**Texas Hold Em**

**Team #4**

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1. **Texas Hold ‘Em Project Statement**

The proposed system pertains to a multi-player game called “Texas Hold ‘Em”, which is a multiplayer poker card game. There will be a minimum of 2 players and a maximum of 5 players who compete to get the most points by winning each hand. A player wins a hand by making the best hand of 5 cards using the 2 cards they are dealt along with the 5 community cards or by making every other player fold their hand. Each player will start with an equal number of points and if a player loses all their points, they will be out of the game. There will be a big blind of 10 points and a small blind of 5 points to ensure that there is money added to the pot every hand. The small and big blinds will rotate once counterclockwise after each hand. Each player will take turns deciding to bet, check, call, raise, or fold. Betting puts a certain number of points in the pot to be won at the end of the hand, checking passes the decision to the next player, calling places the current bet amount in the pot, raising allows the player to increase the current bet amount, and folding takes a player out of the hand without regaining any of the points that they previously bet. Depending on the players’ position at the table, some of the options will not be available. If a bet has already been placed by another player, a player cannot check, they must call, raise, or fold. If there are no bets from other players, a player cannot fold, they must check or bet. Players can quit the game before they run out of points, this will give them a score that is equal to their current total amount of points. The game ends when all but one player decides to quit or if all but one player have ran out of points to play with. The winner of the game is the player who ends with the most points.

1. **Functional Requirements**

* Player must log in with a valid username and password. **(Log In, Incorrect Login)**
* Player can create a new account with a username and password. **(Create User)**
* Player can start a new game that other players can join. **(Start Game)**
* Player can join existing game started by another player. **(Join Game)**
* When all players have joined and are ready, first player can start the hand. **(Start Hand)**
* Player in position to the left of the big blind will have the option to call, raise or fold. **(Call, Raise, Fold)**
* Next player will have the same options, if a previous player raised, then the call amount is raised. **(Call, Raise, Fold)**
* When it is the player in the big blind’s turn, he will have the option to raise the bet or check. **(Bet, Check)**
* Player in the small blind is given the first turn once the first three community cards are dealt, he can check or bet. **(Check, Bet)**
* Any time player selects bet the initial bet will be the minimum bet amount and they will be presented with options to increase by adding another minimum bet to their total or removing one if they have added one already. **(Increase Bet, Decrease Bet, Enter)**
* Player in the big blind has the option to check or bet if small blind checked or the option to call, raise, or fold if the small blind made a bet. **(Check, Bet, Fold, Check, Call)**
* Each player gets a turn to or bet if no player before them has made a bet or they can call, raise, or fold if a bet has been made. **(Check, Bet, Fold, Check, Call)**
* If a raise has been made, each player before that player will get the chance to call or fold when it gets back to their position. **(Call, Fold)**
* Once the fourth community card is dealt, the first player in the rotation that has not folded will have the option to bet or check. **(Bet, Check)**
* Each remaining player then takes a turn to bet or check if there are no previous bets or call, raise, or fold if there has been a bet. **(Check, Bet, Fold, Check, Call)**
* If a raise has been made, each player before that player will get the chance to call or fold when it gets back to their position. **(Call, Fold)**
* The fifth and final community card is dealt and the first person in the rotation that has not folded will have the option to bet or check. **(Bet, Check)**
* Each remaining player then takes a turn to bet or check if there are no previous bets or call, raise, or fold if there has been a bet. **(Check, Bet, Fold, Check, Call)**
* If a raise has been made, each player before that player will get the chance to call or fold when it gets back to their position. **(Call, Fold)**
* If player has lost all of their points they are removed from the game, and they can record their score as zero. **(Record Score)**
* After each round the player will be presented with the option to continue or leave the game. **(Continue, Leave Game)**
* If player decides to leave the game before they run out of points, they can record their current score, and they are removed from the game. **(Leave Game, Record Score)**
* The player who started the game will have the option to leave the game or to start the next hand. **(Leave Game, Start Hand)**
* Player will have choice to log out or continue to watch the game once they have been removed. **(Log Out)**
* Once there is only one player who still has points and has not left the game, their score is recorded and the person who recorded the most points wins the game. **(Record Score)**
* Player who started the will have the option to start a new game or to log out. **(Start Game, Log Out)**

1. **Use Case Descriptions**

Use Case: Log In

Actors: Player

1. Player chooses to “Log In”.
2. Player enters username and password.
3. System verifies password and username that is entered.
4. System logs the player in.
5. System displays new screen with “Start Game” and “Join Game” options

Entry Condition:

Player has started the program.

Exit Condition:

Player is logged in and is presented with game options.

Use Case: Incorrect Log In

Actors: Player

Related Use Case:

Extension of Log In. Extension point occurs at step 3.

1. System determines that username and password are invalid.
2. System presents player with an error message.
3. Player re-enters username and password.
4. System returns to step 3 of log in to recheck username and password.

Exit Condition:

Player re-enters username and password.

Use Case: Create User

Actors: Player

1. Player chooses to “Create User”.
2. System displays screen for creating a user.
3. Player enters a username and enters the same password twice.
4. System validates the username and password, username must be unused and both

passwords entered must match.

1. System creates user and displays success message to user
2. System returns player to Log In screen.

Entry Condition:

Player has started the program.

Exit Condition:

Player has returned to the log in page with the create user option disabled.

Use Case: Start Game

Actors: Player

1. Player Chooses “Start Game” option.
2. System displays “Waiting for other players” message.
3. System waits for all players to join.
4. System adds the next player to login and select “Join Game”.
5. System asks player to select “Start Hand” to begin the first hand.
6. All players select start to begin the first hand.

Entry Condition:

One player is logged in and not in a game.

