Assignment 2

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1 Introduction

In this assignment we were expected to first, turn a webgl code to webgl2 in part one and then change the colors of vertices to change objects look, second, animate an object that was already created in the first assignment we had. We were asked to resize the object we had and animate it according to the assignment description.

2 Experiment

2.1 Part 1

In the part 1 of the assignment, we were asked to turn the webgl code to webgl2, to do that i used webgl2 fundamentals' [2] website to achieve what was wanted, then we were asked to change the color of the object we had and to do that i changed the colors of the vertices that was already given to us.

2.2 Part 2

In the step 1 of the assignment's part 2, we were asked to re-scale the object we had, so it looked like what was given in the assignment. I have divided the coordinates and diameters that is needed in the assignment by 2 to achieve the asked result.

In the step 2 part of the assignment's part 2, we were asked to change the vertex shader code to give the object we created an animation. To achieve animation, i firstly added an event listener to get input from keyboard, then added a function called keyPressed to work according to the given task. In the vertex shader i added rotation matrix for z axis and a uniform to get angle from. In app part of the code, i added all the objects to lists to draw them, and added a render function to animate them. In render function, it changes angle with incr

variable i added and then it goes to drawing part depending on the angle given to it. At the end of the render function i have called requestanimationframe to achieve what was wanted. I have used our books online web page to see a working example [1].

In the step 3 part of the assignment's part 2, we were asked to change the color of the circles while the animation kept going. To do that i have added a uniform to fragment shader that was added to color of the vertices. In the case '3' part i added a global boolean flag to use at the render function. If the flag was true then it changed the circles color depending on the angle it had and did not changed anything with middle square.

Since i did not have any classes i cannot fill the classes table.

Table 1: Methods

Method Name	Input(s)	Output(s)	Info
render2	No input	-	Sends data to shaders.
keyPressed	e	-	It changes angle and incr variable.
circleBuff	buf, circ, $circle_color$	-	It buffers data for circles.
squareBuff	buf, sqr, $square_color$	-	It buffers data for squares.
circleDraw	buf, circ, $vertex_location, color_location$	-	It draws the given circles.
squareDraw	buf, sqr, $vertex_location, color_location$	-	It draws the given squares.

3   Conclusion

I have learned how to rotate and animate multiple objects in webgl2. Animating the object was hard for me to achieve. A similar working code that animates a square can be found in our book as well [1].

References

[1] Edward Angel and Dave Shreiner. Interactive computer graphics. https://www.interactivecomputergraphics.com/, 2020. Accessed: 16-11-2020.

[2] webgl2. Webgl2 fundamentals. https://webgl2fundamentals.org/, 2020. Accessed: 16-11-2020.