Mack Tang
April 4th, 2018
Programming Projects
Project (Final Project Checkpoint 1)

Link to Version Control: https://github.com/macktang/AtomJumper.git

Planned for Today's Assignment:
Actual Accomplished for Today's Assignment:

Wk #	Required Learning	Task	Due Date and Time Allotted	Deliverables for Due Date
3,4		testing framework hooked up		testing framework
5		detailed plan about how you will train your bot with a neural net	Apr 4 (FP1) [3 weeks]	detailed plan in pdf file

Added the Testing Framework:

-Using python's builtin unittest library, I wrote some tests for a physics function and the player class. Both of these tests assert that the function works in the expected way.

Added a Detailed Plan for Playing the game with a Neural Net Bot:
After researching several sources (see below for links), I wrote a document detailing how I will use a neural network to play the game. The detailed plan is in the file "Neural Network Detailed Plan - Mack Tang.pdf". I learned a lot about the math going on behind each node in a neural net, as well as the training process, which is similar to optimization problems in calculus. I also attempted to read about reinforcement learning, which turned out to be much more complicated, so I will stick to using neural nets.

Resources/References used:
Overview of Neural Net math: https://www.youtube.com/watch?v=aircAruvnKk
Training a Neural Net: https://www.youtube.com/watch?v=IHZwWFHWa-w
Well Accepted book on NN: http://neuralnetworksanddeeplearning.com/chap1.html

Planned for Next Assignment:

-Code for second trained revision of bot playing game

-Add scoreboard which saves in memory