

Team:

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Title:

Texas Hold 'Em Game

Project Summary:

We are creating an implementation of Texas Hold 'Em poker that allows user to connect and play with each other. The program will automate the processes of the game that do not involve player decisions, such as shuffling, dealing, and pot collection. The game will also make user actions easy to perform through an intuitive GUI.

Project Requirements

Business Requirements: *There are no business requirements.*

User Requirements:

ID	Description	Priority
USR01	As a player, I want to be able to fold, raise, or call before the flop.	Critical
USR02	As a player, I want to be able to check, call, raise, or fold after the flop, turn, and river.	Critical
USR03	As a player, I want to be able to know if I won the hand.	Critical
USR04	As a player, I want to be able to receive my two cards at the start of the hand.	Critical
USR05	As a player, I want to be able view my cards.	Critical
USR06	As a player, I want to be able to view the cards on the board, including the flop, the turn, and the river.	Critical
USR07	As a player, I want to be able to leave the game at any time.	Critical
USR08	As a player, I want to be able to post blinds if it's my turn to do so.	Critical
USR09	As a player, I want to be able to join a game.	Critical

Functional Requirements:

ID	Description	Priority
FNC01	A blind timer should be displayed to all players.	High
FNC02	The pot should be collected, counted, and displayed to all players after each betting round.	Critical
FNC03	Each user's chip stack should be displayed to the rest of the table.	Critical
FNC04	Before each hand, each player should be dealt two cards which are hidden from the other players.	Critical
FNC05	Before each hand, the players who are in the blinds positions should have their blinds automatically posted.	Critical
FNC06	After the player's hands are dealt and betting is completed, three cards (the flop) should be displayed to all players.	Critical
FNC07	After the flop is displayed, a betting round should occur.	Critical
FNC08	After the flop betting round is complete, one card should be displayed to all players (the turn).	Critical
FNC09	After the turn card is displayed, a betting round should occur.	Critical
FNC10	After the turn betting round is complete, one card should be displayed to all players (the river).	Critical
FNC11	After the river card is displayed, a betting round should occur.	Critical
FNC12	After the river betting round is complete, each player who remains in the hand should show their hand to the other players, beginning with the closest player to the small blind. Each player following should then have their hand shown to the other players if it beats the previously shown hands, or should be able to choose to show or fold their hand if it does not beat the previously shown hands. The player with the best hand should have the value of the pot added to their chip stack.	Critical
FNC13	In each betting round, betting should start with the player closest to the small blind, and continue clockwise around the table until all players have either folded or called the highest bet.	Critical
FNC14	If a user folds they should be removed from the hand and any bet they have made should be added to the pot.	Critical
FNC15	The dealer button and blind positions should move one player to the	Critical

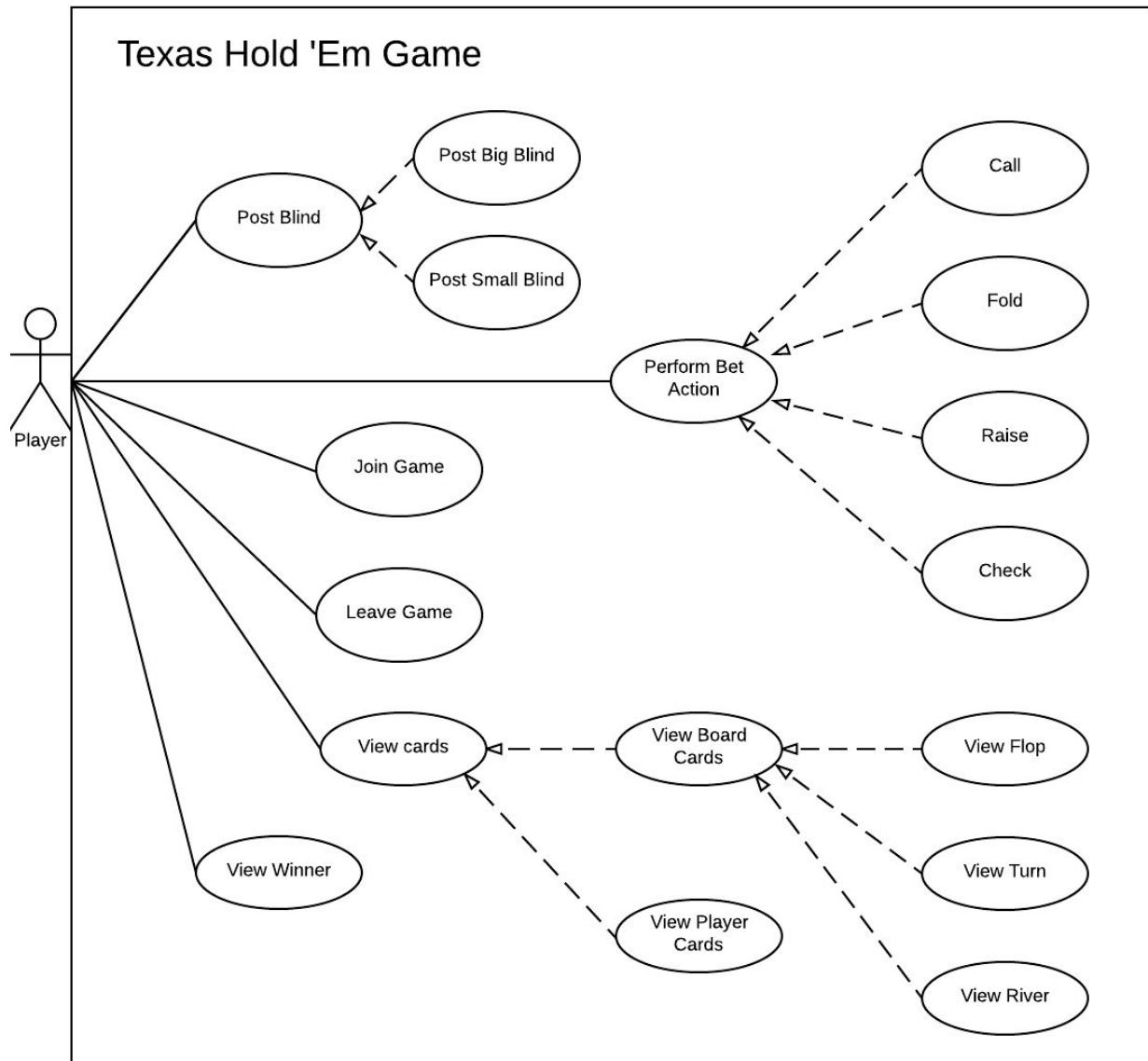
	left after every hand.	
FNC16	The blinds should double after every expiration of the blind timer.	Critical
FNC17	Every betting round besides the pre-flop betting round begins with the small blind.	Critical
FNC18	The user with the highest value hand at the end of the last betting round has the value of the pot added to their chip stack	Critical
FNC19	If all other players fold, the last player in the hand should have the value of the pot added to their chip stack.	Critical
FNC20	Before the first hand, each player should be dealt one card, and the player with the highest card will be the first dealer.	Critical
FNC21	The small blind should be posted by the player to the left of the dealer, and the big blind should be posted by the player two positions to the left of the dealer.	Critical
FNC22	The program should be published online.	Low
FNC23	Users should join a game by entering a username that is unique relative to the other players at the table.	High
FNC24	Raises must be at least double the previously highest bet.	Critical

Non-functional Requirements:

ID	Description	Priority
NF01	The system should be compatible with Windows, macOS, and Linux.	Low
NF02	The game should offer clear instructions on how to use the system and clear rules of the game.	Medium
NF03	The interface of the game should be considered intuitive by the users.	Medium
NF04	The game should be free to play.	High
NF05	The game should comply with all applicable laws and regulations.	Medium

Use Cases

Use Case Overview:



Use Case Documents:

Use Case ID	UC-01
Use Case Name	Perform Bet Action
Description	Player can call, fold, raise, or check during a betting round

Actors	Players		
Pre-Conditions	Player is in a game and has chips. Player is in hand		
Post-Conditions	Money is in the pot and player is entered in the current round		
Frequency of Use	Used by every player every betting round		
Flow of Events			
	#	Actor Action	System Response
	1	Player decides on betting action/bet amount	System adds bet to pot
	2		System takes bet amount away from player's chips
Variations	Player folds, they are removed from the round		
Exceptions	Player's connection is lost; player's cards are folded		
Developer Notes			

Use Case ID	UC-02
Use Case Name	Join Game
Description	Player can join a game

Actors	Player											
Pre-Conditions	Player is at the ‘Join Game’ screen											
Post-Conditions	The player is seated at a table											
Frequency of Use	Frequent											
Flow of Events	<table><tr><td>#</td><td>Actor Action</td><td>System Response</td></tr><tr><td>1</td><td>Player clicks the ‘Join Game’ button</td><td>System seats the player at a table</td></tr><tr><td>2</td><td></td><td>System includes player in the hand at the start of the next hand</td></tr></table>			#	Actor Action	System Response	1	Player clicks the ‘Join Game’ button	System seats the player at a table	2		System includes player in the hand at the start of the next hand
#	Actor Action	System Response										
1	Player clicks the ‘Join Game’ button	System seats the player at a table										
2		System includes player in the hand at the start of the next hand										
Variations	All tables are full, system creates a new table and seats them there instead											
Exceptions	Player’s connection is lost; player returned to ‘join a table’ dialogue											
Developer Notes												

Use Case ID	UC-03
Use Case Name	Post Blinds
Description	Players post blinds at the start of a hand

