# 27th April

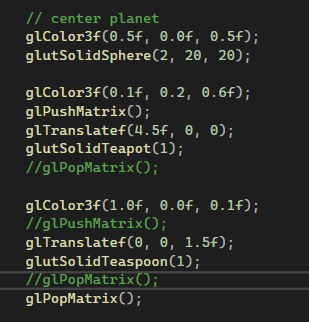
Start working on project. Started setting up variables and constants. This involved looking over the template code and adding definitions for distance where appropriate.

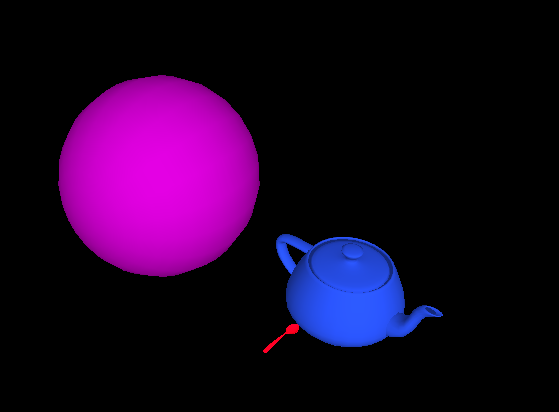
I have also been researching quaternions. These appear frequently in game engines and I am curious about their feasibility in this project.  
<https://www.youtube.com/watch?v=zjMuIxRvygQ>

Ok this video has given me a migraine I will just use an array to store position information.

# 29th April

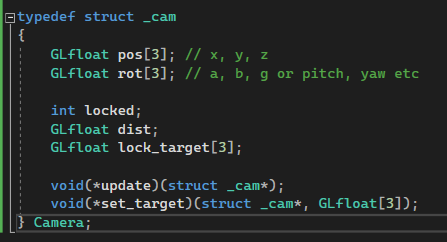
While messing around in my test planets project I have discovered that by not pushing the matrix, the translation begins to compound. This is useful for putting complex models together from basic shapes as the origin moves with each call to the translate function.

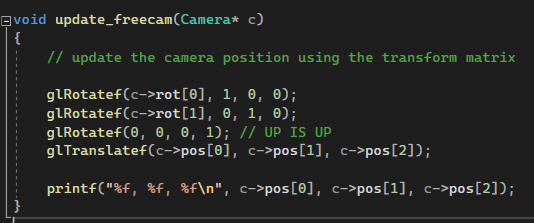




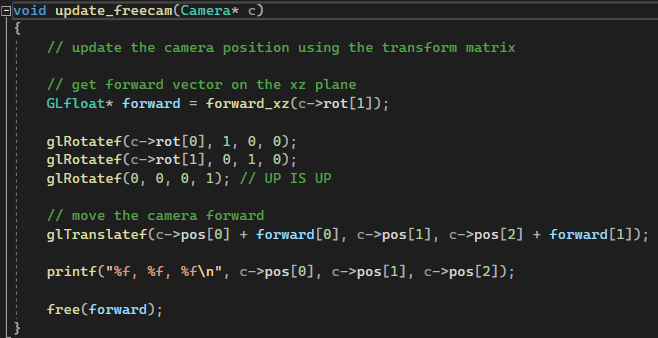
# 5th May

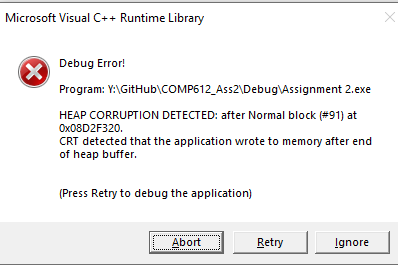
It’s time to get something done. New camera structure with lockon features. This allows me to move the camera around the scene without always having it locked to a certain object at a fixed distance.   
Observe the camera structure below.

In the update function, depending on whether the camera is locked, a different update is called.

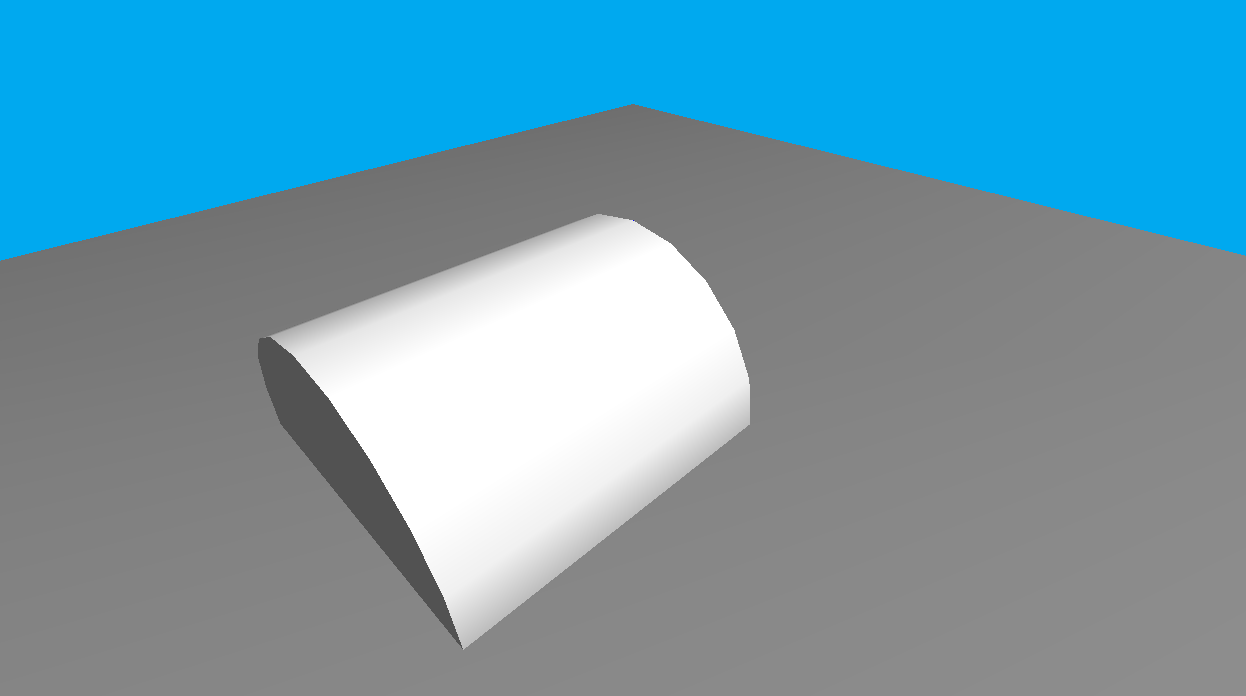
However, movement is still janky because the keys move the camera in relation to the world, not the direction that the camera is moving.

So I have devised a method to get the forward vector

  
Which doesn’t work.



So, at this point I’ve given up making the free camera and have decided to implement the helicopter. For now, it’s just an off-white cylinder. I can’t for the life of me get the fucking thing to work like what the hell is wrong it’s just trig fucking work

  
So the solution was to actually add not subtract the movement vectors. This is because funny things happen when negatives are subtracted from each other. Using trial and error I have completed the movement of the teapot. That’s enough headache for today.