

GLSL - Hello World

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The goal of this assignment is to extend the HelloGLSL demo to render other objects.

1 Exercises

1. Download the .zip file (03-HelloGLSL.zip) from the course Web page.
2. Configure the HelloGLSL project in order to correctly run the demo.
3. Compile and run the project to render something on the screen.
4. Carefully analyze each project method to clearly understand its operation.
5. Change the Teapot color to red.
6. Inside the file *minimal.vert*, change the *main()* method to:
`gl_Position = gl_ProjectionMatrix * gl_ModelViewMatrix * gl_Vertex;` and run the project.
Which are the differences? Why?
7. Change the *main()* method to:
`gl_Position = gl_ModelViewProjectionMatrix * gl_Vertex;` and run the project.
Any difference?
Which conclusions to drawn from the previous two steps?
8. Replace the teapot by a triangle.
9. Replace the triangle by a tetrahedron.
Can you distinguish tetrahedron facets? Why?
10. Shade each tetrahedron facet with a different color.
Does the `gl_Color3f(R, G, B);` affect the final render? Why?
11. Read the official OpenGL shading language documentation and realize how you can use the `gl_FrontColor` to use colors defined in the code, instead of hard-coded colors defined inside your shader.
12. Add some objects to the scene such as a cube, a sphere, and a torus. Render each one with different colors, sizes and movement properties.

References

- [1] The OpenGL Shading Language <https://www.opengl.org/registry/doc/GLSLangSpec.4.40.pdf>, last access on 08/04/2015.