AI Final Project

***pong.py***

-Used to pickle training data as we play the game (we must move both players)

-Saves the data to “**training\_data.dat**” with a defined function **save\_data(fileName)**

-In particular, it pickles the tuple (**global\_training\_input, global\_training\_output**) into our .dat file

-Right now, **global\_training\_input** is a list of 4-tuples, with each 4-tuple containing the left paddle’s y position when it hits the ball (**player.y**), the ball’s y position at that same time (**self.y**), and the ball’s previous two y positions (**self.y\_prev\_1** and **self.y\_prev\_2**) before hitting that ball

-**global\_training\_output** is a list of the right paddle’s y position (**enemy.y**) when it returns the shot of the left paddle

-This **save\_data(“training\_data.dat”)** function will be called automatically after you hit the “X” at the top of the Pong window and select “Cancel” from the pop-up window that results from clicking “X.” Then you will be returned to the shell, where you can use **load\_data(“training\_data.dat”)** to see what your pickled data looks like.

-**WHAT TO DO:**

**-**Try to fix weird behavior of the ball when it hits the edge of a paddle (sometimes it will go behind the paddle and bounce around before popping back out)

***ai\_pong.py***

-Used to play one-person pong against our trained computer player

-Still a lot to do here, but I think we should get this working with a backprop network first.

-My thought was to divide the screen height into paddle-sized sections, with each section representing a location for our AI Paddle to be in. I think there are 9 sections, which means our backprop network will have 9 outputs (with an output of 1 0 0 0 0 0 0 0 0 representing “move the AI Paddle to the top section,” an output of 0 0 1 0 0 0 0 0 0 representing “move the AI Paddle to the third section from the top,” and so on)

-You will see some of my work to fix the loaded data from **“training\_data.dat”** into a trainable form after the green comment **‘’’Initialize the backprop network‘’’**

**-WHAT TO DO:**

-Find a way to move the AI Paddle to where it needs to be after receiving info from the other paddle making contact with the ball

***2\_ai\_pong.py***

-Used to watch 2 AI Paddles battle it out