**Programming Journal**

**05/10/21**

**Dictionaries + list theory**

* “Generic Lists” List<Vector3> list
* Use Dictionaries to index lists

**Shader code**

* CG/HLSL
* Not dependant on Render Pipelines
* Applies to camera (Full screen)
* Applies to Materials (Applied object)

**12/10/21**

**Mesh Generation**

* Learned how to make vertices and triangles on a plane in Unity
* Implemented a system to displace vertices along the plane using perlin noise as a function of time
* Exposed multiple values to inspector for customising the plane including colour, noise scale and noise scroll speed

**19/10/21**

**Using Shaders**

Started learning how to write shaders. I was directed towards ShaderToy by Paul/Andy. Watch a couple tutorials using smoothstep, drawing shapes and using functions of time.

**2/10/21**

**Writing Shaders**

Developed a shader in class for my wave generator. Using Unity ShaderLab and CG to smoothstep between two colours.

Ask Paul for help with an inverse Lerp function for the rate to smoothstep between.

**9/11/21**

**Customising Wave Shader**

Added Smoothness and Metallic properties to the shader.

Added two color pickers to properties.

Added sliders to enable the start and end for smoothstep.

Enabled the shader to use worldspace when calculating the point to smoothstep.

**16/11/21**

**Edge Detection**

Looked at edge detection methods such as depth based and normal based.

Paul pointed out his detection used for DuoShader. Over the rest of the week I researched the functions used and took notes on how an edge was drawn.

**23/11/21**

**Edge Lighting**

Discovered how to set the colour of an edge from within the shader. Exposed this value to the inspector from another script and enabled HDR for the color. Switched the post process effect to a before stack process so that bloom and other effects would apply after an edge was drawn.

**30/11/21**

**Optimisation**

Started to learn how to write select case statements in C# and why they are better optimised than If statements.

Went back to older projects and tried to apply Case statements where applicable.