

Casino: Poker

using ‘LAB 2 - REQUIREMENTS’;

1. Requirements regarding: [GAME ELEMENTS]

In this section of the contract, the game elements and the specific used terms are defined, explained and detailed.

The terms that will be used further in this contract will have the following definitions if it isn't specified elseway (some of them are detailed more later in the contract at that specific topic):

“Player”	refers to a user that enters the application. From the beginning, every player has the same interface and options in the game, but they develop their own available options and games they can play based on their decisions and luck.
“Table”	refers to the place the game is conducted. The tables can be different in certain aspects depending on some factors. Not all players may be eligible to play at every table.
“Turn”	refers to an action the player takes at a certain time in the game. Depending on the player's state in the game, he may have to choose one action from a list of available options. If the action also has a timer and the player doesn't choose one in the period of time, a default action will be played instead, depending on the context (more about the available actions at specific times in the game later on in the contract).
“Round”	refers to a series of turns in the game which at the end will determine the winner/s for a current prize pot. In a round, there may be multiple winners and the prize pot is split according to the rules. A player may choose not to play a certain round or leave the table mid-round, but there may be some money penalty (more about penalties later on in the contract). A player may leave the table whenever he wants, and if he leaves before the start of the round, there are no penalties.
“Inventory”	refers to the in-game collection of items a player has acquired by purchasing them with money or by receiving them in certain rewards (more about the in-game items later on in the contract).
“Shop”	refers to the place a player can buy in-game items using chips.
“Bonus”	refers to a free amount of money a player can earn by doing certain tasks at certain times.
“Challenge”	refers to a task a player can complete in-game to earn an in-game reward (more on the type of the rewards and the challenges later on in the contract).
“Balance”	refers to the total amount of money a player has in his account.
“Bet”	refers to a possible action a player can make on his turn, that consists of paying a certain amount of money to continue playing in that round or to

	make others withdraw from the round.
“Blind”	refers to a certain amount of money that is mandatory to be paid to play in that certain round. This is only applicable for certain players at certain times before the start of the round. The specific blind is only paid by one player before the round and then it's assigned to another player (more about the blinds later in the contract).
“Hand”	refers to a set of cards the player may use to his advantage in the game. Depending on the context, the term can be referred to the set of two cards the player has during a round or the set of five cards the player can form from the seven available to him (his two cards and the tables' five cards) that determines his ranking in the round.
“Dealer”	refers to the virtual player that administers some aspects of the game (more about the dealer's roles will be found later on in the contract). The dealer will be a computer that will manage all the game necessities to ensure the game outcome is correct and the game mechanism is fair.
“Buy-in”	refers to the initial sum of the money stack for a table. This is the money required for a player to join a game and can differ from table to table.
“Stack”	refers to an amount of money a player has during a game at a certain table. This stack has an initial value when joining a table and is restocked from the balance when it drops to zero. All the winning and losses are reflected on this money amount. There is no maximum limit.
“Chips”	refers to the in-game money currency. This currency can be only used inside the game for playing at the tables and buying items.

2. Requirements regarding: [GAME RULES]

In this section of the contract, the rules, game actions and game mechanism are defined, explained and detailed.

As a player, I want to know how this game is played, what defines a win, what defines a defeat

- The game is Texas Hold'em style poker, where each player is dealt by the dealer two private cards and shares five community cards with the other players.
- Players aim to create the best possible hand (of 5 cards) combination using their two private cards and the community cards.
- The game uses one Standard 52-card deck, which has 13 possible values and 4 possible suits. The deck is shuffled by the dealer each round.
- The possible values of the cards are: 2, 3, 4, 5, 6, 7, 8, 9, 10, J (Jack), Q (Queen), K (King), A (Ace).
- The possible suits of the cards are: Hearts, Spades, Diamonds, Clubs.
- The order of the cards from low to high (which will be relevant in the next explanations) is: 2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K, A. The suit of the cards in determining the winner is irrelevant (if it's not mandatory for that certain hand to have

a specific suit). In a hand implying a straight (which will be explained below), the ace (A) can also be used as a 1, therefore preceding a 2.

