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Project A: The Circus

User's Guide

Goals:

The goal of this project is to create at least two different 3D parts which are then used to create larger assemblies. The 3D objects in this project are a hexagonal prism, a hexagonal pyramid, a 3D 'L' shape, and a rectangular prism. These objects were assembled to create assemblies with the theme of a circus!

The hexagonal prism along with the pyramid were assembled to create a circus tent, with the decoration pieces on top being hinged and rotating around the point of the pyramid beneath it. The joint angles are continuously changing. The movements in the circus pieces are not synchronized, and their varied periodic movements can be seen in the canvas. The whole circus structure can be moved around the canvas using the mouse drag interaction, as seen in Figure 3.

The birds also have varied movements in their wings, and have angle boundaries so that the flaps are within a certain bound, and are always changing. The birds consist of the L shapes as wings, as well as a rectangular prism for the body. The body can change color based on the user's input, as seen in Figure 2. The birds can also move around the canvas based on keyboard interaction, as seen in Figure 4. I worked very hard on this, so enjoy!

User Instructions:

To speed up or slow down the wing flap speed of the birds, click the "inc" or "dec" buttons.

To move the birds around the screen, use the w,a,s,d keys on your keyboard!

To move the circus around the screen, drag it around with your mouse.

To change the color of the bird's body, enter an RGB value in the color input boxes and click the "change color!" button.

Results

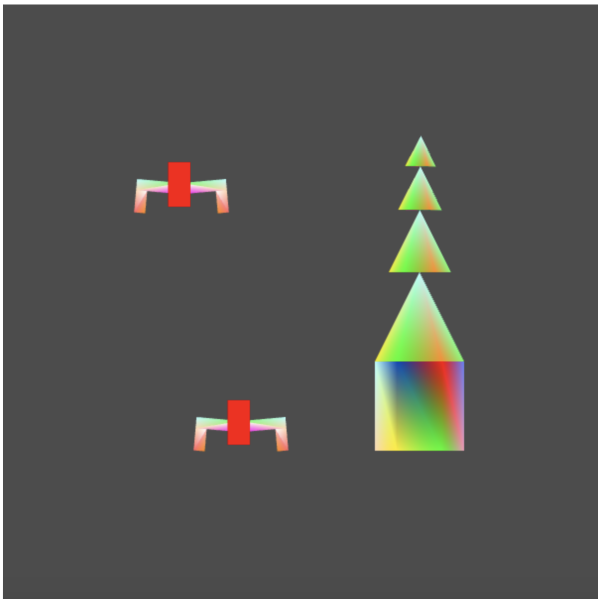


Figure 1 - the start point +/- a few seconds, where the original color of the bird's bodies is red, and the wings will flap up and down. Meanwhile, the circus pieces will rotate and the decoration pieces on top will hinge.

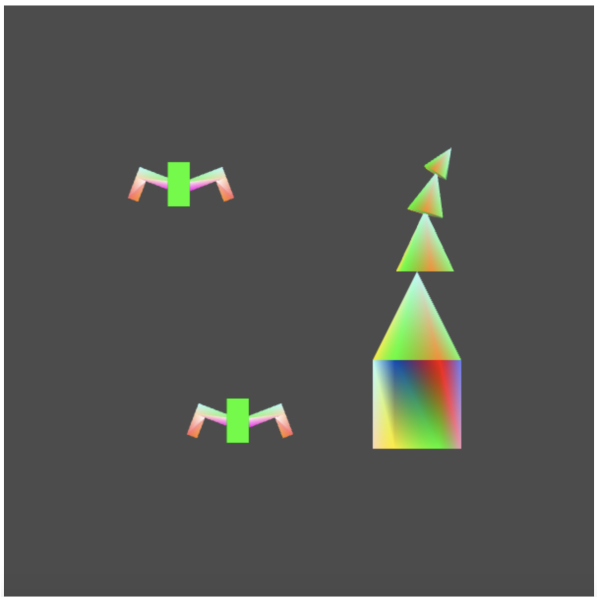


Figure 2 - after inputting a new color and clicking submit, the bird's bodies change color. The movement of the wings is more apparent in this frame, as well as the hinging of the decoration pieces on top of the circus.

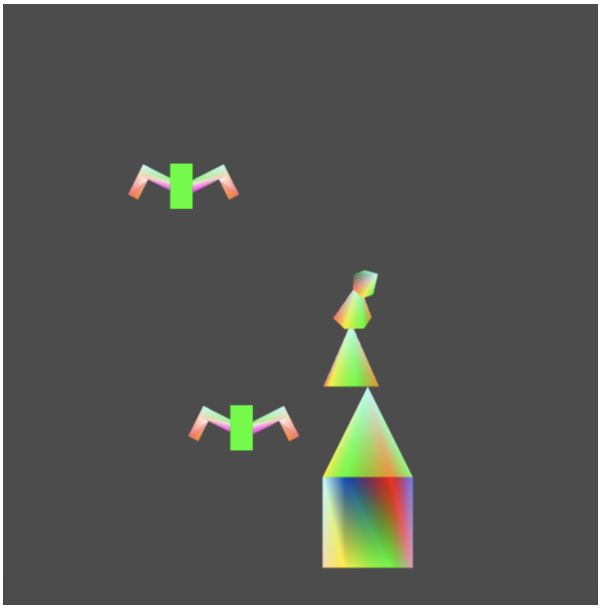


Figure 3 - After being dragged by the mouse, the Circus is now in a different location in the canvas.

