

CS 4782 Coding Assignment 5 Written Responses

Due: 5/6/25 11:59 PM on Gradescope

April 25, 2025

Note: For homework, you can work in teams of up to 2 people. Please include your teammates' NetIDs and names on the front page and form a group on Gradescope. (Please answer all questions within each paragraph.) Please show all the relevant steps in your solutions.

Question 1:

How does the behavior of the Q-Learning agent compare to the random policy visualized previously? What policy does the agent appear to have learned? Write 2-3 sentences below. (5 pts)

Question 2:

How does the behavior of the DQN agent compare to the random policy visualized previously? What policy does the DQN agent appear to have learned? Write 2-3 sentences below. (5 pts)

Question 3:

Compare your results for using DQN and Reinforce. Discuss the performance, convergence, and behavior of the two algorithms. Consider factors such as the stability of learning, the quality of the learned policies, and the behavior of the final policy. Write 3-5 sentences below. (5 pts)

Gifs:

Make sure to upload all of the .gifs zipped with your written response. There should be 5 gifs total; two for the taxi (random, q-learning), three for the cartpole (random, dqn, reinforce).