- The ranking of the hands is the following (from best to worst, also explained):
 1. Royal Flush:
 - 10, J, Q, K, A, all of the same suit.
 - This is the highest-ranking hand in poker and consists of a straight flush of the highest cards.
 2. Straight Flush:
 - Five consecutive cards of the same suit.
 - For example, 8, 9, 10, J, Q, all of hearts.
 - If two players have straight flushes, the one with the highest-ranking card at the top of the sequence wins.
 3. Four of a Kind (Quads):
 - Four cards of the same value and one other card.
 - For example, A, A, A, A, 7.
 - In the event of a tie, the player with the highest-ranking set of four wins. If the tie persists, the player with the highest-ranking fifth card wins.
 4. Full house:
 - Three cards of one rank and two cards of another rank.
 - For example, K, K, K, Q, Q.
 - If two players have full houses, the player with the highest-ranking three cards of one rank wins. If the tie persists, the player with the highest-ranking two cards of another rank wins.
 5. Flush:
 - Five cards of the same suit, not in a consecutive sequence.
 - For example, 2, 5, 7, 9, K, all of diamonds.
 - If two players have flushes, the one with the highest-ranking card wins, and if necessary, the next highest-ranking cards are compared one by one until a player has a higher one, and that player wins.
 6. Straight:
 - Five consecutive cards of mixed suits.
 - For example, 4, 5, 6, 7, 8, of any combination of suits.
 - If two players have straights, the one with the highest-ranking card at the top of the sequence wins.
 7. Three of a Kind (Trips):
 - Three cards of the same rank and two cards with two other ranks.

- For example, J, J, J, 4, 9.
 - If two players have three of a kind, the one with the highest-ranking set of three wins. If the tie persists, the other two cards are compared one by one (with the highest card first) and the player that wins a comparison first wins the hand.
8. Two Pairs:
- Two cards of the same rank, two other cards of the same rank (but different from the first) and another card with a different rank.
 - For example, A, A, Q, Q, 5.
 - If two players have two pairs, the player with the highest-ranking pair wins, and if necessary, the second-highest pair is compared. If the tie persists, the player with the highest-ranking fifth card wins.
9. One Pair:
- Two cards of the same rank and three cards with three other different ranks.
 - For example, 7, 7, 9, J, 3.
 - If two players have one pair, the player with the highest-ranking pair wins, and if necessary, the next highest-ranking cards are compared one by one until a player has a higher one, and that player wins.
10. High Card:
- When none of the above hands are made, the highest card in the hand determines the winner, and if necessary, the next highest-ranking cards are compared one by one until a player has a higher one, and that player wins.

Defining some concepts are how is the game going:

1. Small Blind (SB) and Big Blind (BB):

- Before any cards are dealt, two players are required to post (predefined) blinds, known as the small blind and the big blind and are different depending on the table the game is played.
- The small blind is half the size of the big blind. These bets ensure there is money in the pot to play for in each hand.
- At the end of a round, the blinds are moved to the next players in clockwise order.

2. Dealing Cards:

- After the blinds are posted, each player at the table is dealt two private cards face down, one at a time in clockwise order, known as private cards or pocket cards.

3. Betting Rounds:

The action starts with the player to the left of the big blind and moves clockwise around the table.

Players have several options during their turn:

- Bet: Wager a sum of money that is no more than the player's current stack. This action is only available if there is no current bet.
- Fold: Discard their hand and forfeit any chance of winning the current pot (withdrawing from the current round). Any bets made in the current betting round will also be lost for the player (they will go to the prize pot).
- Call: Match the current bet.
- Raise: Wager a sum of money greater than the size of the current bet. This will make the new bet.
- Check: Decline to bet if no previous bets have been made (or if your bet already matches the current one). This passes the action to the next player without putting more chips into the pot.
- All-In: A player bets all his available money from the stack (because he doesn't have enough money to match the bet). In that case, they remain eligible to win the portion of the pot they contributed to based on their bet. However, they cannot win any further bets made after they went all-in (they are skipped until the showdown).

The betting rounds end when all players either fold or match the current bet.

4. Community Cards:

- After the first round of betting, the dealer places three community cards face up on the table. This is called the flop. Another round of betting occurs.

5. Fourth Street (Turn):

- Following the flop, the dealer places a fourth community card face up on the table. This is called the turn or fourth street. Another round of betting occurs.

6. Fifth Street (River):

- After the betting on the turn is complete, the dealer places a fifth and final community card face up on the table. This is called the river or fifth street. One last round of betting occurs.

7. Showdown:

- If there are two or more players remaining after the final betting round, a showdown occurs.
- Players reveal their private/hole cards, and the player with the best five-card hand wins the pot.
- If there are no ways to determine the winner of a round, taking into account all the criterias described above, the pot is split evenly among them, creating a split pot.

So, we can define winning when a player either:

- a) Has the best hand at the showdown when all cards are revealed.
- b) Forces all other players to fold before the showdown, thus winning the pot without revealing their hand.

In the opposite, a loss is declared when a player either:

- a) has a weaker hand than another player at the showdown.
- b) folds their hand after betting chips into the pot and being forced to surrender those chips.

As a player, I want to know how I can play, what are the stakes and how much money do I need to play

The player will have three different tables from which he'll have the option to choose. Each table supports a maximum number of 8 players and has a different configuration. When choosing, the player will take into account firstly if there are any free seats left at the table and secondly if he meets all the requirements imposed by the table's configuration. There will be three different configurations. A configuration is defined by the blinds that have to be placed at the beginning of a round.