Actors	Players											
Pre-Conditions	Previous hand is completed											
Post-Conditions	Blinds are posted											
Frequency of Use	Frequent											
Flow of Events	<table><tr><th>#</th><th>Actor Action</th><th>System Response</th></tr><tr><td>1</td><td>Player clicks 'Post Blind' button</td><td>System adds blind to pot</td></tr><tr><td></td><td></td><td>System removes blind amount from player's chips</td></tr></table>			#	Actor Action	System Response	1	Player clicks 'Post Blind' button	System adds blind to pot			System removes blind amount from player's chips
#	Actor Action	System Response										
1	Player clicks 'Post Blind' button	System adds blind to pot										
		System removes blind amount from player's chips										
Variations	Player cannot afford to post blind; player's hand is folded and player is removed from the table											
Exceptions	Player's connection is lost; player's hand is folded and no blind is posted											
Developer Notes												

Use Case ID	UC-04
Use Case Name	View Board Cards
Description	Player looks at the communal cards

Actors	Player		
Pre-Conditions	All players have been dealt their cards and pre-flop betting is complete		
Post-Conditions	Board cards are displayed to players		
Frequency of Use	Frequent		
Flow of Events			
	#	Actor Action	System Response
	1	Player completes pre-flop betting round	System displays flop cards to all players
	2	Player completes post-flop betting round	System displays turn card to all players
	3	Player completes post-turn betting round	System displays river card to all players
Variations	All players fold before turn or river card; winning player is given pot		
Exceptions	Less than two players in a game; game is aborted		
Developer Notes			

Use Case ID	UC-05
Use Case Name	Leave Game
Description	Player leaves a hand

Actors	Players														
Pre-Conditions	Player has joined a table														
Post-Conditions	Player is removed from the table														
Frequency of Use	Frequent														
Flow of Events	<table><tr><th>#</th><th>Actor Action</th><th>System Response</th></tr><tr><td>1</td><td>Player clicks the 'leave table' button</td><td>Present a confirmation dialogue to the player</td></tr><tr><td>2</td><td>Player confirms action</td><td>System folds the player's hand</td></tr><tr><td></td><td></td><td>System returns player to the home screen</td></tr></table>			#	Actor Action	System Response	1	Player clicks the 'leave table' button	Present a confirmation dialogue to the player	2	Player confirms action	System folds the player's hand			System returns player to the home screen
#	Actor Action	System Response													
1	Player clicks the 'leave table' button	Present a confirmation dialogue to the player													
2	Player confirms action	System folds the player's hand													
		System returns player to the home screen													
Variations	User exits the application or runs out of chips														
Exceptions															
Developer Notes															

Use Case ID	UC-06
Use Case Name	View player cards
Description	Player is able to view the hand they have been dealt

Actors	Player		
Pre-Conditions	Blinds have been posted.		
Post-Conditions	Player has hand		
Frequency of Use	Frequent		
Flow of Events			
	#	Actor Action	System Response
	1	Player posts big blind	All players receive a hand
Variations			
Exceptions	Player loses connection to system; player's receives no hand		
Developer Notes			

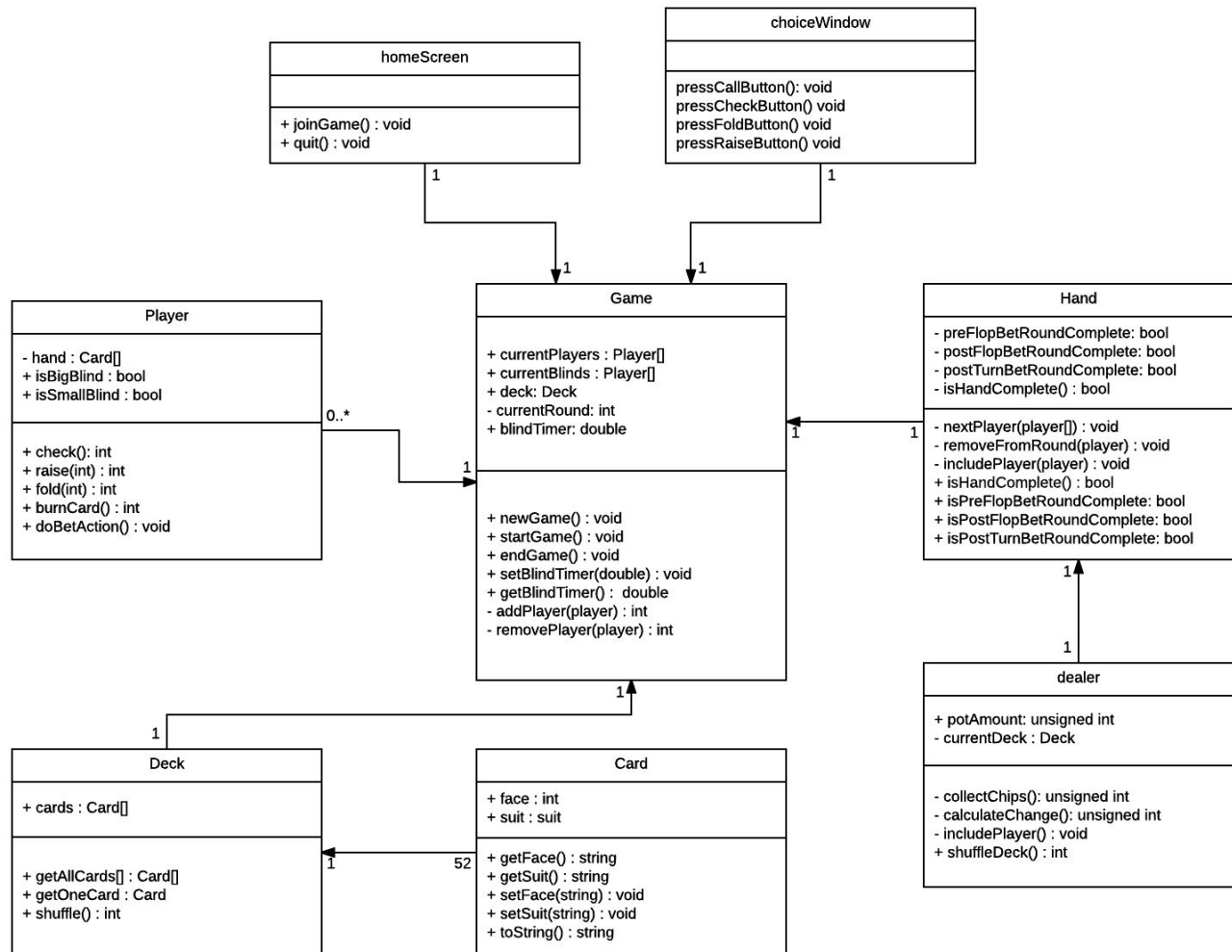
Use Case ID	UC-07
Use Case Name	View winner
Description	Player is able to view the winner of a hand

