LAB 5 VERTEX MANIPULATION

CODE TASKS

1. Create a new project for this lab and implement the sine wave through a plane example covered in the lecture. This requires creating a new shader class and shaders (basic directional light will be fine) for now only pass a time value to the shader. I recommend using the plane mesh provided in the framework. There is an example vertex shader, receiving time and manipulating the geometry covered in the lecture.

2. Update the constant buffer containing time to send additional variables; height and length/frequency. Use these variables to control the manipulation. Adding keyboard controls to increase and decrease height and frequency. You may want to clamp the values being sent to something sensible.

3. Create a Jelly cube. This requires a detailed cube mesh and passing a sine wave through the shape.

4. Update the displacement calculation, of the Jelly cube. Instead of offsetting the vertex along the y-axis, offset the vertex along its normal. This should result in the cube faces being offset away from the centre of the cube, rippling each face in a different direction.

RESEARCH TASK

Research and develop an application demonstrating height/displacement mapping. This requires passing a texture to the vertex shader, sampling it and using the colour value to offset the vertex. Using the provided height/displacement map (“height.png”), the result should look like this: