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Our project proposal is predicting optimal parameter for SARSA(L) across different domain with similar features. The domains in used for our project are Frozen Lake, Stochastic GridWorld and Taxi. These domains all share the following features, they are: stochastic; partially observable; known environment; discrete; episodic; and follow MDP. We will implement stochasticity into GridWorld to conform to these features. We plan to use the same implementation of SARSA(L) for each domain. We will utilize the openAI gym interface to accomplish this.

The first step of our project would be to find optimal parameters for all domains. We plan to iterate over the range of parameter values using a step size of 0.2. Using the optimal parameters for Frozen Lake and Stochastic GridWorld as training data, we will approximate the optimal parameters for Taxi. We will then compare the approximate optimal parameters values against the actual optimal parameters. We will evaluate the parameters based on learning curve. The approximate parameter will be evaluated based on its difference compared to the optimal parameter. The success condition for our project is that the approximate optimal parameter values are within 0.2 of the actual optimal parameter values