Actors	Player								
Pre-Conditions	Post-river betting round has been completed.								
Post-Conditions	Winning player's hand is displayed to all players.								
Frequency of Use	Frequent								
Flow of Events	<table><tr><th>#</th><th>Actor Action</th><th>System Response</th></tr><tr><td>1</td><td>Player completes post-river betting round</td><td>System shows each player's hand beginning with the small blind player's hand</td></tr></table>			#	Actor Action	System Response	1	Player completes post-river betting round	System shows each player's hand beginning with the small blind player's hand
#	Actor Action	System Response							
1	Player completes post-river betting round	System shows each player's hand beginning with the small blind player's hand							
Variations	<p>If a bet had been placed in the river betting round, the called player's hand is displayed first</p> <p>If a player's hand does not win, the player is shown an option to fold or show their cards</p>								
Exceptions	Player loses connection to system; player's receives pot if they have the winning hand, else their hand is folded								
Developer Notes									

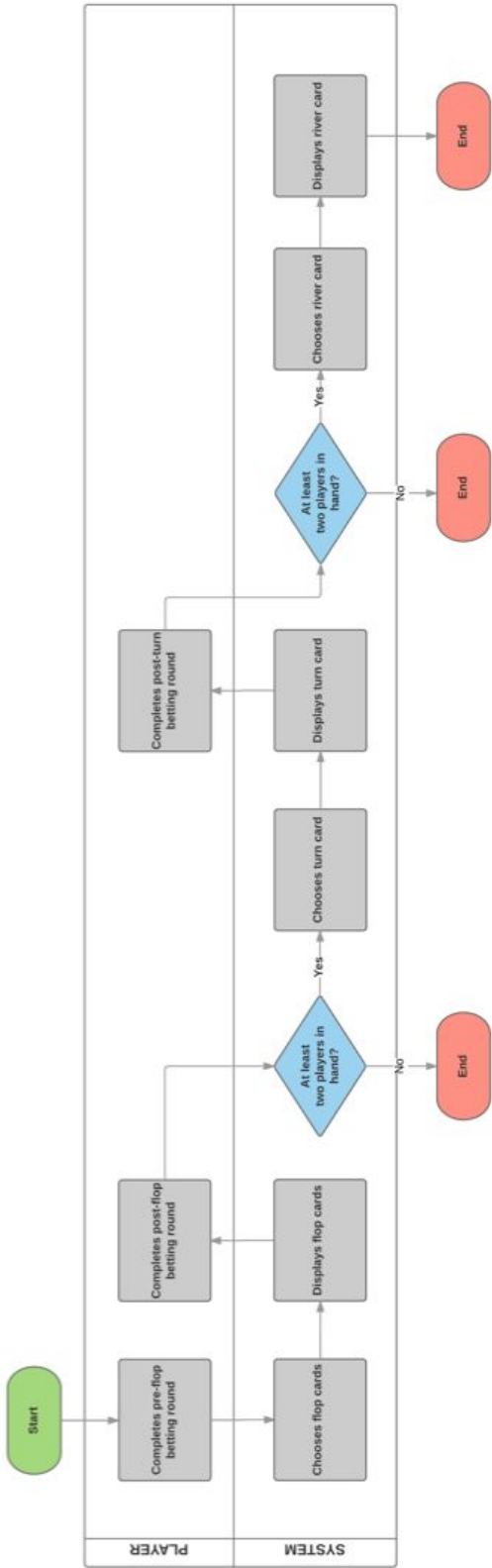
Data Storage

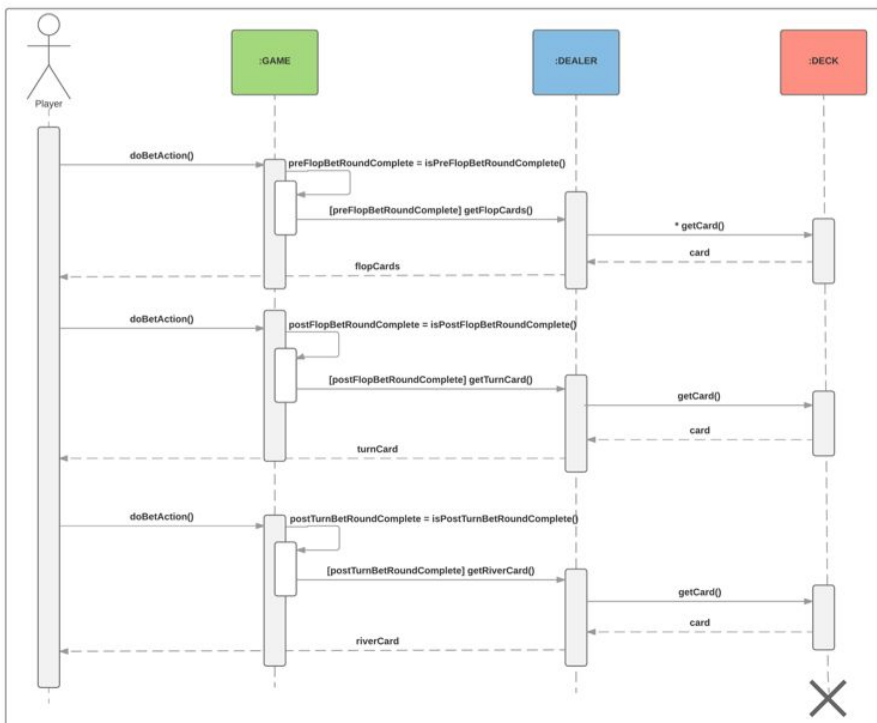
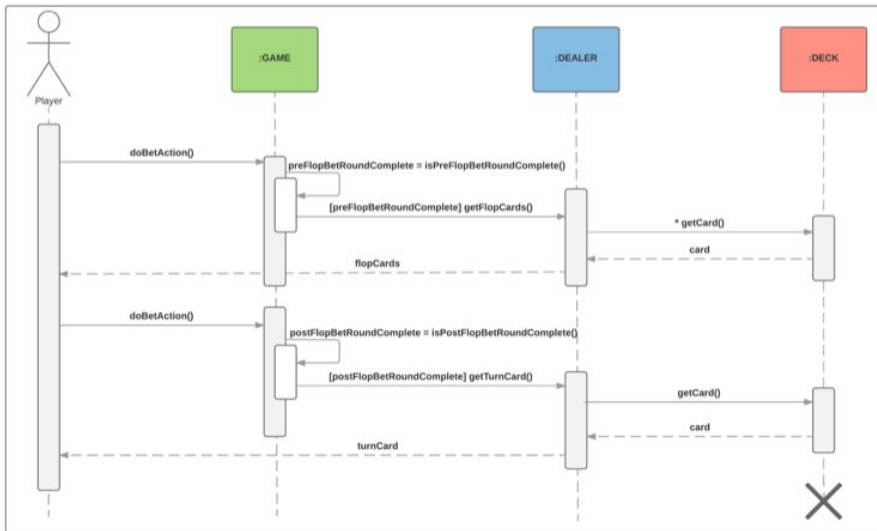
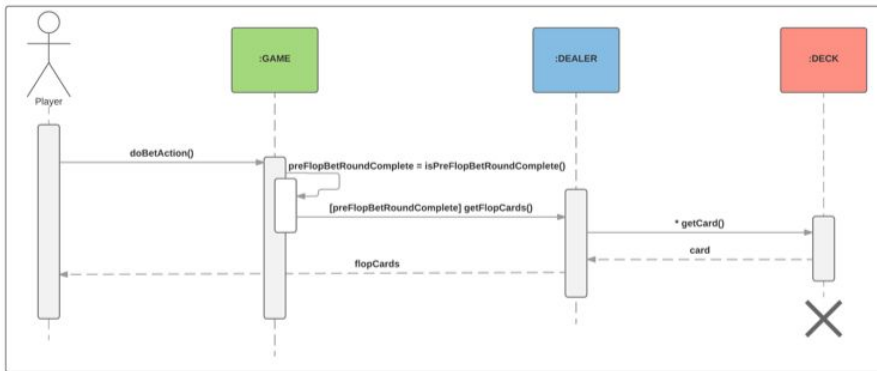
We will use Java Hibernate as a framework to interface with a MySQL database. We will use this data storage system to display data to players and persist data for record keeping.

