Habib University

Assignment #2

Course Code: CS 352	Introduction to Reinforcement Learning	Given: 06/03/2023
Due: 26/03/2023	Spring 2023	Maximum Marks: 100

General Instructions:

1. Please type the answers or write neatly in longhand.
2. Upload your word or PDF (if you write in longhand, scan and convert to PDF) file to Canvas.
5. No late submission will be accepted.

Instructions for Programming Assignments:

1. Upload your Python code as .py file and the output of the programs, if required, as PDF files to Canvas.
2. For programming assignments, short of copying and pasting complete code from other students, from published material and from the internet, you may use any resources that are available to you.
3. You are responsible for whatever you submit and must fully understand the work that you submit.
4. Assignments will be graded by inviting you to my office and asking you to explain the code or asking you questions to judge your understanding.

Q1. The optimal value function v_* for the GridWorld is generated by the code `GridWorld_3_5.py` which is available on Canvas. Write a program which takes the value function generated by the above code as input and generates the corresponding optimal policy.

Q2. Starting from the code `GridWorld_3_2.py`, which is available on Canvas, implement the complete value iteration algorithm to generate the optimal value function v_* and an optimal policy π_*.

Q3. We modify the GridWorld corresponding to the code `GridWorld_3_2.py` by considering the bottom right cell to be the terminal cell or state. Implement the First-visit Monte Carlo Prediction Algorithm on the modified GridWorld to compute the value function v_π corresponding to the uniform policy which was used in the code `GridWorld_3_2.py`.