Project Name: 5 - Card Draw

Team Number: 2

Overview:

Our project is a Poker game - 5 card draw. The user can choose to play against other players or none at all. The user tries to get the highest hand possible. The game starts with an ante (a forced bet in which all players put an equal amount of money or chips into the pot before the deal begins). Then each player is dealt 5 cards, all face down. The first betting round begins. The players can choose to either raise, call, check or fold. Each player then specifies how many cards they want to replace and those cards are replaced by cards from the deck. After the draw phase, the second betting round begins with the player who opened the first round. The remaining players can choose to either raise, call, check or fold. After that the players reveal and compare their hands. The player with the highest hand takes the pot. If tied, the pot is split between players who have the same value of hand.
      The value of a hand is calculated as follows, from highest to lowest.
- Royal Flush (A, K, Q, J, 10, all the same suit)
- Straight Flush (Five cards in a sequence all in the same suit)
- Four of a kind (All four cards of the same rank)
- Full house (Three of a kind with a pair.)
- Flush (Any five cards of the same suit, but not in a sequence)
- Straight (Five cards in a sequence, but not of the same suit)
- Three of kind (Three cards of the same rank)
- Two pair (Two different pairs)
- One pair (Two cards of the same rank)
- High card (When the user haven't made any of the hands above, the highest card plays)

Functional Requirements:

FR1: New Game / Load Game Screen
    A. Player can start a new game, which opens a new game settings screen.
    B. Playercan continue a previous game.
FR2: The player chooses the initial game settings for a new game.

A. Number of Opponents (A.I. players)
B. Ante Amount
C. Starting Money
D. Start Game

FR3: Each player is dealt 5 cards from the top of a shuffled deck.

FR4: First Round of Betting

A. Betting goes clockwise around the table starting with the dealer.
B. The first dealer is chosen randomly, then proceeding around the table clockwise after each hand.
C. All players have the following options available to them to play:
    a. Raise - Increase bet amount with a fixed minimum of the ante amount.
    b. Call - Match bet amount
        i. Only available if there is a bet that is currently unmatched by the player.
    c. Check - If there are no bets, pass turn.
        i. Only available if the player's bet amount matches the highest bet.
    d. Fold - Concede the round.

FR5: End round when betting ends (All players have put in the same amount of money or have folded following one rotation of betting around the table.)

FR6: Draw Phase

A. The draw phase proceeds around the table starting from the dealer going clockwise around the table. Each player gets only one turn.
    a. If the dealer has folded, the first turn goes to the player closest to the dealer in the clockwise direction.
B. During their turn, each player may choose a number of cards from their hand, ranging from 0 cards to their entire hand (5 cards). These cards are then replaced by new cards dealt from the deck.

FR7: Second Round of Betting begins with the same rules as the first round.

A. If the dealer has folded, the first turn goes to the player closest to the dealer in the clockwise direction.
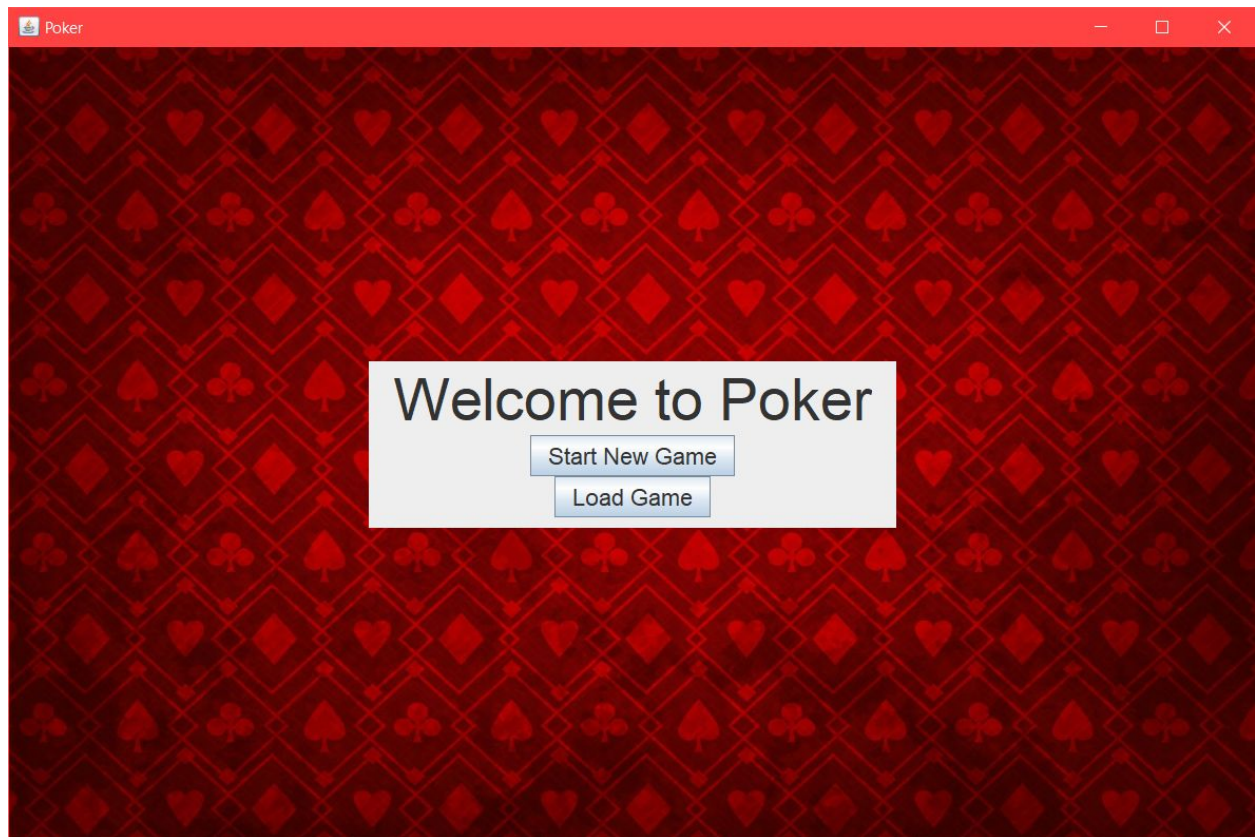
FR8: Showdown

