# Comp220 - Portfolio of Game Engine Components

## Demo Concept

The concept for my demo is to create a program in OpenGL that implements some basic game engine components such as raycast and post processing. In my scene I have integrated bullet physics and used it to apply forces to a rendered mesh. In addition I implemented some post processing shaders, some transparency shaders and a raycast.

## Intended Outcome

My goal was to create a game where you could spawn duplicates of yourself and use them to complete puzzles by jumping on top of them or placing them in certain positions. I managed to spawn the duplicates, however I was unable to spawn them with a rigid body so it was impossible to jump on them or use them to activate things.

## Bullet Physics

My demo will include bullet physics and demonstrate it using a coffee mesh. You can apply various different forces to the coffee cup to move it around. There is also a ground physics object to stop the coffee cup from falling forever. You can also invert the gravity.

## Raycast

I have also implemented a simple raycast class into my demo. If you are looking at a physics object and click it will print "hit something" and if you are looking at something else it will print "hot nothing".

## Post Processing

My demo also include a few post processing effects that you can activate on a key press. Some of the effects include greyscale, black and white, sepia, pink and less red.

## Semi-Transparency

I also added some very simple transparency shaders which change the alpha value of each pixel on the mesh.