

FIT5226 Project

Stage 1 - Tabular Q-Learning

Submission Instructions

Environment and Task Description: Clearly describe the environment and the task your Q-learning agent must learn. Include all the necessary details such as state space, action space, rewards, etc.

Code Implementation: Your entire code should be implemented in this Jupyter Notebook. Please include the following sections:

- Imports: Import all the necessary libraries and packages at the beginning of your notebook. Here we only allow using Numpy and Matplotlib for the visualisation.
- Environment Setup: Define the environment where your agent will be trained.
- Q-learning Algorithm: Implement the Q-learning algorithm, including functions for initialization, policy selection, learning, and evaluation.
- Training Phase: Define the training loop where the agent will learn the optimal policy.
- Evaluation Phase: Evaluate the trained agent on several episodes and calculate the performance metrics.
- Visualisation: Provide plots and visualisations to support your results and insights.
- Conclusion: Summarise your findings and observations.

Comments and Documentation: Include comments in your code to explain your implementation, and provide markdown cells to elaborate on your decision-making process and insights.

Requirements:

- Ensure that the code is error-free and can be executed from start to finish.
- Limit the usage of external libraries unless specified in the assignment brief.

Submission Format:

- Save your complete work in an IPython Notebook file (.ipynb).
- Name the file as <GroupName_Stage_1>.ipynb.

Submission Platform: Upload the completed notebook file to Moodle, Only one submission is needed for one group.