Homework 5: Q learning

Gurkirat Singh, Jessica Ng

[gus011@ucsd.edu](mailto:gus011@ucsd.edu), [jen030@ucsd.edu](mailto:jen030@ucsd.edu)

March 11, 2016

# Contribution

Jessica Ng: I created the preliminary rough-draft code for the value iteration and q learning agents. We then verified/polished this code jointly and refined it to work for the new autograder.py and skeleton files. We tested various values for problems that required analysis.py to see which ones would procure the desired results and discussed the reasoning behind the optimal values. Following this, we created the code for the Q approximation agent. We then each separately verified the code on our own once again.

Gurkirat Singh: I helped writing parts of the code and testing it to make sure that everything worked correctly. Jessica was kind enough to help me work through some of the evaluation functions needed for the algorithms. What I learned from this assignment is that Q learning and other model free algorithms are only good enough given ample amount of time or data. They are indeed very slow to learn and can sometimes increase computational time complexity. Markov Decision process on the other hand is good enough but impractical in the real world where a lot of ambiguity is present and actions are sometimes be infinite.