Assignment 2 - TDT4195

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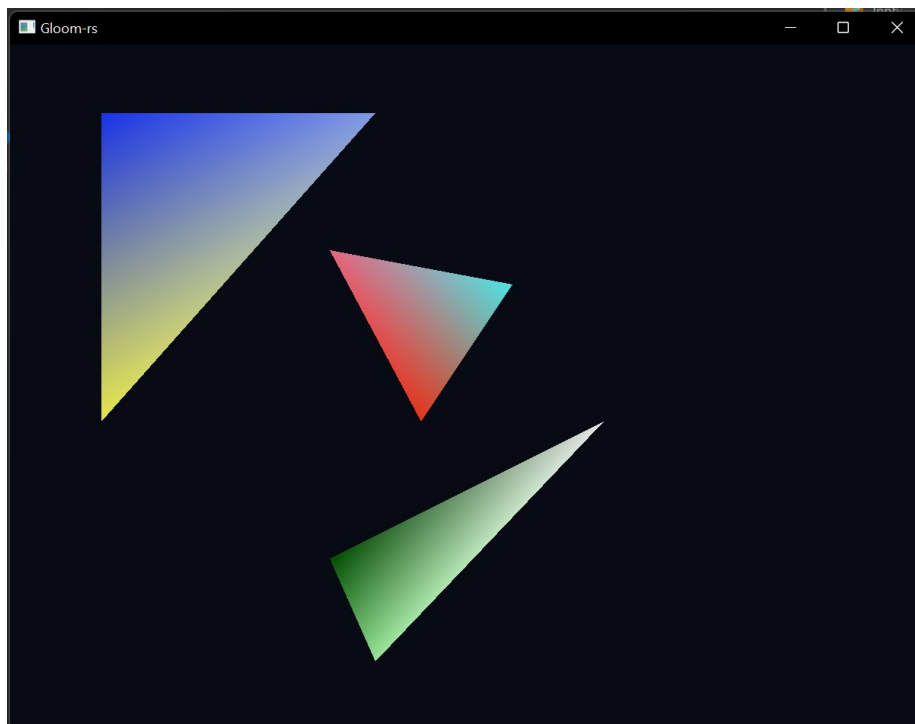
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Task 1

b)

Figure 1: 3 triangles with different vertice colors

Between the vertices for each fragment, OpenGL creates a gradient from the first vertice-color to the other vertice-color.
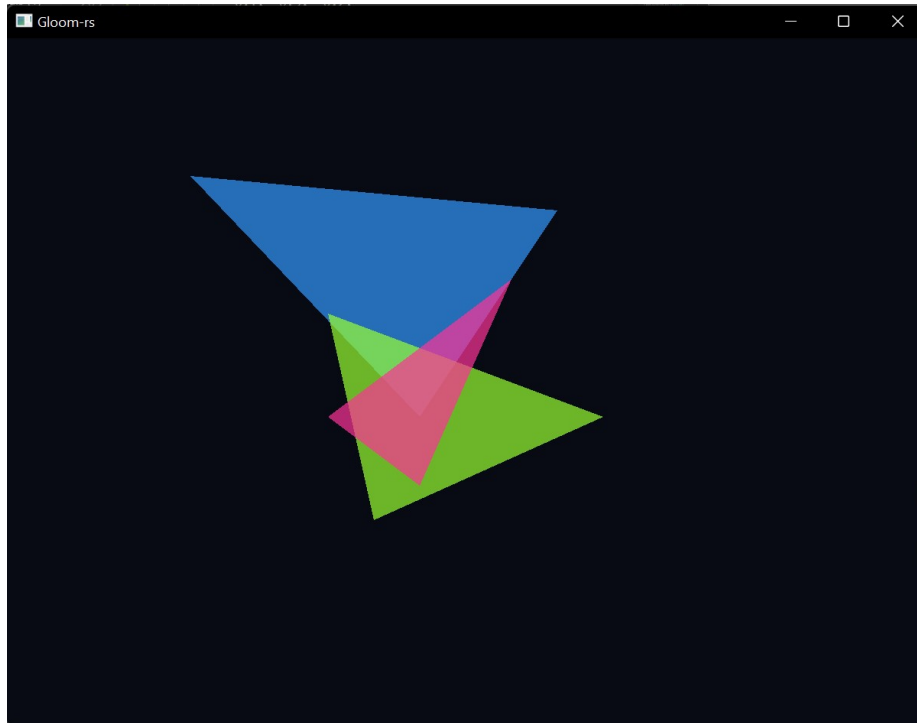
Task 2

a)

