**Assignment 1**

**Overview:**

Since I missed the deadline for assignment 0, I was playing catch up, but I believe I met the most minimum requirements of using the Least Mean Squares method to start with random coefficients for a static evaluation function and converge on the weights I chose for my version of Connect 4.

**Static Evaluator:**

Initially, my approach to the evaluation function was all wrong. Instead of analyzing the overall state of the board after each move, I was analyzing the effect of each move on the board. Once I corrected this assumption, I was able to come up with a function that increasingly valued greater number of the player’s pieces in a row, which is quite obvious and intuitive. I got a little hung up on blocking moves, as I wasn’t sure if the AI was going to handle this directly. I did build blocking into my static evaluator by making any sequences of the opponent’s pieces a greater penalty than could be offset by the player-sequential pieces (unless there was a winning move for the player. In all honesty, I didn’t get a chance to implement the AI, but the Evaluator did a great job of looking ahead, and it was necessary to test the LMS method.

**Least Mean Squares:**

My initial approach to the LMS method was to minimize the error, but the produced unstable results which oscillated increasingly. Therefore imposed stricter conditions, whereby the coefficient need to converge on the weights that I had established previously. Using the algorithm in class produced success in the first weight, but the second weight headed in the negatively infinite direction. I believe this was due to the negative nature of the second coefficient. Therefore, changing the subtraction operation to addition, between the two evaluation values remedied this behavior.

I’m afraid my approach is too tightly constrained and does not provide the opportunity to “discover improved weights. I’ve “taught” the computer how to do it my way, but not how to find the “best” way.