CS-352, Introduction to Reinforcement Learning
Instructions for Course Project

Software Setup:

Follow these instructions to set up the software development environment on your machine. This setup has allowed me to render the graphics provided by the OpenAI Gym environment. You may be able to use some other way of setting up the environment in which case you do not have to follow the below instructions.

1. Download and install Anaconda: https://www.anaconda.com/products/distribution.
2. Run Anaconda.Navigator.
3. Click `Environment --> base (root) --> Open Terminal`.
4. Type `pip install gym` in the terminal.
5. Then type `pip install gym[toy_text]` in the terminal.
6. Cloe the terminal.
7. Launch Spyder from Anaconda.Navigator.

Now you can use Spyder to implement the RL algorithms that interact with the OpenAI Gym.

The Environments:

More information about the OpenAI Gym environments is available here: https://www.gymlibrary.dev/content/basic_usage/. Specifically, information about the Toy Text environments, Frozen Lake and Taxi are available at following links:

1. https://www.gymlibrary.dev/environments/toy_text/
2. https://www.gymlibrary.dev/environments/toy_text/frozen_lake/
3. https://www.gymlibrary.dev/environments/toy_text/taxi/

Interacting with the OpenAI Gym Environments:

Information about interacting with the OpenAI Gym environments is easily and widely available on the internet. Following are a few links which I found useful:

1. https://aleksandarhaber.com/introduction-to-state-transition-probabilities-actions-and-rewards-with-openai-gym-reinforcement-learning-tutorial/

2. The YouTube video corresponding to the link above can be found here: https://www.youtube.com/watch?v=jG1qU1m9gfE

3. https://aleksandarhaber.com/installation-and-getting-started-with-openai-gym-and-frozen-lake-environment-reinforcement-learning-tutorial/

4. The YouTube video corresponding to the link above can be found here:
   https://www.youtube.com/watch?v=Vrro7W7iW2w

Q-learning for Frozen Lake:

Following webpage discusses the implementation of Q-learning algorithms for learning to navigate the Frozen Lake environment:
https://towardsdatascience.com/q-learning-for-beginners-2837b777741

Your Task:

Your task in this project is to implement the SARSA and Q-learning algorithms to the Taxi environment. Further details will be posted shortly in a separate document.