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Software Engineering 1 Project: Creating Blackjack

We decided to create a blackjack card game. We chose Blackjack because it is a game we are familiar with, and Blackjack is a card game with a dealer and at least one player. The goal of the game is to get a count as close to 21 as possible without going over 21. This is achieved through the cards dealt to the player(s) and the dealer. Ace cards are worth either 1 or 11. Face cards are ten, and all other card is the number on the card. The application will simulate Blackjack with a dealer and one player.

This application will be for entertainment purposes, and it will include an interface for the user to interact with. After the cards are dealt and displayed, the player can choose to: take another card, called a hit, or hold their total and end their turn, called a stand. The user will be able to select a button that will do the action for them. For instance, they would hit a button called "Stand" when they don't want to draw another card and "Hit" when they want to draw another card. We will account for when the player or dealer busts, which is having a count greater than 21. For instance, if the player has a King (worth 10 points) and seven (worth seven points) in their hand, then draws a six (worth six), their total is now 23, so they lose. Additionally, the dealer has its own rules. When the dealer's hand is 17 or more, they must stand. If the dealer's hand is 16 or less, they must draw more cards until their total is 17 or better, at which point the dealer must stand. Whenever a player or dealer busts, the program will respond to that and display who lost and who won, along with the values that the player and dealer had.

The ace card for our application can act as either a one or an 11. If an ace is dealt and the player's hand is below a 10, the ace will be an 11; otherwise, it will be a 1. As the game progresses and the circumstances change, we will have the program decide if the ace needs to be worth 11 or if it needs to become a 1 in order to prevent the player from busting. We will be ensuring that the cards we use for the application are readable and easily recognized by the user.

Paragraphs of Features:

1. (Deck) The deck feature will include functionality required for a physical standard 52 card deck. This includes shuffling the deck randomizing the order of the cards in the deck. It includes the values of the card for interpretation by other features. The deck is how the game will keep track of the cards left in play and for when cards have run out. The deck can possibly be designed to include multiple decks of cards for play.

2. (Moves) Blackjack does not have a complicated gameplay. It starts with two cards dealt to each player. The players then go around deciding whether they want additional cards or are fine with what they have. It all depends on the value of the hand. All the number cards’ values are equal to their number, and the three face cards, king, queen, and jack, are each worth ten. The goal is for the total value of the hand to reach 21 without going over or to beat the dealers value. The players must be able to indicate whether they want to hit and receive another card, or stand and keep the cards they have, and the program must respond correctly to the prompts. It must also display that if the player’s hand busts and the value exceeds 21, the player has lost that round.

3. (Ace Case) In Blackjack, all the cards have a set value, but the ace card is a little more complicated. The ace can have a value of 11 or 1, based on the circumstances around it. As the game is played, if an ace is dealt and the players hand is below a 10, the ace counts as an 11, otherwise, the ace is a 1. But it does not end there. If the game keeps playing with an 11 ace, and a card is dealt that will bust, the ace’s value can change to a 1, to keep the player in the game. The program needs to be able to adapt the value of the hand around these circumstances, without breaking the rules.

4. (Dealer and dealer Rules) The card dealer has a different rule set to that of players in a standard game of blackjack. If the dealer has a total of a value 16 or less, then they must take additional cards until they achieve 17-21 or busting. Additionally, a dealer is typically required to stand with a value of 17 or more. Finally, the dealers first card typically needs to be displayed to the players. These rules will be used in designing the rudimentary dealer for the game.

5. (Display of the Cards) The final piece of the program is displaying all the cards for the user. The user needs to be able to see their hand and the value of it to assess their gameplay. The Dealer’s first card should also be visible, so the player can watch the round in full. All the cards in a deck of 52 will need to be designed and be easily recognized. This includes showing the rank and suit of the cards prominently. All of this put together will create a complete game of Blackjack.