CS 411 - Artificial Intelligence I
Fall 2018
Assignment 1 - Solutions
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1.

   a. Partially observable: you can't see opponent's cards

   b. Multi-Agent: poker is played between 2 or more players

   c. Stochastic: the public cards drawn in each round are random

   d. Sequential: your current decision to bet certain amount in one round impacts the state and your decision to bet certain amount in another round within same game

   e. Static: the environment doesn't change when the agents are not acting on it

   f. Discrete: The environment has distinct states, and discrete set of actions (pass,bet,fold) and percepts (public cards, private cards, action of other agents)

   Performance Measure: no. of chips won at the end of each game.

   Actions: Pass, bet, fold

   Observations: public cards, private cards of agent, chips at stake, previous agent's moves

2.

   Rational agent acts to maximize its expected payoff given its percepts. Autonomous agent learns from the percepts in addition to prior knowledge of its designer.

3.

   a. Despite the option of "NoOp", the simple reflex agent is bound to keep moving because it considers only current percept and ignores history of percepts. This means its decision is based on the current location and on whether the location contains dirt. If you do "NoOp" when it detects the current location to be clean (say [A,Clean]), it fails in the case when it is the initial percept and the other location has "dirt".

   b. You can use model based reflex agent which can keep track of the state of the world. In this case the state would represent which squares are known to be clean.