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Proposal: Deck Recommendation Algorithm for Hearthstone

Research Question

As artificial intelligence continues to seek new and interesting problems to challenge existing systems and algorithm design, so has the collectible card game Hearthstone become a test bed for AI algorithms and machine learning techniques. Prior literature has investigated using machine learning to determine the contents of an opponent’s deck. However, these techniques require a preconstructed deck composition to effectively compete with players. Constructing decks that remain competitive is a unique challenge in and of itself, involving several factors such as card synergy and opportunistic effects that exist beyond the player’s control, whereas the collection of cards the player has collected can change over time. In this case, several known repositories of player constructed decks exist that provide competitive compositions for high level play. Using these sources as well as collected data of what cards exist in a player’s own collection, we can devise a recommendation system to suggest not one or two recommended outcomes for a player, but a full constructed deck of thirty cards using common compositions to enable the player to compete at a high level with what they have.

Literature Survey

Algorithm

Collecting information on deck compositions is a simple as copying a “deck code” from popular deck building websites such as HearthPwn. These deck codes can then be parsed to list a deck composition for a given deck, which fills a record in our data set.

Experiments

Timeline