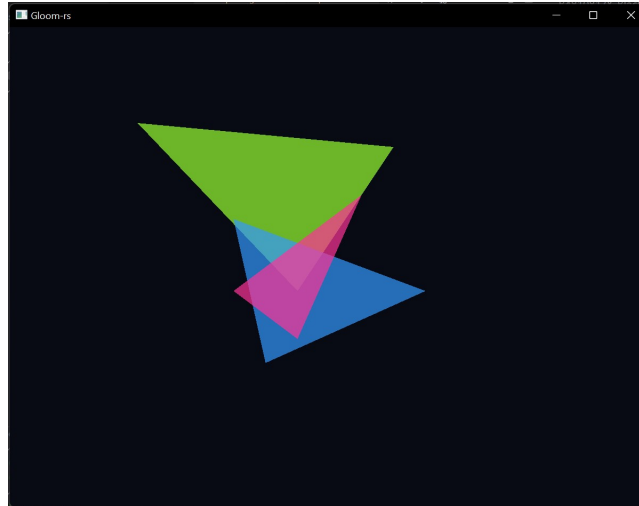Figure 2: Multiple triangles overlap

b) i)

Figure 3: Swap the colors of different triangles

When the colors of triangles are swapped, the color of the part where all of the triangles overlap changes. This is caused by the difference in closeness to the screen. If the alpha-values was different, that would have had an impact to the end-result color as well.
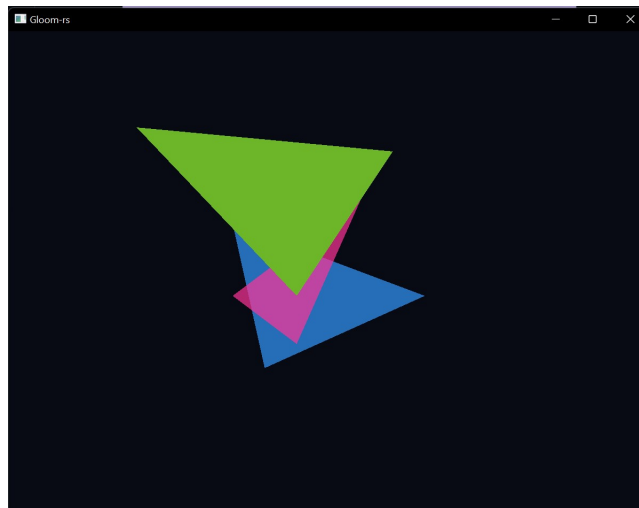
ii)

Figure 4: Swap the depth at which different triangles are drawn

When the first triangle is drawn, a depth-test will be ran to check if there is any triangles behind the triangle to be drawn. If there isn't any behind, a non transparent triangle is drawn. When the next triangles are drawn behind, they're then hidden behind the first triangle.

Task 3

b)
a = scales in x-direction
b = shear vertices at top/bottom in y-direction
c = translates in x-direction
d = shear vertices at the sides x-direction
e = scales in y-direction
f = translates in y-direction

c)

Because rotation turns the object around the origin. This matrix-operation does not change the distance from the origin. The object also contains its shape when rotated. Rotation demands multiple of the variables in the matrix to change. In task 2b we only change one variable at the time, therefore no rotation is happening.

Task 4

D: Move towards right in x-direction

A: Move towards left in x-direction

S: Move backwards in z-direction

W: Move forwards in z-direction

Space: Move upwards in y-direction

LShift: Move downwards in y-direction

Up: Rotates up in x-direction

Down: Rotates down in x-direction

Left: Rotates left in y-direction

Right: Rotates right in y-direction