

Project 0

CS 320

Due Feb. 18 at noon

A slight variation on generating the Sierpinski Gasket with triangular polygons yields the *fractal mountains* used in computer-generated animations. After you find the midpoint of each side of the triangle, perturb this location before sub-division. Generate these triangles without fill. After a few sub-divisions, you should have generated sufficient detail that your triangles look like mountains.

Use the `tetra.cpp` program in the `project0` ZIP archive as your starting point. (Don't forget to also import the contents of the `commonFiles` ZIP archive.) Note that this program generates filled triangles; you'll need to modify it so that it generates triangles without fill. Also note that the program generates color information for each vertex, along with each vertex's coordinates.

In addition to modifying the program by perturbing the segment midpoints, also make these modifications:

1. The colors chosen certainly won't give much realism to the fractal mountain. Modify the color scheme to add more realism. The shade of green rendered should be a function of "altitude" (the z -coordinate of each vertex's coordinates) — darker green at lower altitudes, smoothly transitioning to lighter green at higher altitudes, and ending with a white-capped peak.

The goal here is to achieve as realistic-looking a mountain as possible, subject to the constraint that we're working in 2-D graphics.

In a comment block at the very beginning of your program, include a description of all modifications you make to the program.

Submitting Your Project

We will follow this procedure for all projects this semester. Your project files are to be emailed to me at `kelliher[at]goucher.edu`. All files (C++ source(s), vertex shader, fragment shader, documentation, test, etc. — do **NOT** assume that I have the shader programs) should be sent as a single ZIP archive attachment in a single email. I will build your program from source, importing the files from the `commonFiles` ZIP archive myself, and run your program myself.