DA-IICT, IT 567, Winter 2024-2025
Lab Exercise 3
Date: 27/01/2025, Expected by: 03/02/2025
Prepared by: Dr. Abhishek Jindal

References for perusal:

[1] *Deep Reinforcement Learning Hands-On*, 2nd edition, M. Lapan, Packt Publishing Ltd., 2020.
[2] *Reinforcement Learning Algorithms with Python*, A. Lonza, Packt Publishing Ltd., 2019.
[3] *Reinforcement Learning: An Introduction*, 2nd edition, Richard S. Sutton, and Andrew G. Barto, The MIT Press, 2018.

- The lab exercise comprises of 4 problems. All the problems involve analytical and simulation work.
- All the problems need to solved individually. However, collaboration is encouraged for building an initial understanding of the problem, and subsequently, for creating the solution strategy.
- All the required soft copies of the texts referred to in the exercises are available in the lecture folder of the instructor.

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1. From [2], go through "Open source environments" from chapter 2, pgs. 47-49, for a general know how.
2. From [3], study example 4.1 and write a Python code to find $v_\pi(s)$.
3. From [3], solve exercises 4.1 and 4.2. You can choose to solve it using a Python code.
4. From [3], solve exercise 4.3.

Instructions for Preparing Lab Report:

- For analytical problems, either create a digital copy of your solution (through latex/Word/etc.), or write it on a paper and scan, whichever choice you make, send it to the instructor through email.
- For problems solved in simulations environments (python/Visual studio/etc.), send the code file along with the snapshot of the result.

General Instructions:

- The lab is intentionally made from the references given above so that you have ample resources to refer to and learn.
- For the final evaluation, we may have a quiz/lab test which will test if you have read through the references and solved the problems yourself.