**Requirements**

**Rules of Gin Rummy**

**Overview**

Gin rummy is a version of Gin for two people. Each of the players attempts to organize as many of his cards as possible into runs and sets, and tries to keep the point value of the remaining cards low.

**Game Play**

The dealer begins the game by shuffling the deck and dealing each player ten cards. The next card from the deck is then turned face up to begin the discard pile. The first player can choose to draw either the face-up card from the top of discard pile, or the face-down card from the top of the deck. To finish his turn, he must he must discard one card from his hand and place it face-up on the discard pile. Note that if a player draws from the discard pile, he cannot discard that same card. Once he discards a card onto the top of the discard pile, it is the next player’s turn to draw.

As the players take turns, they attempt to organize their cards into runs and sets. A run is defined as three or more cards of the same suit in consecutive order, while a set is three or four cards of the same rank. A single card can only belong to one run or set at a time. It is important to note that in Gin Rummy, Aces are always low.

**Ending the game**

A player can end the game, called “knocking”, after drawing a card, if they can arrange their hand into sufficient sets and runs. In order to “knock”, the player must discard one card, and organize the rest of his cards into sets and runs such that the total value of remaining unmatched, or “deadwood”, cards is 10 points or less. Cards have point value as follows:

Face cards: 10 points

Ace: 1 point

2-10: 2-10 points (2 is worth 2 points, 3 is worth 3 points, etc.)

Note that if a player is able to include all ten cards in sets and runs, this is known as “going gin”. In addition, a player doesn’t need to knock as soon as he can, he may choose to continue playing in order to improve his score.

Once one of the players knocks, the other player must spread his cards face-up, and organize them into sets and runs. He is now allowed to “lay off” any of his unmatched cards by extending the runs and sets of the knocker. Note that if a player “goes gin”, the other player is not allowed to lay off. In addition, the knocker is never allowed to lay off any unmatched cards after his opponents places his sets and runs on the table.

Finally, if the deck is reduced to 2 cards and the current player cannot end the game, then the cards are reshuffled and the game restarts.

**Tallying Score**

If a player goes gin, he gets 20 bonus points, plus the value of the opponent’s unmatched cards. If a player knocks without going gin, then each player counts the value of their unmatched cards. If the knocker has a lower count, then he receives the difference between the two counts in points. If the opponent’s count is greater or equal to the knocker’s count, the opponent receives the difference between the two counts in points, plus a 10 point bonus for “undercutting” the knocker.

Play continues until one of the players reaches 100 points, and wins the game.

**Game Operation**

The user will interact with the game entirely with the mouse. He will draw by clicking on either the discard pile or the deck, organize his cards by dragging them, and discard by dragging a card to the discard pile. If the player is able to knock, a button will appear after drawing a card that will ask the player if he would like to end the game.

The computer player will use very basic artificial intelligence to play the game. The computer player will knock as soon as possible, and will try to determine which combination of runs and sets will result in the most points.

**Making the Game Stateful**

Every time a player discards a card, the following information will be updated and stored:

the remaining cards (in order), the cards in the discard pile, the points for each player, and the cards in the hand of each player. If the game crashes in the middle of a turn, play will restart with the player drawing the same card that they had drawn before the game crashed, and play will continue.