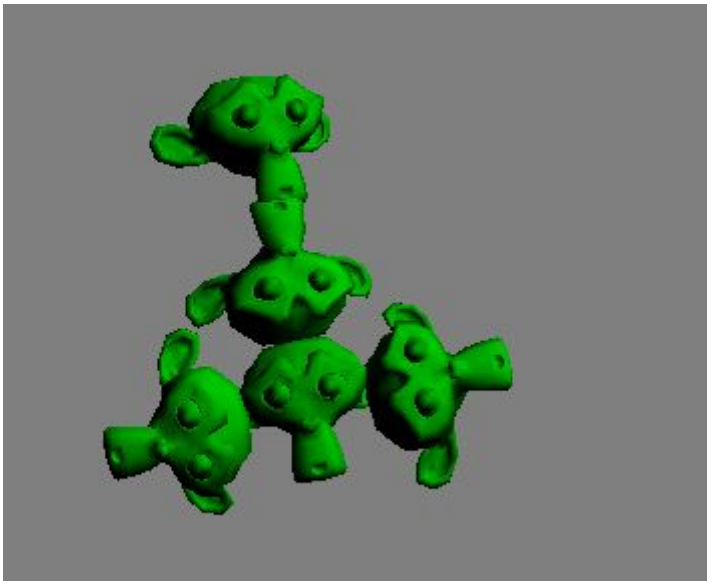
Lab 4

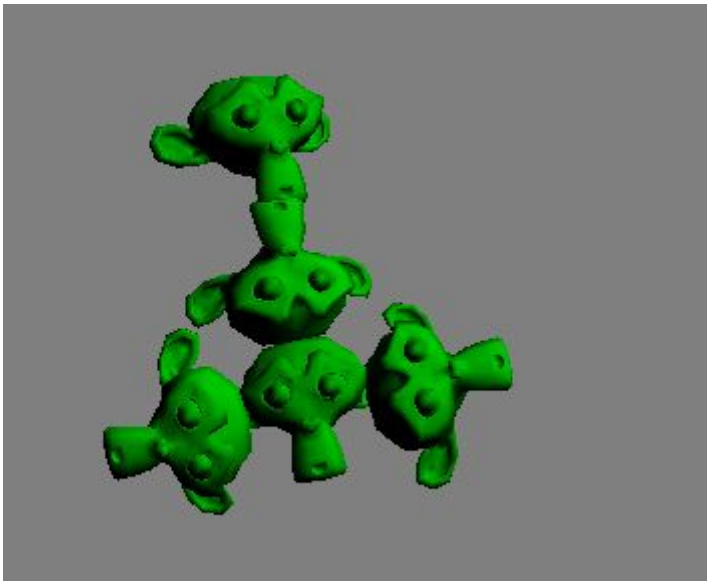
Part a: Hierarchy of 5

For this the model was loaded into a vbo. Next the draw function is called 5 times each one has a different transformation matrix to ensure that they are drawn in different locations.



Part B: One to One relationship

This is when the model has only child. To do this multiply the child transformation matrix by the parent's transformation matrix this can be seen with the top 2 monkey heads.

