EE466000 introduction to reinforcement learning
Homework 4: Swamp

Due: April 27, 2021 23:59

Goal

- The goal of this homework is to practice Monte Carlo control

Todo

- Implement an environment:
  - ✓ Refer to HW2
- Implement Monte Carlo control algorithm

Details

- File description
  - `HW4.ipynb`: You'll implement an environment in the file.

- Gridworld environment

  - Episodic task, $\gamma = 1, \alpha = 0.1, \epsilon = 0.3$
  - R=-100 if moves into the swamp; all other transitions yield R=-1
  - Plot the learning curve (average return versus episodes) of MC control
  - Use 30 simulation runs to estimate the average value

Swamp			
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Requirements and Installation

- Python version: 3.6
- pip install matplotlib
- pip install numpy

Report

- **Title, name, student ID**
- **Implementation**
  - ✓ Briefly describe your implementation.

- **Experiments and Analysis**
  - ✓ Plot returns of the algorithm.
  - ✓ Plot tables of the algorithm. (if possible)
  - ✓ Whether q_values are reasonable?

Reminder

- Please upload your code main.py and report.pdf to iLMS before 4/27 (Tue.) 23:59. No late submission allowed.
- DO NOT zip your code into a single file.
- Please do not copy&paste the code from your classmates.
- Please write a README file to explain how to run your code if you implemented extra functions.