Class Diagram:



Activity and Sequence Diagrams below:



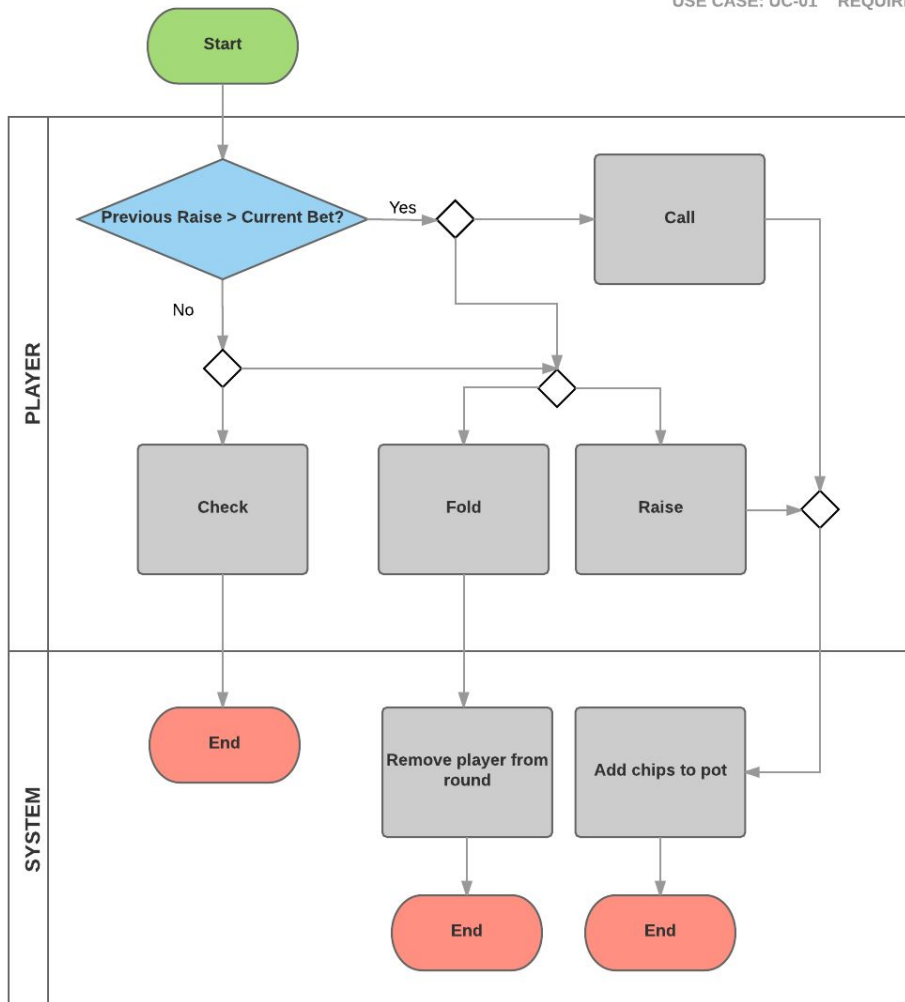


Slaton Spangler:

