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CS481

Report Project 3

For this project, I took a very straightforward approach towards the development. I focused on first solving the Q equation. I decided on “Q[s,action] += alpha*(reward+gamma*predicted_value-Q[s, action])”. This was an easy interpretation of the pseudocode provided in the PowerPoints. The most difficult part for me in part 1 was changing the alpha and gamma values to effectively teach the program how to succeed. I realized initially that the alpha value was set too low, and moved it to about 0.6. My gamma value at the time was set to 0.97 and it helped me realize that the gamma value was way too high, causing the program to not get enough rewards for a successful action. I slowly increased the alpha and decreased the gamma until I got the test result to succeed.

For the car project, I had more issues figuring out the alpha and gamma values. I had to lower the alpha to 0.025 and leave the gamma higher, and after consistently increasing the gamma by 0.1, I got a success on the test. Another issue was determining the min_vals and max_vals. The min val was based on the left side of the board and the valley, while the max was the flag and the right side of the board. The number of bins I decided on was 10 and 10, which allowed the car to get enough attempts to go through the challenge.