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COMP 4/6/4

Homework 4

4-1 GLSL

a) Varying variables provide a interface between Vertex + Fragment shader. If you define a varying variable in a vertex shader, its value will be interpolated over the primitive being rendered and you can access the interpolated value in the fragment shader.

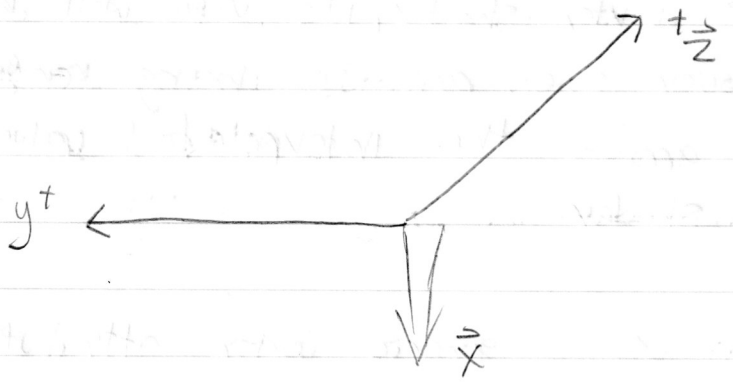
b) Yes, you can use a generic vertex attribute array in conjunction w/ buffer objects to define a arbitrary set of per-vertex attributes to provide as input to the vertex shader.

c) WRONG! You should do the world matrix before sending each 3 matrix to the vertex shader. you can send only one single model view matrix to a vertex shader.

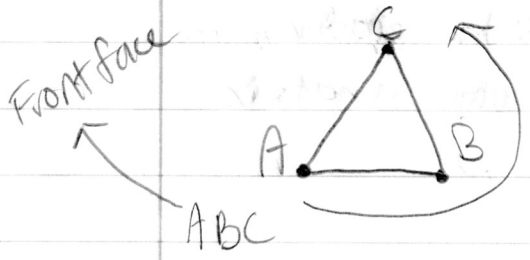
d) Yes, This is what I was trying to signa above, and you can even get creative before passing every matrix. (IE perspective).

4-2 Space and Face Conversion

a) $\vec{x}$ → coming out of page
$\vec{y}$ → pointing to the left
$\vec{z}$ → ? pointing to top right

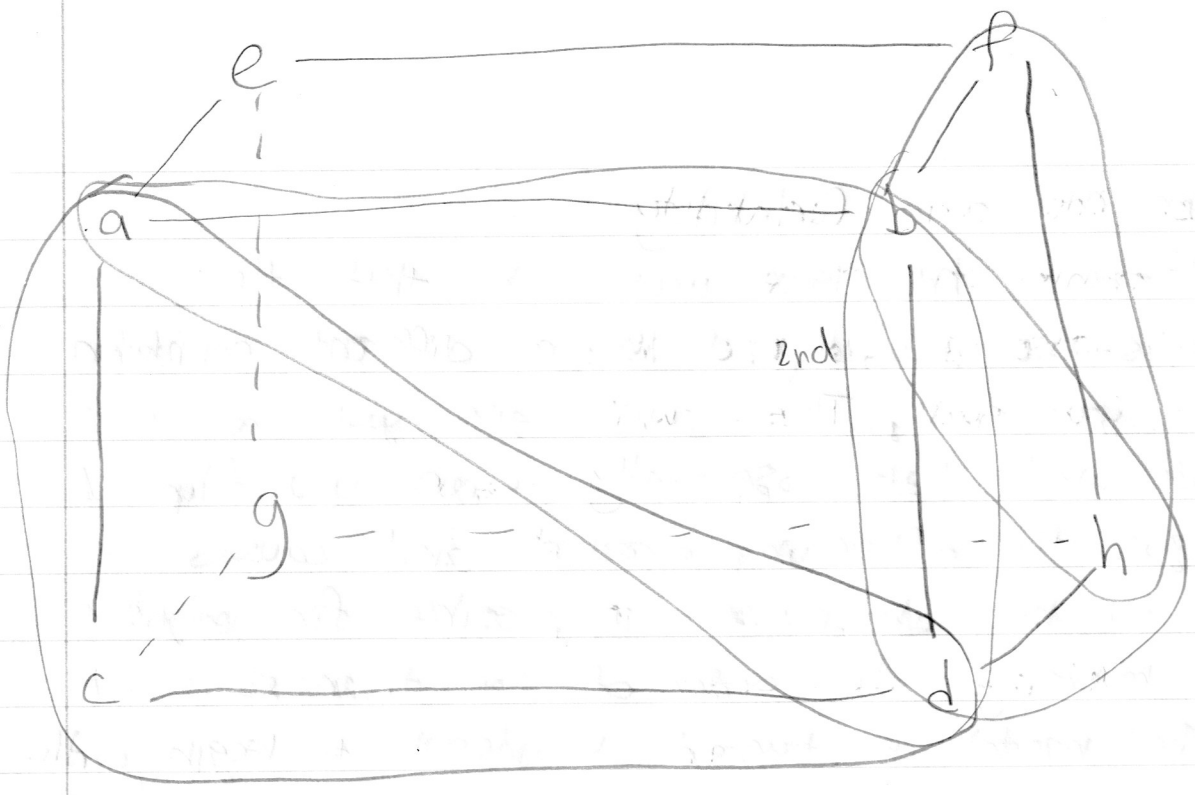


b) list triangles to construct the entire surface of this cube.
counter clockwise front face convention:




clockwise
ACB → Rear facing

When we draw triangle we list 3 vertices such that they make a counter clockwise cycle around triangle if looking @ front



First triangle: [a, c, d]

[a, c, d, b, a, d, b, d, h, f, b, h, f, h, g, e, f, g,
e, g, c, a, e, c, e, a, b, f, e, b, c, g, h, d, c, h]

index: [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19,
20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35]

4-3 Conventions and Portability

a) I think the issue would be that the triangles are now angled in a different orientation after you scale, This will give you a "inside-out" look. essentially when you flip it goes the other way around and causes it to be clockwise. A possible fix might be reversing the order of the triangles so the model is turned insideout to begin with.

b) I found a application online that could help change its drawing to the correct orientation by using Direct3D.
"Direct3D uses a left-handed coord. system. If you are porting a application w/ right-hand coordinate system.".