Technical Design Document Template

1. Revision History

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| --- | --- |
| Version | Description |
| Pathfinding | |
| 1.0 | Path finding working. |
| 1.1 | Fixed weight calculations |
| 1.2 | Added Instructions and changed controls |
| 1.3 | Added colour and heap |
| 1.4 | Updated colour |
| 1.5 | Implemented A\*and added way to switch between them |
| Flocking | |
| 2.0 | Created Boids. |
| 2.1 | Changed the circle to react to screen size |
| 2.2 | Created quad-tree |
| 2.3 | Fixed quad-tree |
| 2.4 | Implemented mouse controls. |
| 2.5 | Fixed instructions |
| 2.6 | Optimised quad-tree |
| 2.7 | Fixed problem with quad-tree |
| 2.8 | Added extra fun controls and improved performance |
| 2.9 | Added option to change boundary shape. |
| Steering behaviours | |
| 3.0 | Added project |
| 3.1 | Implemented Seek |
| 3.2 | Finished flee and wander |
| 3.3 | Set up behaviour loop |

1. Development Environment
   1. Game Engine
      1. AIE Bootstrap.
   2. IDE
      1. Visual Studio 2017
   3. Source Control procedures
      1. Git and GitHub.
      2. Link: <https://github.com/J05HM0N5TER/Artificial_Intelligence_for_Games>
   4. Third Party Libraries
      1. OpenGL
      2. C++ standard library
   5. Other Software
2. Game Overview
   1. Technical Goals
      1. To have working and interesting AI
   2. Game Objects and Logic
      1. Boids have logic built into classes
      2. Path finding has options to use dijkstra or A\* algorithm.
      3. Steering behaviours uses a state machine and algorithms to work out desired behaviour
   3. Game Flow
      1. Interact with game and can reset/clear
3. Mechanics
   1. Mouse and keyboard controls to interact with program.
4. Graphics
   1. Uses simple shapes for pathfinding and an animation done though a sprite sheet in flocking.
5. Artificial Intelligence
   1. Uses dijkstra or A\* algorithm for pathfinding and flocking algorithms for flocking.
6. Physics
   1. N/A