COMP27112
Introduction to Visual Computing

Week 3
Problem Sheet

These are algorithms you would never implement because the API provides them for you. But it is worth thinking and understanding how these work.

1. Given the equation of a straight line:

$$y = mx + c$$

Design an algorithm that computes which pixels should be coloured to represent a discretely sampled line.

2. Design an algorithm to perform backface culling. This is the process that takes a facet and decides whether it is oriented towards the viewer and therefore visible, or oriented away from the viewer and therefore invisible.

3. Design an algorithm that takes a line defined by its endpoints and a 2D viewing window defined by its four vertices and decides whether the line is completely visible, completely invisible or partially visible.