Class notes….

- Q-learning -> state, action, reward, state (prime)

- Q-learning “learns” and then uses what it learns. This is the power behind Q-learning.

- Fundamental dilemma in reinforcement learning -> exploration vs exploitation. Exploration is used to learn about the data and exploitation is what you do with the data to get the ultimate reward. It’s a trade-off.

- Game theory -> mathematics of conflict

- One way to think about game theory is economics. The economy is all about having lots and lots of agents interacting with each that may or may not have the same goals as you. Game theory provides the tools to understand the economic activity of multiple agents, in this instance people, that are interacting with each other.

- Policies are the mapping of states to actions. Policies -> states to actions

- Strategies: a mapping of all possible states to actions

- The point of reinforcement learning -> to optimize your expected long-term rewards. So need to pick the best policy to get that optimization.

- pure strategies = consistencies

- The opposite of pure strategies is mixed strategies

- Nash equilibrium -> when people have the option to change their strategy but do not change because there is no reason to change their strategy. Nash equilibrium: both (or all) players are happy in the end (or as happy as they can be depending on the situation).