Name of Project: Poker Simulation

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GitHub Link:

https://github.com/onaaron0505/PokerSim

Abstract:

Our project will imitate a Texas Hold' Em poker game. Simply put, each person gets two unique cards and makes their best five card hand from their two unique and five public cards. Bets are made after each person receives their unique cards, once the first three public cards are shown, after the fourth card is shown and finally after the fifth public card is shown. To start the simulation the user will be able to select how many people they want in the game. They will also be able to select how many of the players are real players and are bots. After the number of players is selected, they will determine the starting bet and how much money each player should start with. Then the game will start. Each player will be dealt their two unique cards. A big blind (the starting bet) and a small blind (half of the starting bet) will be assigned randomly. As the rounds progress, the blinds will move one to the right. At this point the blinds will automatically have their bets put in. Then the player to the right of the big blind will have the option to match (match the bet of the big blind), raise (add more money to the bet) or fold (stop playing this round). This will continue until the pot is even (all bets are the same). Once this happens a card will be burned (discarded) and then the flop will be put out (the first three public cards). The user(s) that have not folded will then place the bets or fold starting with the small blind and moving to the right. Each bot will decide what it should do from an algorithm. Once the pot is even a card will be burned and the turn (the fourth public card) will be shown. Bets will happen in the same fashion as before. Once betting is over a card will be burned and the river (the fifth public card) will be shown. The last round of betting will happen with all players that have not yet folded. Finally, if there is more than one player left standing the cards will be compared and the player with the higher ranked hand will receive all of the money in the pot. Then the user will be prompted to continue playing or cash out (end the simulation).

Features:

- Player Class – parent – factory design
    - Attributes include money, current bet, bet for the round, and current hand.
    - Methods including money management, setting current hand, virtual folding/betting, best hand function
- Bot Player – inherited from Player

    - Override folding/betting to be done by an algorithm (strategy design due to choosing algorithm based on difficulty)
- Real Player – inherited from Player
    - Override folding/betting to be done by the person
- Card Class/Struct
    - Will probably just have attributes of suit and number
- Public Dealer Class – could be a singleton
    - Attributes of turn, river, and flop
    - Methods include dealing, burning, and completing the turn, river, and flop and making sure each person's bet matches.
- Table
    - Whole bet and players in which position
- I am sure I am forgetting some things that will be added along the way