

Faculty of Mathematics and Physics
Charles University in Prague
24th February 2015 / 3rd March 2015



OpenGL 3.3 Unleashed!

HW for Computer Graphics

Workshop 1 – OpenGL 3.3 Tutorial – Part 1

Workshop 1

Outline

1. Workshop Terms
2. Resources
3. Assignments



Entry Questionnaire

Your BIO please

Find the questionnaire here (no-ads):

<http://goo.gl/iiwLIN>

Permanent link:

<https://docs.google.com/forms/d/1yBX86zu6ZXwRytZ73OQafogfR-QzDZWM4wfwXwjTpOY/viewform>

Workshop Terms

Credits ~ Hours Donation

1 Credit	<i>45 minutes of work per week</i>
HW for Comp. Graph. (aka NPGR019)	<i>2/1 points 5 credits 3,75 hours</i>
Lecture	<i>1,5 hours</i>
Workshops	<i>1,5 hours</i>
Homework	<i>0,75 hours</i> Hmmm...

Workshop Terms

Score-based Grading

Workshop Number	Tuesdays [C.ODD]					In-time bonus
	Topic	Assignment	Scoring	Bonus deadline		
	24.2.2015 OpenGL 3.3 Tutorial 1	Sierpinsky Triangle	4	9./16.3.2015 23:59	2	
		Animated S. Triangle	5	9./16.3.2015 23:59	2	
		Cube Madness	6	9./16.3.2015 23:59	2	
	10.3.2015 OpenGL 3.3 Tutorial 2	Standard Shading	25	23./30.3.2015 23:59	9	
	24.3.2015					
	7.4.2015					
	21.4.2015					
	5.5.2015					
	19.5.2015					
SUM				40	15	
Total workshops	7					
Max Practice Score	55					

Check the full version [HERE!](#)

Resources

- Lectures web
 - <http://cgg.mff.cuni.cz/~pepca/lectures/npgro19.current.cz.php>
- Workshops web
 - http://pogamut.cuni.cz/pogamut-devel/doku.php?id=hardware_for_computer_graphics_2014-15_summer_term
- OpenGL 3.3 Tutorials
 - <http://www.opengl-tutorial.org/>
- OpenGL 3.3 Reference
 - <https://www.opengl.org/sdk/docs/man3/>
- GLSL 3.3 Specification
 - <https://www.opengl.org/registry/doc/GLSLangSpec.3.30.6.pdf>
- OpenGL Superbible Book
 - <http://www.openglsuperbible.com/>
 - <http://www.openglsuperbible.com/previous-editions/>

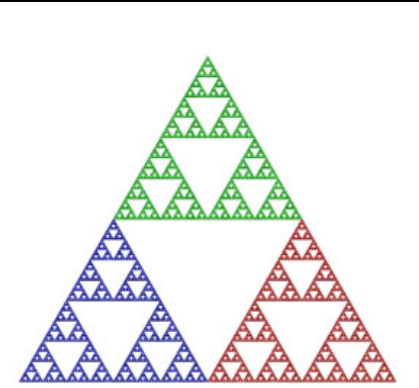
Assignment 0

Set up OpenGL Tutorials

1. Download tutorial sources
 - <http://www.opengl-tutorial.org/download/>
2. Install CMake (you can use .zip as well)
 - <http://www.cmake.org/download/>
3. Follow the first tutorial
 - <http://www.opengl-tutorial.org/beginners-tutorials/tutorial-1-opening-a-window/>

