# Sprint 1 Requirements Descriptions

## Requirement 1.3

The main menu of the digital casino. This will be the opening screen for players on start up, and should display the title, the games, their chip amount, and a button to close the program. Clicking on any of the buttons with game titles should change the screen to that respective game screen.

## Requirement 1.4

A traditional 52 card playing deck with four suits (hearts, diamonds, spades, and clubs) and 13 ranks (Ace, 2, 3-10, Jack, Queen, King) must be implemented. There must be functionality to draw a random card from the deck, removing it as well. This object should be able to be used for BlackJack, Poker, and possibly Sabacc.

## Requirement 1.5

It must be possible to "shuffle" the deck. When the deck is shuffled, all previously removed cards should be restored. Essentially, shuffling must reinstantiate the card deck to promote replay ability and

## Requirement 3.1

During Blackjack, the player must be able to allocate an amount of chips as their bet before a given round of Blackjack. This means allocating until they've put in a max bet or until they've started the game with the appropriate Start button. This must be implemented cautiously so that when the player hits 0 chips after putting in a max bet, they are not booted from the game for having no chips to bet.

# Requirement 3.2

There must be a button in the GUI to begin a game of Blackjack. When pressed, the player and dealer must be issued two cards randomly from a common deck. These dealing should be animated as well. This promotes fairness, and allows the game to proceed.

# Requirement 3.3

The GUI must display every card dealt to the player in its revealed state, so that the player can make sound decisions. The first of the dealer's cards should be hidden, or face down, until the player stands.

# Requirement 3.4

During Blackjack, after a game has started and the player or dealer have been dealt their hands, the hit button must become available to press. When the hit button is pressed, the player must be given a new card to their hand and then have it animated onto the screen for the player to see. Then, logic must be checked to determine whether the player has "busted", scoring over a 21. If a hit results in a bust, the other player wins.

# Requirement 3.5

During Blackjack, assuming the player has started the game not lost by achieving a score of 21, the stand button must be available to press. When the stand button is pressed, no new cards will be issued to the player.

# Requirement 3.6

The score used to determine the winner of Blackjack must be dependent on the hand's cards. Each number card's value is equivalent to their number. Face cards (jacks, queens, and kings) all have a rank of ten. The ace can have a rank of one or eleven. When calculating the score of a hand, aces must be assigned in a manner that gets the score closest to 21 without going over.

# Requirement 3.7

When calculating the sum of a player or dealer's hand, should the sum exceed the value of 21, even when considering alternate values of all present aces, that player or dealer instantly loses the game.

# Requirement 3.8

After the initial dealing, the game flow must begin by allowing the player to hit. Hitting will only become unavailable once the player busts or stands. When the player stands, the dealer must then reveal their hidden card and MUST hit until their score is greater than a soft 17 (two-card hand that has an ace is considered a "soft hand"). Even if the dealer's hand is still less than the player's (ex. Dealer has 18 and can still hit, but player has 19. The dealer should just hit anyway to have the best chance of winning) the dealer must stand regardless. This is to model rules present in certain real-world casinos. The game flow must proceed exactly in this order, with no way to circumvent it.

# Requirement 3.9

Assuming neither the dealer nor player have achieved a "bust", the final winner of blackjack is determined by evaluating the score of each hand, per requirement 3.6. If the player's score exceeds the dealer's, or the dealer busted previously, the player is the winner.

# Requirement 3.10

In the event where the player triumphs over the dealer and wins with their hand, they receive double their initial bet.. For example, if the player has 50 chips and bets 25, they go up to 75 (their post bet balance would be 25, and their winnings would be 50). In other words, the player wins double their chip bet amount.

# Requirement 3.11

In the events where the dealer triumphs over the player, or the player busts (exceeds 21) while opting to hit, the game displays a loss message, and the Blackjack game resets for a new round.

No chips are removed from the player's chip balance, but no chips are added as well. This means when a player starts with 50, bets 25, and loses, they remain at 25 chips total remaining.

# Requirement 3.12

In the Blackjack GUI, there must at all times be a button to leave the game and return to the main menu screen. This should also reset any properties of Blackjack to their default or starting configuration, allowing a new game to be played in return. It should also be noted that when leaving in the middle of a bet, the player will not regain the chips they bet with, and they will instantly be counted as forfeit.

# Requirement 3.13

In the Blackjack GUI, there must at all times be a button to display the basic rules of the game to new players or players in need of a reminder. This should include game objectives, card values, player actions, dealer logic, and win against dealer requirements. These rules will appear as a separate window that the player can simply click out of by selecting "Ok."