A. Reveal and compare hands
B. Announce the winner
C. Winner gets all the money in the pot
D. If two or more players are tied, split the money.

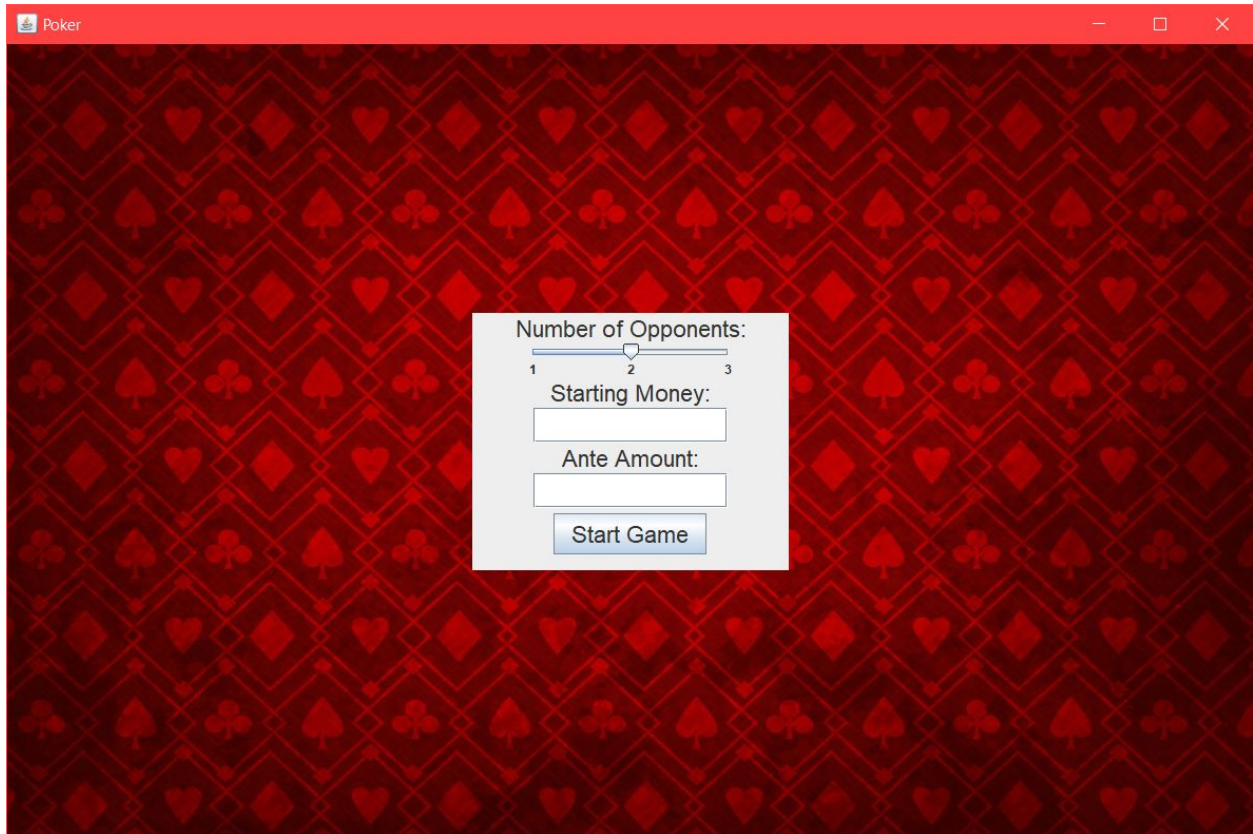FR9: Game continues until only one player has money left.