Assignment 01.1

Sierpinski Triangle

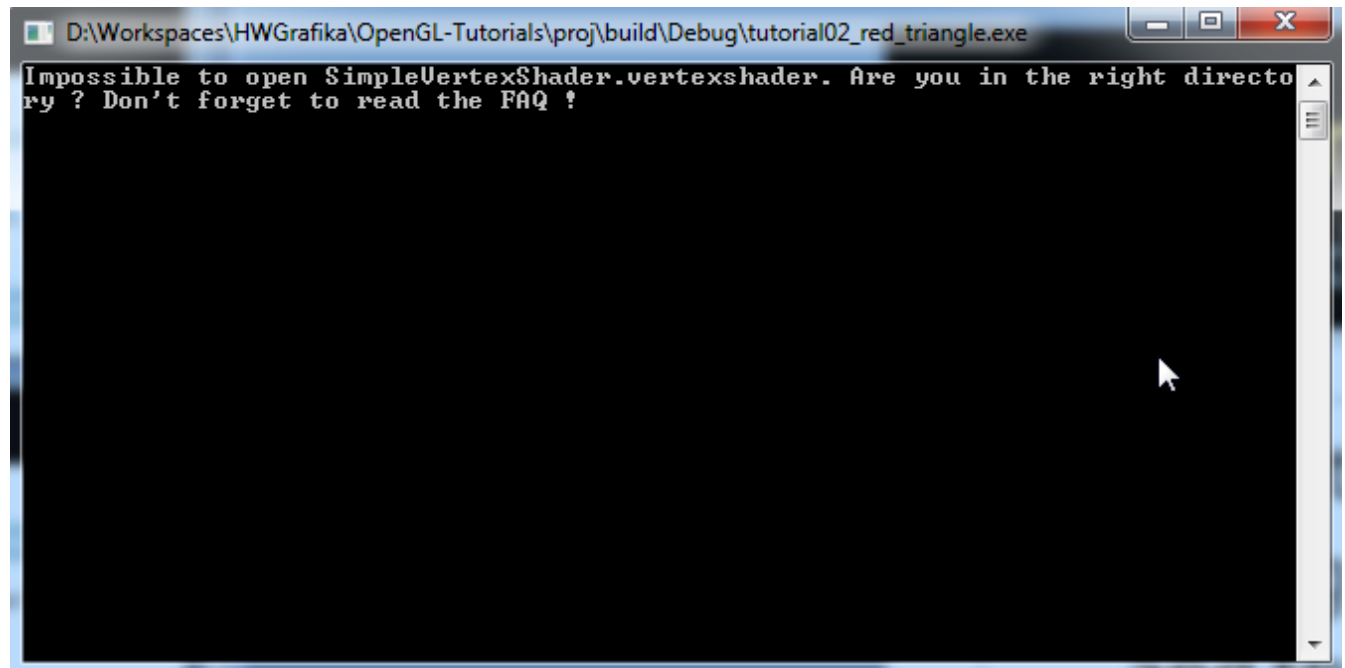


1. Follow the second tutorial
 - <http://www.opengl-tutorial.org/beginners-tutorials/tutorial-2-the-first-triangle/>
2. Adjust it to render Sierpinski Triangle
 - 4 (+2) points

Assignment 01.1

Sierpinski Triangle

Note that CMake won't setup correct debugging directory for respective tutorial projects and thus `LoadShaders` is going to fail.

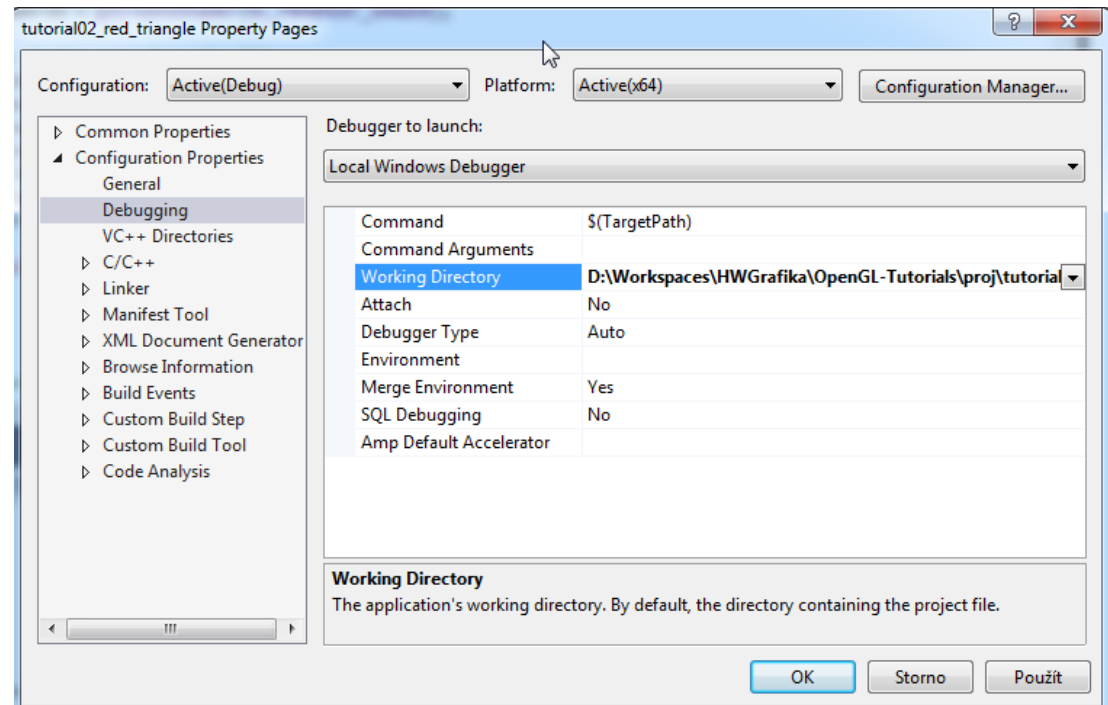
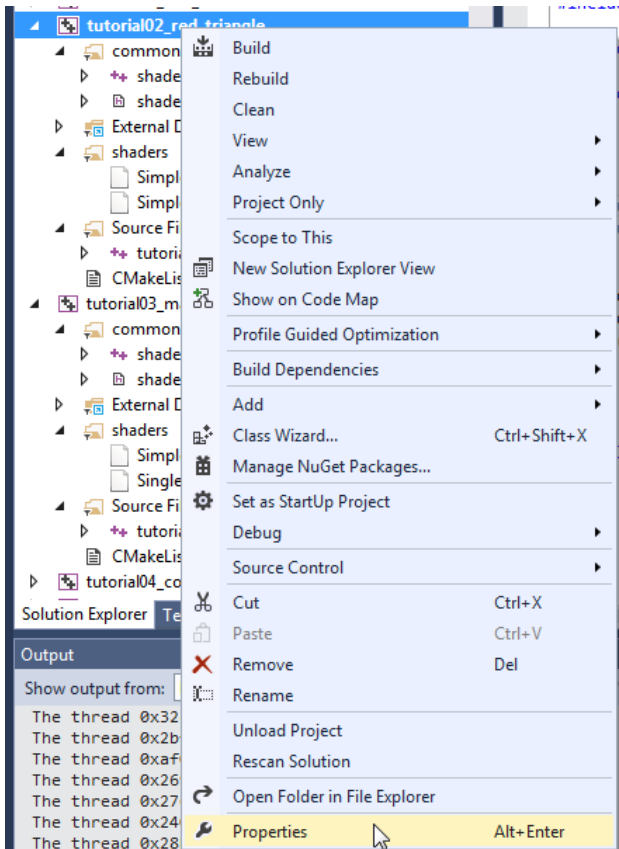


```
D:\Workspaces\HWGrafika\OpenGL-Tutorials\proj\build\Debug\tutorial02_red_triangle.exe
Impossible to open SimpleVertexShader.vertexshader. Are you in the right directory ? Don't forget to read the FAQ !
```

