­­­­­­­Requirements Specification

**Purpose**

To make a fun ‘simulation’ program for computing science students who are interested in Artificial Intelligence and Neural Nets. It will include almost all of the features that were requested in the user survey

**Scope**

Program which ‘evolves’ neural net creatures, text documents used to store neural nets, visual display to allow user to see the evolution of the neural nets

**Constraints**

* Program will not have detailed sprites (or likely any sprites at all)
* Program will not be able to roll back to previous generations of creatures
* Project should be finished by the 21st of March

**End-users**

The end users for this project are advanced computing science students who have an interest in AI and neural nets. They will be able to use it to ‘simulate and evolve creatures’. The end users have influenced the design of this project by completing the user survey.

**User Requirements**

* Intuitive User Interface
* Smooth Running of the program and as little wait times as possible
* Short explanations of how the neural nets work (as this program is designed to appeal to Computer Science Students)

**Functional Requirements (Numbered for reference in design)**

1. Initialise a frame and panel
2. Create Neural Nets with random weight values
3. Create children of Neural Nets with random mutations
4. Store and read in neural net weights
5. Run a quick generation which makes a new set of neural nets
6. Run a slow generation which allows the user to see the ‘creatures’ in slowed down time as they compete
7. Record and display average survival time values
8. Creatures able to eat other creatures as well as pellets
9. Draw names for creatures from CSV file

**Inputs**

* Users clicking on buttons to run generations
* Neural Nets stored in text files and loaded back into the program.

**Outputs**

* Creature movements
* Displaying of creature movements
* Storing neural nets
* Displaying Average Survival Times Graph