FR10: On Close, if there is a game ongoing, the game data is saved.
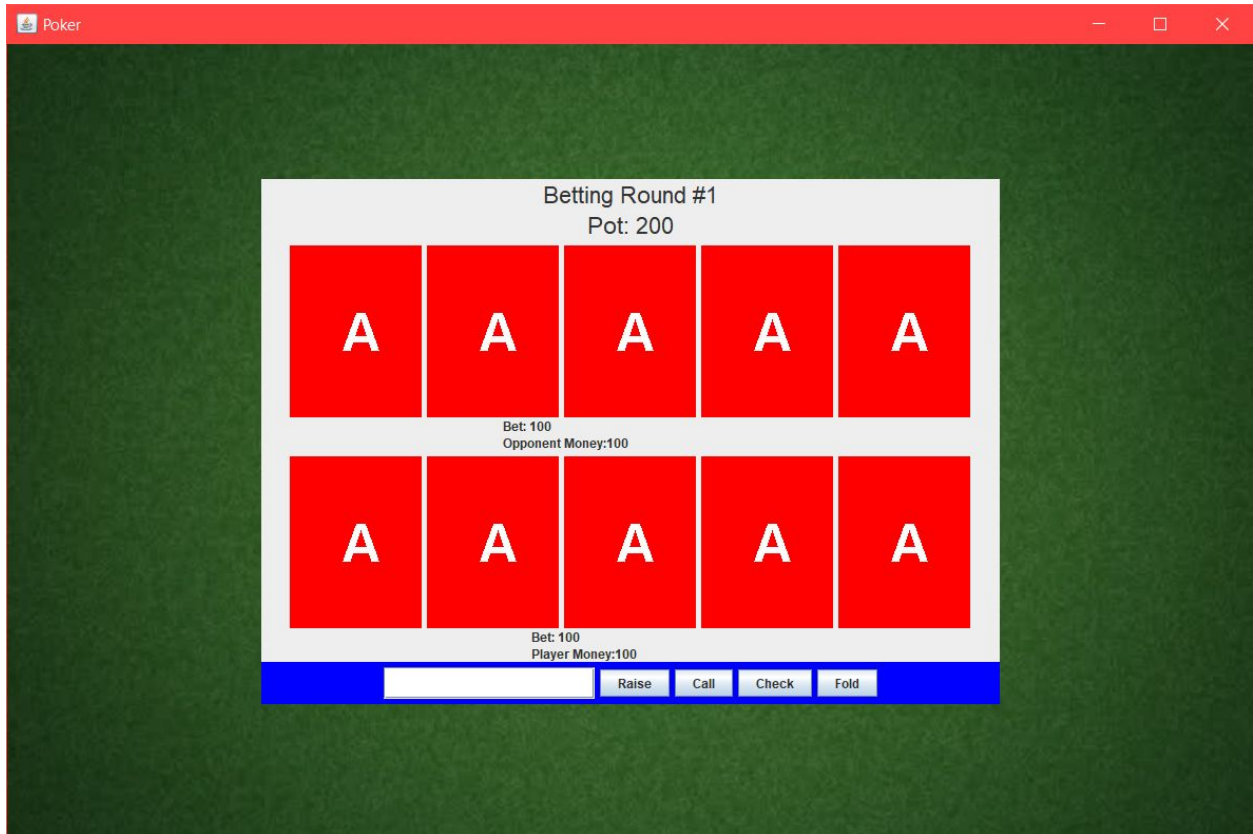
User Interface Prototype:

Start Game Screen-

Initial Game Settings Screen-

Main Game Screen-

User Interface Requirements:

UIR1: New Game / Load Game
   A. Clicking "New Game" will open the options screen and allow the player to initialize a game. (FR1A)
   1. Clicking "Load Game" will continue the saved game. (FR1B)

UIR1: Game Options
   2. Number of Players - The number of players will be determined by the number the user types in. (FR2A)
   3. Ante Amount - The ante amount for the game is determined by the number the user types in. (FR2B)
   4. Starting money - The starting money for each player is determined by the number the user types in. (FR2C)
   5. Start Game - A new game is begun with the selected settings. (FR2D)

UIR2: Betting Round buttons
   1. Raise - FR3Ca is executed and update the pot
   2. Call - FR3Cb is executed and update the pot
   3. Check - FR3Cc is executed
   4. Fold - FR3Cd is executed

UIR3: Exchange cards - Select cards to discard - FR6
   A. The player can click on the cards he/she wants to discard.
   B. The opponents' cards will be discarded and replaced.
   C. Add the same number of cards to the players' hands.
UIR4: After the second betting round, all hands are shown face up and the hands' values are displayed. - FR8A
UIR5: Update the players' money and remove the pot. - FR8B-D

Appendix

https://en.wikipedia.org/wiki/Five-card_draw