Phoebe Tang

Project 3 Report

For this project, I rendered the letter ‘P’ and a mini figure next to it. For the letter, I used a cylinder that stretches to 3 units in the Y-axis for the supporting side and multiple scaled spheres with 0.5 units in length to trace the curve. I also added a sphere with a radius of 0.5 and a torus surrounding the letter as extra elements to the letter. The Mini figure is inspired by the pokemon Snorlax. It is composed of multiple spheres scaled to resemble the head, body, arms, and feet.

As for animation, I worked with linear transformations, color changing, cosine, absolute value, time ticks, and pendulums. I created a double array consisting of different sets of RGB values and rotated the color of each object rendered using the entries of the array. I created an int colorFrame and incremented it during animation and read the RGB data value at each index colorFrame; I made sure to use % array size -1 so I don’t get out of bound errors. I included a total of 42 color entries, and each is hand calculated to blend the transitions. For the animation, I made each sphere of the curve fan out using the absolute value of cos of increment. The sphere is rotating on the z and y axis to create a nicer looking rotation, and the Torus is just rotating on the y axis. For the mini figure, I animated the arms and legs to portray the motion of walking. I used the pendulum formula ($\theta = \alpha * cos(\omega T)$ to calculate the angle to rotate its limbs. Finally, I negated theta on the conjugating arm and foot so they are alternately swinging back and forth.