Exit Condition:

All players who have joined will select “Start Hand” and their cards will be dealt.

Use Case: Join Game

Actors: Player

1. Player selects “Join Game” option.
2. System matches player with other player that has started a game.
3. System asks players to select “Start Hand” if they are ready to start.
4. All players select “Start Hand” option to begin the first hand.

Entry Condition:

Player is logged in but not in a game. There is another player logged in who started a new game.

Exit Condition:

All players are in the game, once they have all selected the “Start Hand” option, two cards will be dealt to each of them.

Use Case: Start Hand

Actors: Player

1. All players select “Start Hand” option.
2. System displays each player’s username in the position they are in around the table.
3. System deals two cards to each player starting with the player to the left of the dealing

Position.

System displays player scores by their username and the big and small blind bets are

automatically taken out of each respective position.

1. System gives the starting options to the player to the left of the big blind position.
2. Player to the left of the big blind position is presented with the options to “Call”, “Raise”, or “Fold”

Entry Condition:

All players have selected the “Start Hand” option and are not in an already started game.

Exit Condition:

The beginning options are given to the player in the position to the left of the big blind.

Use Case: Call

Actors: Player

1. Player selects “Call” option.
2. System removes the current bet amount from their score and waits to add it to the pot.
3. System displays options to the next player.

Entry Condition:

There has been a bet previously made, or it is the first round and the blinds must be matched.

Exit Condition:

Current player chooses an option, and the next options are given to the next player.

Use Case: Raise

Actors: Player

1. Player selects “Raise” option.
2. System provides player with an initial raise that is double the current bet amount and an

option to enter their bet.

1. System provides player with buttons to either add or subtract one minimum bet amount

from their raise.

1. Player increases or decreases the raise amount to their desired amount.
2. Player selects “Enter” option.
3. System updates current bet amount and gives the next options to the next player.

Entry Condition:

Player is in an active hand and a previous bet has been made.

Exit Condition:

Player selects “Enter”, bet amount is updated, and next options are given to the next player.

Use Case: Fold

Actors: Player

1. Player selects “Fold” option.
2. System takes player out of the current hand.
3. System gives next options to the next player.

Entry Condition:

Player is in an active hand and a previous bet has been made.

Exit Condition:

System provides next player with the next options.

Use Case: Bet

Actors: Player

1. Player selects “Bet” option.
2. System provides player with an initial bet option that is equal to the amount of the

minimum bet and the option to “Enter” their bet.

1. System provides players with buttons to either add or subtract one minimum bet amount

from their bet.

1. Player increases or decreases the amount to their desired bet amount.
2. Player selects “Enter” option.
3. System updates current bet amount and gives the next options to the next player.

Entry Condition:

Player is in an active hand and no bet has been made previously.

Exit Condition:

Player enters their bet, and the system updates the bet amount and gives the next options to the next player.

Use Case: Check

Actors: Player

1. Player selects the “Check” option.
2. System gives the next options to the next player.

Entry Condition:

Player is in an active hand and no previous player has made a bet or raise.

Exit Condition:

The system sends the next options to the next player.

Use Case: Enter

Actors: Player

Related Use Case:

Included by: Bet, Raise

1. Player selects option to “Bet” or “Raise”.
2. Player increases their bet or raise amount to their desired amount.
3. Player selects “Enter” option.
4. System updates the current bet to whatever amount the player bet to.
5. System gives the next options to the next player.

Entry Condition:

Player has selected the “Bet” or “Raise” option.

Exit Condition:

The current bet amount is updated and the next options are given to the next player.

Use Case: Increase Bet

Actors: Player

Related Use Case:

Included by: Bet, Raise

1. Player selects option to “Bet” or “Raise”.
2. System provides player with “Increase Bet” option.
3. Player selects “Increase Bet” option.
4. System adds increase amount to total amount.
5. System provides user with “Increase Bet” option again.

Exit Condition:

The system adds the increase amount to the total and provides user with the increase option again.

Use Case: Decrease Bet

Actors: Player

Related Use Case:

Included by: Bet, Raise

1. Player selects option to “Bet” or “Raise”.
2. System provides player with “Decrease Bet” option.
3. Player selects “Decrease Bet” option.
4. System subtracts decrease amount to total amount.
5. System provides user with “Decrease Bet” option again.

Exit Condition:

The system subtracts the decrease amount from the total and provides user with the decrease option again.

Use Case: Record Score

Actors: Player

1. Player selects “Record Score” option.
2. System retrieves player’s current score and saves it

Entry Condition:

Player has left the game, lost all of their points, or won the game.

Exit Condition:

Player’s score is recorded and they are prompted by the system to log out or continue.

Use Case: Continue

Actors: Player

1. System displays options to “Continue” or “Leave Game” after a hand is over.
2. Player chooses “Continue” option.
3. System counts player as ready to start a new hand.

Entry Condition:

A hand or the entire game has ended.

Exit Condition:

Player chooses continue and is dealt into the next hand.

Use Case: Leave Game

Actors: Player

1. System displays options to “Continue” or “Leave Game” after a hand is over.
2. Player chooses “Leave Game” option.
3. System removes player from the game and leaves them out of the next hand.

Entry Condition:

A hand has ended.

Exit Condition:

Player chooses continue and is not dealt into the next hand.

Use Case: Log Out

Actors: Player

1. Player chooses “Log Out” option.
2. System displays a verification message to confirm the log out.
3. Player confirms to log out.
4. System logs player out.
5. System returns player to the log in screen.

Entry Condition:

Player is logged in and not in an active hand.

Exit Condition:

Player is logged out and is shown the log in screen.

1. **Use Case Diagram**

A diagram of a computer

AI-generated content may be incorrect.