Homework Double DQN (DDQN)

Assigned 06/09/22

Due: 06/15/22

Total points: 15

You can work in groups of up to 2 people.

**Homework Description**: in this homework, you are going to implement DDQN for two Gym environment you choose. One of them should be cart-pole. Here are the exploration tasks for this assignment.

For each game environment:

1. Experiment with adjusting the size of the replay buffer for training, how often the old records are deleted from the replay buffer, the interval between each update of the target neural network, and the usual Q learning parameters, e.g. alpha, gamma and epsilon.
2. Compare the results with your best performance model from previous homework

**Turn in:**

1) the entire project with a readme file for how to run your code

2) report from your explorations

3) discussions on the results of your exploration. In particular, compared the results you got with your previous results using GA, and table based Q learning.

Additional 1-5 points if you implement a DDQN with CNN and use it to play Atari games that use image inputs.