RL Lab Assignment - 3
CS 414: Reinforcement Learning Lab
Course Instructor : Prof. Prabuchandran
Teaching Assistant : Shruthi K.
Date: 14 Feb 2022

INSTRUCTIONS: You have to give clear and detailed plots and solution to each of the questions. **Submit one single pdf file containing solutions to all problems in google class room before 4th Mar, 11.30 am before the RL class. Submit the code as .py file or as python notebook along with the solution pdf. Only one member of the group has to submit the assignment. Name your pdf with** *rollno*1_*rollno*2_*rollno*3**.** For example 190010005_190010006_190010007.*pdf* . Late submissions will not be graded. Students can discuss but must write their solutions based on their understanding independently. Do not use web resources or answers from your peers to obtain solutions. If anyone is involved in malpractice of any sort, then suitable disciplinary action will be taken.

As part of this assignment each student needs to formulate and solve an MDP problem using policy and value iteration. There are three components in this assignment.

- Every member in a group should try to come up with a sequential decision making problem and formulate the problem as either discounted reward or total reward MDP problem.
- As a group, you should develop code for solving the MDP problems using policy and value iteration.
- Each member in the group should come up with a individual report clearly describing the MDP he/she has considered and their observations on running the policy and value iteration algorithms on the formulated MDP. Further, one should also suggest ways to check whether the algorithm yields optimal policy for the setting considered.

0.1 Instructions

1. The MDPs considered should not be same within or across groups. There should be a significant difference in the MDP considered.
2. Neither take MDPs that have large number of states/actions. It is not possible to solve then.