Artificial Intelligence – Main Assignment

Daniel Gallagher – G00360986

In this assignment I decided to use the fuzzy logic aspect of the game to determine whether a game was going to be lost based on enemy health and player health. The fuzzy logic took in the player's health and enemies health and based on the rules set in game.fcl it determined how probable a game was to end (i.e., if the player health was 0 and the enemy had 10hp the game loss was 100%.) I used the right most max operation as this proved to be the most accurate method I tested with a return of 100% loss when the player was going to lose whereas methods like COA and COG returned roughly 80%/86%.

As a developer I decided to quickly hard code my game to give the different colored ghosts different strength's which would be used to damage the player. I felt this added more strategy to my game which is always better than a simple game. This was done quickly using the enemy file I created and a simple if / else statement.

In my simple neural network, I used the player power and the enemy strength as the inputs. The neural network then used the data it learned from my dataset to determine whether the player would be damaged or not by the enemy. If they took damage, I implemented a playerHit method in the GameModel file which damaged their HP depending on the enemy's strength. If the player beat the enemy the players strength was increased by a factor of 1. This means my game requires the player to use their knowledge and play tactically. If the player kills 5 enemies the game ends and if they lose their HP to 0 the fuzzy logic knows they have died and ends the game outputting they lost.