CS 5751 – Spring 2018 – Homework 3 (Revised)
Assigned: 02/13/2018
Due: 02/20/2018 (1 Week)
Total points: 100 pts.
Submit a soft copy to canvas. Remember to write your name at the top of each file you submit.

Objectives: The objectives of this homework are the following:

- Learn how to use Monte Carlo to solve the prediction problem.

Notes:

- This homework is to be done individually. You may discuss with your classmates, but the work that you write must be your own.
- If you choose Python, then you need to make sure that you have the following packages: numpy, jupyter. See the slides posted on canvas to learn how to install Python and R. If you are using Linux or Mac, you can install these packages by typing the following at the command prompt: pip install numpy, jupyter.

Activity: (100pts.) (Monte Carlo Prediction) Implement first-visit Monte Carlo prediction to evaluate the policy described for GridWorld in Exercise 3.5. Then, output the value of $v_\pi(s)$ for all the states. Check Section 5.1 of the Sutton and Barto book.

Assume that episodes have a finite length *X*. This is to ensure that the episodes (and the Monte Carlo Algorithm) finish. You can fix the length *X* to be any number you like, as long as it is bigger than 50. Notice that the bigger *X* is, the closer it will be to the values in the book.

Write a Jupyter notebook named yourLastName_hw3.ipynb with the answers to this activity.