformation matrices. (1%)
    b. Create the VBOs and VAOs for the squares. (2%)
    c. Transform each of the squares correctly (you will only need to **scale** and **rotate** them for this assignment). (2%)

2. Apply a different color for each of the squares. (2%)