COMP 4106

**Cribbage AI**Project Proposal

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**Introduction:**

Cribbage is a two-player card game with a semi-complicated scoring system, and asymmetrical gameplay. A turn has three parts, the crib, the play, and the count. The winner is the first player to 120 points.  
  
*The Crib*: Each player is dealt 6 cards, and must choose 2 to put into the crib, which is an additional hand the dealer scores during the count. One card from the deck is turned face up as the starter, and will be used in scoring during the count.

*The Play*: each player takes turns playing one of their cards, points are earned for any double, run, a total of 15 or 31, and having the opponent pass.

*The Count:* The non-dealer counts points first, followed by the dealers hand, then the crib. Points are earned for the following using the 4 card hand, and the starter:  
sums of 15, pairs, runs, a flush, and jack of the starters colour.

**Motivation:**

Cribbage is one of my favourite card games, and it has a very interesting scoring system that doesn’t have a clear right strategy. The asymmetrical gameplay with dealer vs non-dealer make an interesting distinction between other card games.

**Methods:**

The simple parts of point scoring will be created using utility based agents and Bayesian statistics, were the utilities are point differences.

Agent hyper parameters, like weighting guaranteed points vs probable points, will be determined using adversarial agents.

**Deliverables:**

An agent that is able to take input from a real world game and play against a human.  
A Cribbage implementation that can have two agents play against each other.