*Gavin Bliss*

*CS 370 ReadMe*

**Project Overview**

In this project, we developed am pirate intelligent agent that used reinforcement and neural networks to navigate a maze and find treasure. We were provided with the environment setup and an experience replay framework. I implemented the Q-learning algorithm, epsilon-greedy strategy for exploring and exploiting, with the deep Q-learning model using Keras. The agent was also fine-tuned for performance over time.

**Connecting Learning to Computer Science**

This project introduced us to some key ideas within AI, specifically how machine learning is used to create adaptive systems. Neural networks are used to allow the agent to learn from experiences. This demonstrated how complex problems can be managed through systems that improve over time, while drawing connections to the differences and similarities between human and AI learning. Laying out parallels between how humans and AI would tackle the maze is a great exercise to further understand how we think, and how AI works.

**Approaching Problems as a Computer Scientist**

Problems can be managed by breaking them down into smaller tasks. For this project, I focused on training the agents through trial and error, and adjusting aspects such as learning rate, exploitation, and exploration in an effort to optimize performance. Iteration and refinement are key to problem solving.

**Ethical Responsibilities**

The agent’s behavior should aim to be fair, unbiased, and transparent so it can be understood as well as possible. AI systems should also be designed to be mindful of data privacy and avoiding potentially harmful outcomes.