Assignment 01.1

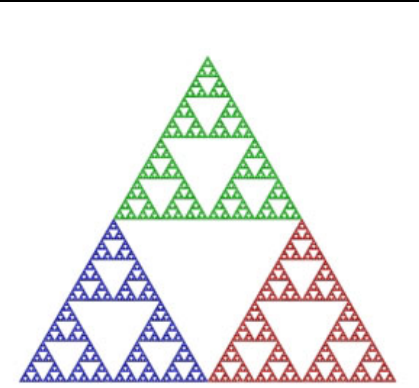
Sierpinski Triangle

You have to manually adjust “Working Directory” within VS2013.



Assignment 01.2

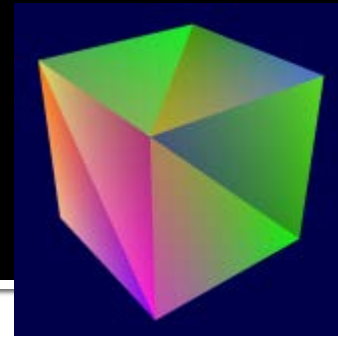
"Animated" Sierpinski Triangle



1. Follow the third tutorial
 - <http://www.opengl-tutorial.org/beginners-tutorials/tutorial-3-matrices/>
2. Adjust it to render Sierpinski Triangle and try to "animate" it via rotation/scalation (pulsing)
 - 5 (+2) points

Assignment 01.3

Cube madness!



1. Follow the fourth tutorial
 - <http://www.opengl-tutorial.org/beginners-tutorials/tutorial-4-a-colored-cube/>
 2. Adjust it to render 100 cubes at “random” locations and “animate” them with some rotation (every cube should have unique rotation ;)
- 6 (+2) points

Assignment 01.x

Send me an email!

- Email: gemrot@gamedev.cuni.cz
- Subject: **HWGR – 2015 – Assignment 01.1 / 01.2 / 01.3**
- Content:
 - Assignment code (zipped tutorial project folder)
 - Screenshot
- Award:
 - Up to 15 (+ 6) points
 - Use correct email subject or face -2 penalty per mail!

Questions?

I sense a soul in search of answers...

- Sadly, I'm far from OpenGL-experienced-guy
- But I will try to help you with any serious problem you might encounter during the workshops so don't hesitate to contact me!
 - Jakub Gemrot
 - gemrot@gamedev.cuni.cz