

# Test Plan - BlackJack Team 3

## Blackjack

Mocks: Deck, Hand, UI

1. Blackjack is created (For 2 players)
  - a. A new deck is created with new cards
  - b. Deck::addCard() is called 52 times
  - c. Deck::shuffle() is called once
2. Deal Cards to 2 players:
  - a. Each player is initially dealt 2 cards
  - b. PlayerUI::displayHand() is called 3 times
  - c. Deck::dealCard() is called 6 times
  - d. Player::getHand() is called 6 times
  - e. Hand::addCard(Card\*) is called 6 times
3. Deal Cards to 3 players:
  - a. Each player is initially dealt 2 cards
  - b. PlayerUI::displayHand() is called 4 times
  - c. Deck::dealCard() is called 8 times
  - d. Player::getHand() is called 8 times
  - e. Hand::addCard(Card\*) is called 8 times
4. A round of Blackjack is played (via playRound) between 2 players and the Dealer in which:
  - Player 1 splits - beats the dealer's score on the first hand and goes bust on the second hand
  - Player 2 is dealt a natural blackjack
  - a. Blackjack::playRound() is called
  - b. Deal cards
    - i. Deal 2 aces to player 1
    - ii. Deal ace and a jack to player 2
    - iii. Deal a 9 and 4 to the dealer
  - c. Player 1's turn:
    - i. Player::split() is called on Player 1
    - ii. Player hits an 8 on their first Hand, hits a 4 on their second hand
      1. Player::hit() is called 2 times for Player 1
      2. Player::checkBust() is called 2 times for player 1, expected to return false both times
        - a. Player getScore is called 2 times for Player 1, returns 19 the first time and 14 the second time
    - iii. Player stands on their first hand, hits a 10 on their second hand
      1. Player::stand() is called 1 time for Player 1
      2. Player::hit() is called 1 time

3. Player::checkBust() is called one time expected to return true
- d. Dealer's turn:
  - i. Player::hit() is called for dealer, receives a 5
  - ii. Player::checkBust() is called for dealer, returns false
    1. Player::getScore is called for dealer, returns 18
  - iii. Player::getScore() is called for dealer, returns 18, which is greater than 17,
5. A round of Blackjack is played between 2 players and the Dealer in which:
  - Player 1 stands and loses to the dealer's score
  - Player 2 hits to 21
  - a. Blackjack::playRound() is called
  - b. Deal cards
    - i. Deal 7 and 9 to player 1
    - ii. Deal 6 and 8 to player 2
    - iii. Deal a 9 and 8 to the dealer
    - iv. Player::checkWin() is called for each player, returns false for both
  - c. Player::stand() is called once on Player 1
  - d. Player2:
    - i. Player::hit() is called on Player2, Player receives a 7
      1. Player::hit() is called once on Player 2
      2. Player::checkWin() is called once on Player 2
  - e. Player:: stands on their first hand, hits a 10 on their second hand
    1. Player::stand() is called 1 time
    2. Player::hit() is called 1 time
    3. Player::checkBust() is called one time expected to return false
  - ii. Player hits a 7 on their second hand
    1. Player::hit() is called 1 time
    2. Player::checkBust() is called 1 time, expected to be true
6. The current round of Blackjack is reset
  - a. For each Player\* in Black::players<Player\*>
    - i. Player::getHand() is called Player::hand.sizeof() times
    - ii. Hand::removeCard(Card\*) is called Hand::getCards().sizeof times
    - iii. Hand::setStand(false) is called once
    - iv. Blackjack::deck.addCard(Card\*) is called Hand::getCards().sizeof() times
    - v. Deck::shuffle() is called once
    - vi. Blackjack::playRound() is called once

## Player

1. Tested indirectly by Blackjack tests:
  - a. hit(Card\*) (tests 4, 5)
  - b. split() (test 4)
  - c. checkBust() (tests 4, 5)
  - d. getHand() (tests 2, 3, 6)

2. Tested indirectly by UI tests:
  - a. getName() (test 1)
  - b. getScore() (test 1)

## UI

1. Tested by system-level testing after implementation

## Hand

1. Tested indirectly by Blackjack tests:
  - a. getCards() (tests 6)
  - b. addCard(Card\*) (tests 2, 3)
  - c. getScore() (test 4)
  - d. removeCard() (test 6)
  - e. setStand(bool) (test 6)

## Deck

1. Tested indirectly by Blackjack tests:
  - a. addCard(Card\*) (test 1, 6)
  - b. shuffle() (test 1, 6)

## Card

1. Tested by system testing, as methods are for returning data