PERFORM BET ACTION ACTIVITY DIAGRAM

Slaton Spangler | October 12, 2016

USE CASE: UC-01 REQUIREMENT IDs: USR01, USR02

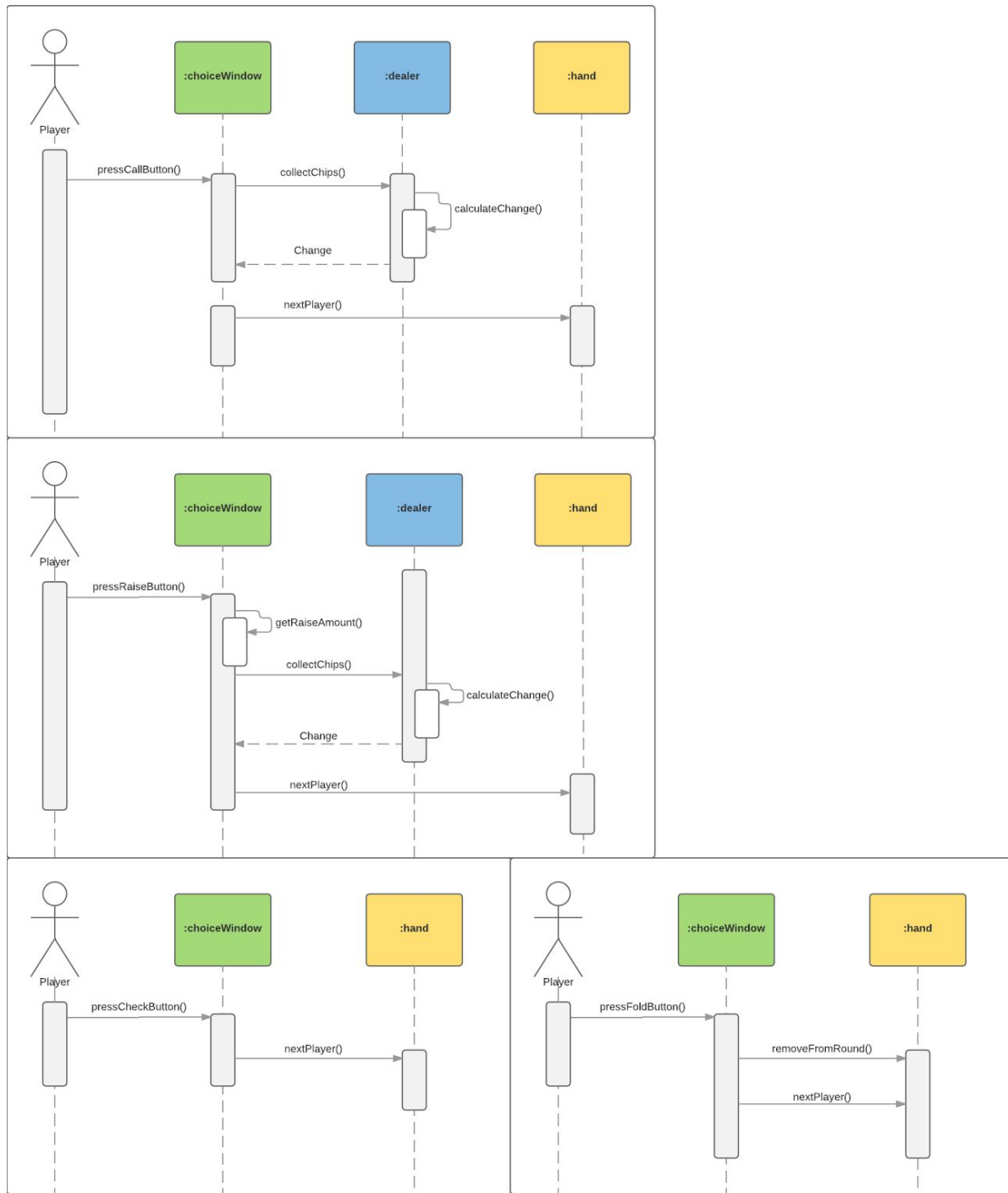


PERFORM BET ACTION SEQUENCE DIAGRAM(S)

REQUIREMENT IDs: USR01, USR02

USE CASE: UC-01

Slaton Spangler



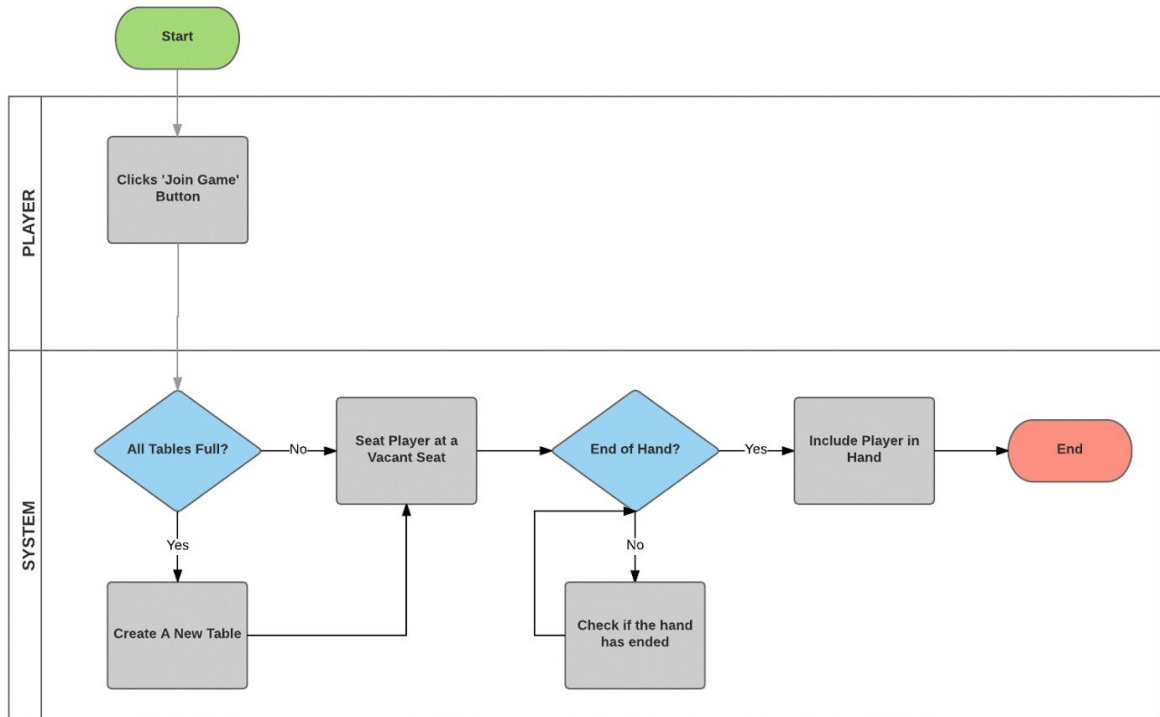
Conner Simmering:

