Cribbage

Card Game

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**Introduction**

A perfect night in a backcountry camp involves a bottle to pass, a guitar to play, and a crib to count.

Cribbage, and card games in general, are incredibly popular with people who work outdoors, since other ways to pass the time are not always as accessible.

**How to Play Cribbage**

**Object of the Game**

The object of a game of cribbage is to be the first one to reach 121 points, something that is traditionally signified by the player’s peg on a cribbage board traveling around the perimeter of the board twice.

**Rules of the Game**

The gameplay is broken into rounds, phases, and turns.

* At the top of the round, the dealer shuffles the deck and deals out 6 cards to themselves and their opponent. Then both players look at their hands and each picks 2 cards to add to “The Crib”. The crib is 4 cards contributed by players that are the central focus of Phase 3 and belong to the dealer. After both players have discarded to the crib, the dealer turns over the “Starter Card” and the Play Phase begins.
  1. Play Phase:
     + Starting with the person opposite the dealer, players place cards down, playing off of previous cards played, trying to reach the numbers 15 or 31 with the cumulative totals of cards and trying to get pairs and runs of cards, with more cards in a run and more consecutive cards being worth more for every card in them. Aces are worth 1 point and face cards are each worth 10. The player that reaches one of the magic numbers gets 2 points off of the play. If a player cannot play a card without the round score going over 31, the opposite player gets 1 point for “go” and goes again until they cannot go without the round score going over 31. When neither player can play a card without going over 31, then the number resets to 0, and the count begins again. The play phase goes like this until both players are out of cards, with the player to play the last card scoring a final point. After this is the counting phase.
  2. Counting Phase:
     + During the counting phase, the players, starting with the person opposite the dealer, take the cards in their hands and, along with the starter card turned over at the beginning of the round, count the number of ways their cards add up to 15, along with runs and pairs and track points until all possible points are logged.
  3. The Crib:
     + The Crib Phase is solely for the dealer, and is essentially a repeat of the second phase, only using the four cards in the crib.

**The Importance of “The Crib”**

Since the crib belongs solely to the dealer, it is a one-sided advantage for the player that deals each round. The primary goal for the dealer when discarding to the crib is to help your crib phase while not hampering your play and counting phases, since those can yield large numbers of points as well.

**"How the Sausage Gets Made"**

**Translating Game Play Rules to Programming Language**

The large ruleset of Cribbage presented an incredible challenge, but I chose the game since I am more comfortable and familiar with the rules of cribbage than I am with most games, even if my programming abilities were lacking. The simple addition of points from round to round, along with alternating turns, a finite hand of cards per round, and conditional cases where points were awarded seemed like a perfect opportunity to really challenge my abilities, if possibly too much of a challenge.

**Things I Managed to Make Work**

While weighing what to prioritize in the development process, it seemed to me that the most important thing was to take a modular approach, starting with the framework of each phase of the game, starting with the cards and drawing hands, then the crib, then working to the structure of the turn, and finally the scoring piece by piece, phase by phase. What I managed to implement and add are:

1. Card draw
   * The first thing to consider was how to draw cards. Even once we had access to arrays and searching and sorting functions, I felt the best way to handle the issue was simply to generate 13 separate numbers, since that was the maximum number of cards used in a round by two players. I wanted to use the card draw as a showcase of multiple methods of drawing as I did with the first project, but given time constraints in conjunction with the limitations of my own skills and a desire to have some kind of write up with the final project, I opted to mass generate numbers and generate numbers in one switch case and two arrays, and a for loop that wrote from a file. I kept separate string variables for the cards so that I could track previous inputs and cards that were used in subsequent turns.
2. Adding cards to the crib
   * Adding cards to the crib and taking them out of the player’s hand was trickier than expected. The solution I settled on was to use input validation based on what was in hand as well as previous input to accept two cards into the crib, then to display the player’s hand without the two cards put into the crib
3. Alternating turns
   * Making the turn alternation was as simple as making a branching path with a true/false statement based on whether the turn number was even or odd to determine the dealer and who went first.

**Out of time. Thank you for one of the greatest and most rewarding challenges of my life thus far, Dr. Lehr.**