**Complex game systems evaluation**

Changes to the original brief:

The original brief for my complex game system was for it to be a graphics card-based pathfinding solution, as well as a graphics card-based node graph generation tool. While creating the system I found it extremely difficult to get the astar pathfinding algorithm to work effectively on the graphics card, upon searching for a solution I made the change from the graphics card to multithreading on the CPU, this would provide an increase in performance compared to using the main thread on the CPU whilst being easier to implement than the graphics card solution.

The other change that was made to the original brief was to the node generation system, on the brief it was going to be on the graphics card. This was changed to be on the CPU as it is not a live updating solution extra processing time is not an issue as it saves the node graph to a scriptable object and does not have to be processed twice for the same environment layout.

Problems encountered:

Graphics card a\*

Non blittable types with memory management

Node generation off meshes.

Non walkable objects

Performance of the system:

(Comparison to navmesh)

1000 agents on test platform is average 56fps my version

Without obstacle avoidance 307 average 1000 agents

Navmesh 1000 agents in same environment 256 fps average with obstacle avoidance on low quality