HW3 (Complete)

Due by midnight 2/13/15

Your task

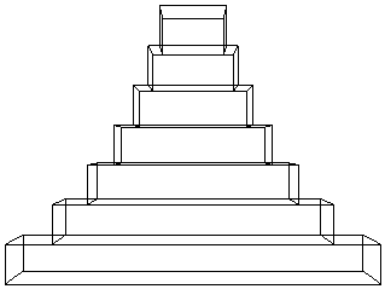
From *HW3-Part 1*, you should have two standalone programs that each draw a cube using a specific method:

1. Using Vertex Arrays, draw a wireframe cube using `GL_LINES`
2. Using display lists, draw a solid cube using `GL_TRIANGLES` or `GL_TRIANGLE_STRIP` (look it up)

To complete this assignment, we will take these cubes and use OpenGL transforms to make different pictures. When complete, you will have 3 new programs. Since either the vertex array method or the display list method will work for each of the new programs, you may choose which to use for each. Make sure you choose each one at least once.

Program 1

Using scaling and translation, make a stack of elongated cubes in the style of a pyramid or birthday cake. Note the perspective projection is distorting the view here. Use an orthographic projection if you prefer.



Program 2

Using translation and rotation (and possibly scaling – be artistic), create a flower/sun pattern presenting a ring of rotated rectangles radiating from a middle point.

Note: this is tricky to do without using the matrix stack or modifying the original cube vertices!

Program 3

Encapsulate the flower pattern from Program 2 into a subroutine. Call this recursively, with a depth parameter to terminate recursion, that uses the ModelView stack to create a fractal pattern.

Notes

- feel free to use colors and be otherwise creative
- teapots are optional