JOIN GAME ACTIVITY DIAGRAM

REQUIREMENT ID: URS09

USE CASE ID: UC-02

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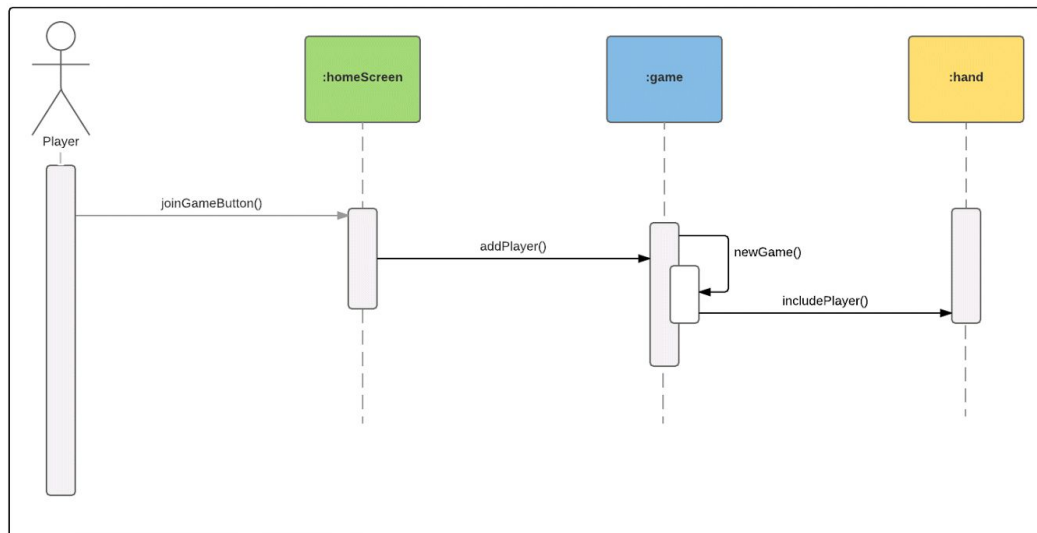
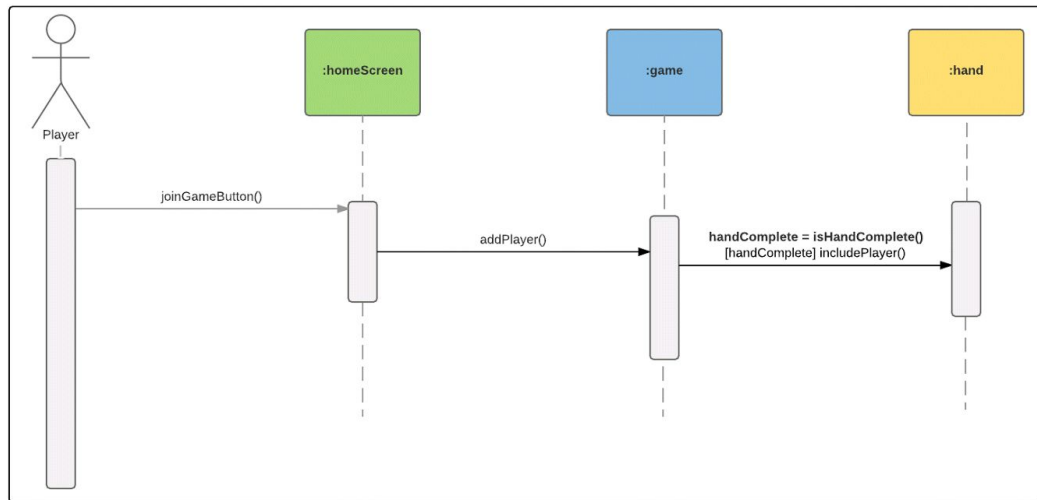


JOIN GAME SEQUENCE DIAGRAM

REQUIREMENT ID: URS09

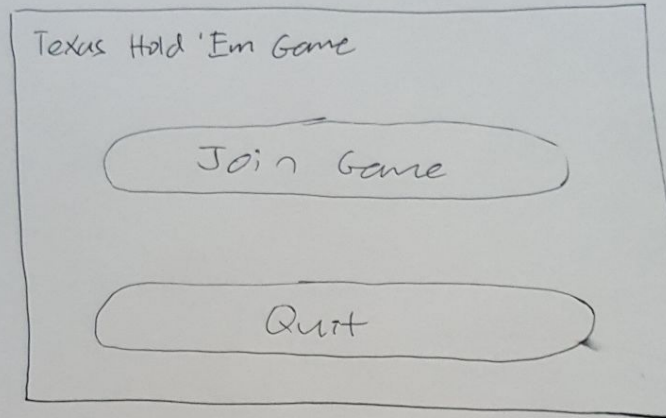
USE CASE ID: UC-02

Conner Simmering | October 12, 2016



UI Mockups

Join Table



Game