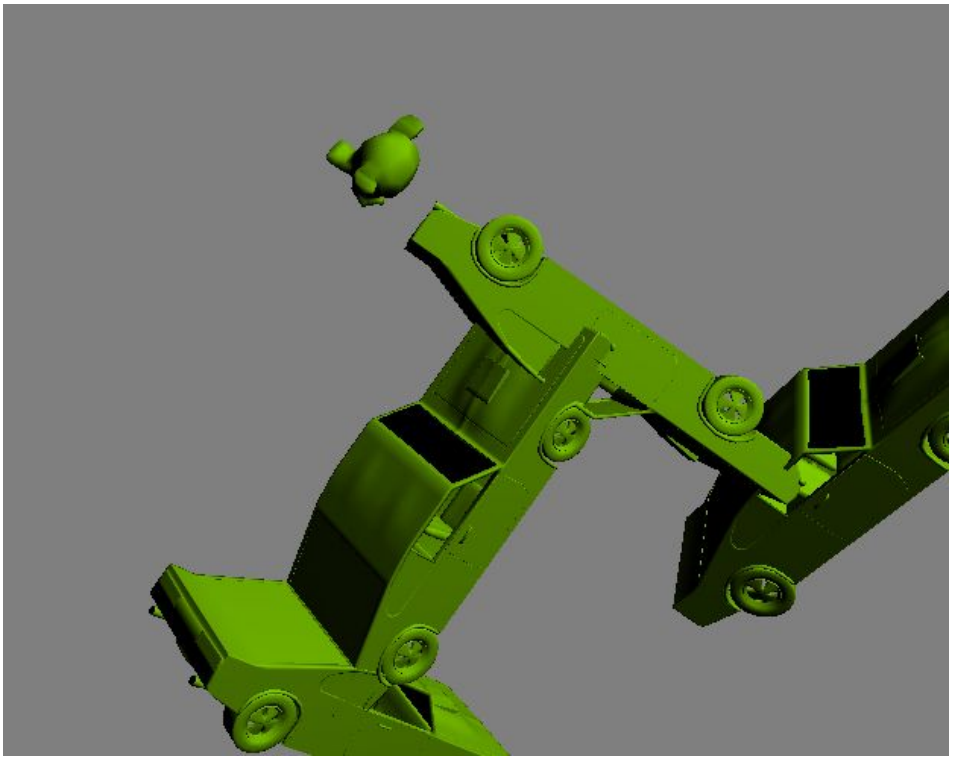


Part C: One to Many relationship

This is when the model has many child. To do this multiply each child transformation matrix by the parent's transformation matrix this can be seen with the central monkey head which is the parent of all the other models.

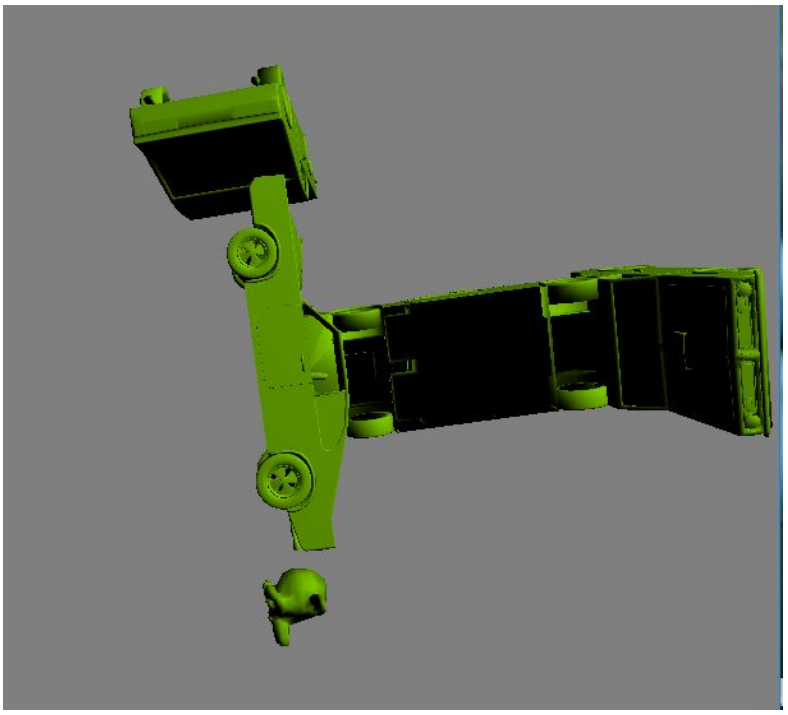
Part D: Keyboard control

For this similar to previous lab a keyboard function is made which takes a character input. It then alters the global vector which is used to translate the root object. When the root object is moved this motion is applied to all its child models.



Part E: Inventive/Weird Structure

For this I made a series of cars and monkey heads rotate around one another as I felt that looked strange.



Part F: Loading multiple models.

For this ModelData struct array was created and the second model was stored in a dae file and loaded into the array. Each model was stored in a vbo in separate VAOs. To draw the model the correct vao was bound and the draw function was called.