# GAME203 Assignment 2 Brief

The task assigned was to figure out how to render a forest of somewhat unique looking trees; without incurring much of a performance hit. Additionally, move the camera around in the scene based on keyboard input. There is a bonus mark for adding a surface that the trees adhere to. I chose this task as it seemed a good challenge and it was something new, I was jumping into. The main fact of using OpenGL was a head start for my game engine.

I used GLFW to create the window and handle keyboard events. I used SDL for the timer class. OpenGL was used to draw on the screen. A very popular model importing library out there is called Assimp that stands for Open Asset Import Library. I used Assimp, which is able to import dozens of different model file formats (and export to some as well) by loading all the model's data into Assimp's generalized data structures. As soon as Assimp has loaded the model, we can retrieve all the data we need from Assimp's data structures. Because the data structure of Assimp stays the same, regardless of the type of file format we imported, it abstracts us from all the different file formats out there. Most scenes re-use several of their textures onto several meshes; the trees use the same meshes and textures. Loading textures is not a cheap operation. I add one small tweak to the model code by storing all of the loaded textures globally and wherever we want to load a texture we first check if it hasn't been loaded already. If so, we take that texture and skip the entire loading routine saving us lots of processing power.

The challenges I faced while coding up the solution is glfw using callbacks to handle input events. The events only take in a static global methods as parameters with window.