

COMP341 Introduction to Artificial Intelligence

Bonus: Reinforcement Learning

This programming homework will test your knowledge and your implementation abilities of what you have learned in the *reinforcement learning* part of the class.

Programming

This homework only has a programming part which follows the Berkeley CS188 Spring 2014 Pacman Project 3: Reinforcement Learning project at <http://ai.berkeley.edu/reinforcement.html>. You are going to do the 8 programming questions about reinforcement learning in this website.

You are only required to change *valueIterationAgents.py*, *qlearningAgents.py* and *analysis.py*. If you have any issues with other parts of the code let your instructor or TA know ASAP, even if you manage to solve your problem. Use the data structures and sampling functions in the *util.py* to your advantage. If you think you have the right answer but the autograder is not giving you any points, try to run it on individual questions. In case that you are sure your algorithm is working properly, but the autograder is not giving you any points do not worry. Let the TA or the instructor know after your submission and we are going to arrange a time for you come in and argue why you think your algorithm is running correctly.

This homework needs to be completed individually. Discussion about algorithms and data structures are allowed but group work is not. We trust that you will submit your own work for full credit.

Submission

You are going to submit a compressed archive through the blackboard site. This should extract to a folder with your student ID which includes *valueIterationAgents.py*, *qlearningAgents.py* and *analysis.py*.

Submission instructions:

- You are going to submit a compressed archive through the blackboard site. The file can have *zip*, *tar* or *tar.gz* format.
- This compressed file should extract to a folder with your *student identification number* with the two leading zeros removed which should have 5 digits.
- The previous point is very important, I do not want to see multiple folders (apart from operating system ones such as MACOSX or DS Store). I do not want to play inception with your code.
- Inside the folder, you should only have *valueIterationAgents.py*, *qlearningAgents.py* and *analysis.py*. Anything else will be deleted. If they interfere with the grading process, I will simply ignore your submission.
- One advice is after creating the compressed file, move it to your desktop and extract it. Then check if all the above criteria is met.
- **DO NOT SUBMIT CODE THAT DOES NOT TERMINATE OR THAT BLOWS UP THE MEMORY.** I will take these as malicious acts and will proceed accordingly.

Let us know if you need any help with setting up your compressed file. This is very important. I will put all of your zipped files into a folder, run multiple scripts to grade and do similarity testing. If you do not follow the above instructions, then scripts might fail. This will lead you to get a 0 from your homework.