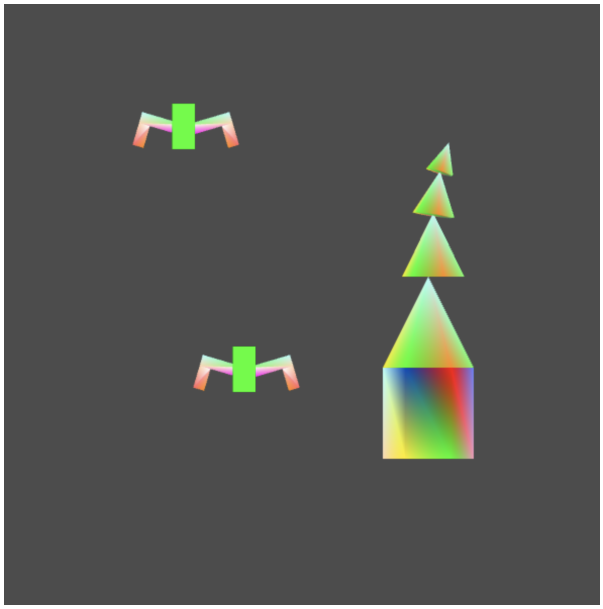
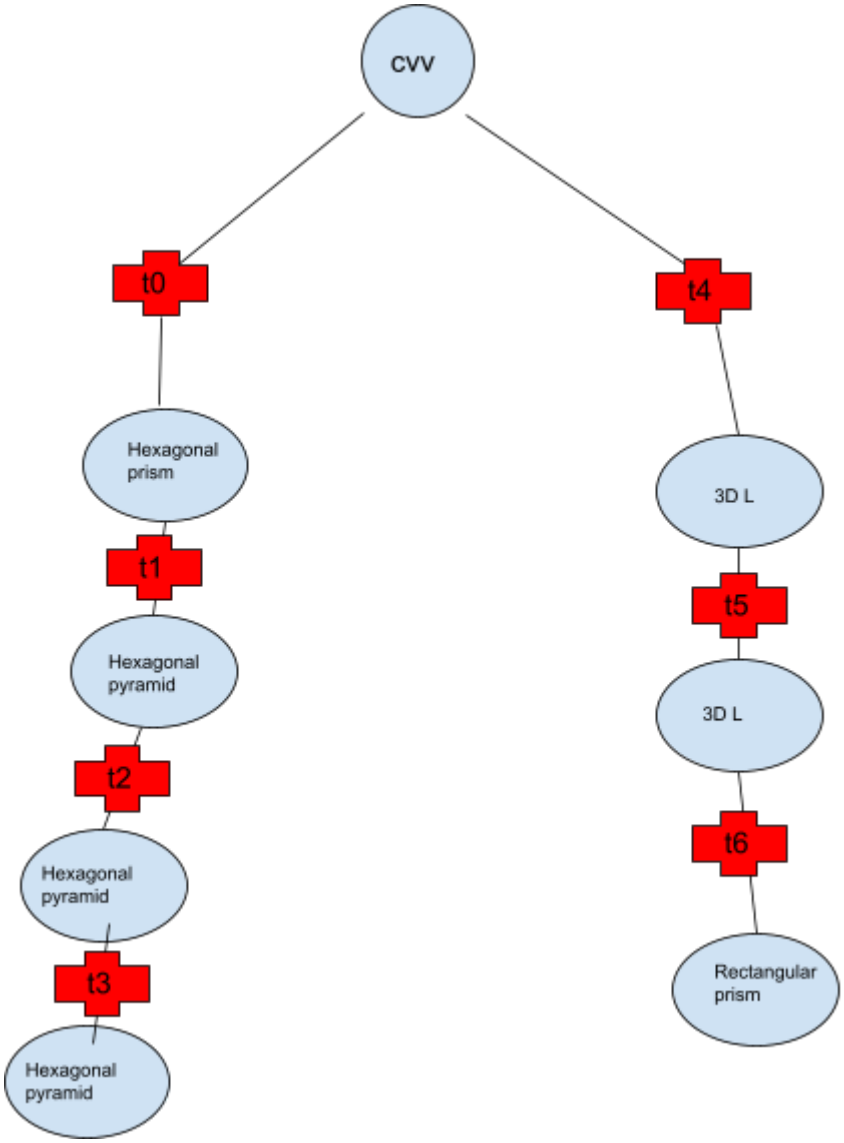


Figure 4 - after clicking the ‘w’ key, the birds have moved upward on the canvas.

Scene Graph


cvv
t0
t4
Hexagonal prism
3D L
t1
t5
Hexagonal pyramid
3D L
t2
t6
Hexagonal pyramid
Rectangular prism
t3
Hexagonal pyramid