

Byron Magofna
MagofnaB@oregonstate.edu
CS 450
Project 4
11/8/23

I created a bunch of keytimes (xPos, yPos, zPos, lightIntensity, viewPosX, viewPosz, red, green, blue), initialized them, and gave them all values at specific times using the “AddTimeValue” function. My 4 ‘own-choice’ quantities I used were: yPos, zPos, green, and blue. I followed the guide on the assignment to produce the nowTime variable to use in my function calls. I used this line of code to move the sphere object:

- “glTranslatef(xPos.GetValue(nowTime), yPos.GetValue(nowTime), zPos.GetValue(nowTime));”.

To change the color of the sphere I used these lines of code:

- “glMaterialfv(GL_FRONT_AND_BACK, GL_SPECULAR, MulArray3(.2, red.GetValue(nowTime), green.GetValue(nowTime), blue.GetValue(nowTime)));”
- “glMaterialfv(GL_FRONT_AND_BACK, GL_AMBIENT_AND_DIFFUSE, MulArray3(.5, red.GetValue(nowTime), green.GetValue(nowTime), blue.GetValue(nowTime)));”

To darken/lighten the lighting I used:

- glLightModelfv(GL_LIGHT_MODEL_AMBIENT, MulArray3(lightIntensity.GetValue(nowTime), 1., 1., 1.));

To change the perspective, I did:

- gluLookAt(viewPosX.GetValue(nowTime), 7, viewPosZ.GetValue(nowTime), 0, 0, 0, 0, 1, 0);

Here are my lines of code that set the keytimes:

```
xPos.Init(); // keytime 1
xPos.AddTimeValue( 0, 3);
xPos.AddTimeValue( 2, 0);
xPos.AddTimeValue( 4, 1.5 );
xPos.AddTimeValue( 6, 2.5 );
xPos.AddTimeValue( 8, 2);
xPos.AddTimeValue( 10, 0 );
```

```
yPos.Init(); // keytime 2
yPos.AddTimeValue( 0, 3);
yPos.AddTimeValue( 2, 0);
yPos.AddTimeValue( 4, 1.5);
yPos.AddTimeValue( 6, 2.5 );
yPos.AddTimeValue( 8, 2);
yPos.AddTimeValue( 10, 0 );
```

```
zPos.Init(); // keytime 3
zPos.AddTimeValue( 0, 3);
zPos.AddTimeValue( 2, 0);
zPos.AddTimeValue( 4, 1.5 );
zPos.AddTimeValue( 6, 2.5 );
zPos.AddTimeValue( 8, 2 );
zPos.AddTimeValue( 10, 0 );
```

```
viewPosZ.Init(); // keytime 4
viewPosZ.AddTimeValue( 0, 13 );
viewPosZ.AddTimeValue( 2, 12 );
```

```

viewPosZ.AddTimeValue( 4, 11 );
viewPosZ.AddTimeValue( 6, 10 );
viewPosZ.AddTimeValue( 8, 9 );
viewPosZ.AddTimeValue( 10, 8 );

viewPosX.Init(); // keytime 5
viewPosX.AddTimeValue( 0, 0 );
viewPosX.AddTimeValue( 2, 1 );
viewPosX.AddTimeValue( 4, 2 );
viewPosX.AddTimeValue( 6, 3 );
viewPosX.AddTimeValue( 8, 4 );
viewPosX.AddTimeValue( 10, 5 );

lightIntensity.Init(); // keytime 6
lightIntensity.AddTimeValue(0, 0);
lightIntensity.AddTimeValue(2, 1);
lightIntensity.AddTimeValue(4, .3);
lightIntensity.AddTimeValue(6, .4);
lightIntensity.AddTimeValue(8, .5);
lightIntensity.AddTimeValue(10, .2);

red.Init(); //keytime 7
red.AddTimeValue(0, 0);
red.AddTimeValue(2, 1);
red.AddTimeValue(4, .2);
red.AddTimeValue(6, .8);
red.AddTimeValue(8, .4);
red.AddTimeValue(10, 1);

green.Init(); // keytime 8
green.AddTimeValue(0, 1);
green.AddTimeValue(2, .5);
green.AddTimeValue(4, 0);
green.AddTimeValue(6, .2);
green.AddTimeValue(8, .6);
green.AddTimeValue(10, 1);

blue.Init(); // keytime 8
blue.AddTimeValue(0, 1);
blue.AddTimeValue(2, 1);
blue.AddTimeValue(4, 0);
blue.AddTimeValue(6, .3);
blue.AddTimeValue(8, .8);
blue.AddTimeValue(10, 0);

```

My animation is doing what I expect it to do since it moves up and down when I expect it to (given the keytimes I provided). Likewise, it changes to colors I would expect it to change to. It darkens/lightens when I specified it to, and the perspective comes in like I have it coded to do.

Link to recording: https://media.oregonstate.edu/media/t/1_l565hrbp