- Inters table:
 - Small Blind: 50 chips
 - Big Blind: 100 chips
 - Buy-in: 5000 chips
 - Juniors table:
 - Small Blind: 500 chips
 - Big Blind: 1000 chips
 - Buy-in: 50000 chips
 - Seniors table:
 - Small Blind: 5000 chips
 - Big Blind: 10000 chips
 - Buy-in: 500000 chips
- If the player doesn't meet the requirement to join the specific table, he will not be able to receive a seat.

- If there are no available seats, but the requirements are met, he must wait for another player to leave in order to play at that specific table. Only then, he will be able to join the ongoing game.
- *Bonus Feature*: If he doesn't meet the requirement or there are no available seats, he can spectate the game, but he must choose another table if he wants to play.

The stakes are presented to the user before joining the table; The small blind value and the big blind value will be the first column in the rows of tables. The 2nd column will present the buy-in value. In the case of bankruptcy, you will be prompted to buy-in again (resetting your stack) as before joining the table or you can leave the table.

As a player, I want to know how I can increase my balance

A player can receive money each day he logs in. For a login on a respective day, he'll receive a base reward, worth 5000 chips. This reward is available only once in a day, starting at 00:00 and ending at 23:59. If a player logs in consecutive days, he'll have a streak equal to the number of days he logged in. The reward he'll receive for logging in is the number of days of streak multiplied with the base price. For example, if the player has a streak of 2 days, he'll receive $2 * 5000$ chips. If a player misses a day in which he did not log in, the streak will reset back to 1, and, for the next reward, he'll have only 5000 chips.

Bad luck can and will strike every person, from time to time. In this game, the option to go broke is extremely plausible. This happens when the balance goes to 0, if the user loses all the money he has, either from an imprudent game strategy, or from buying different items (about items, later in the contract). If this is the case, then the player can send a single request to one of his friends, asking for financial sponsorship worth 5000 chips. The friend can accept this request, sending money to his friend. Those 5000 will be sent to whoever has made the request, but won't be deducted from the balance of the player that has accepted the request. The player that has made the request can do whatever he wants with the money, and won't have to pay them back to anyone.

As a player, I want to be able to buy custom items such as icons for profile picture, and be displayed on the table

- If the player wants to customize his appearance in the game, there will be multiple options for that. The player will have displayed a default icon, a name (decided by the player at the very start, unchangeable after) and under a pay wall (in-game currency only). There will be ways to stylize it further with the addition of different fonts and colors for their username (from an already existing pool of fonts), icons (from an already existing pool of icons), titles (also from an already existing pool of titles). All these options will be displayed next to a certain price in the shop (decided by the developers) in which if the player has enough currency in the game, he/she will be able to buy the specific style and keep it forever in their inventory. After buying/unlocking the asset, it will be forever accessible to the player to switch between what he/she pleases by accessing and choosing it from the inventory. The

item is purchased only once, and a user can't buy an item again, if it has already been purchased in a previous transaction.

As a player, I want to complete some challenges

Challenges are optional, they can be completed during a game of poker. These are tasks tied to the current game of poker and that can reward the player with chips or items upon completion.

There will be a button during the game of poker, which upon pressing will open an overlay with the current active challenges for that game of poker. This set of challenges will be the same for all players at the table, whether they joined earlier or later. Each player can freely complete these challenges, having their own progress (independently from each other).

Challenges will be composed of a **general rule (1)**, a **number of required rules to be completed (2)** and the value of the **received prize upon completion (3)**.

Example 1: **Win \$2M chips** —> **\$400K**

Example 2: **Bet on 5 hands** —> **\$100K**

There will be 5 predefined general rules (decided by the developers). The number of required rules may differ from challenge to challenge and from table to table. The received prize upon completion is determined based on the difficulty of the challenge and the table it is at (decided by the developers at a later time based on the settled challenge difficulty).

If the current bet achieves a challenge, in the next round the money received from this challenge will be added to the stack.

If upon leaving the table, the challenges are partially completed, the player's stats for the challenges will be reset when re-entering the table.

As a player, I want to visualize my progress during my gametime

The more you play, the more you earn. The game will have a level system which will keep track of the number of hands played and depending on that will increase your level as follows:

- after 0 hands - level 1
- after 10 hands - level 2
- after 50 hands - level 3
- after 100 hands - level 4
- after 500 hands - level 5
- after 1000 hands - level 6
- after 5000 hands - level 7
- after 10000 hands - level 8
- after 50000 hands - level 9
- after 100000 hands - level 10

The player can see his level underneath his name or on the leaderboard. The leaderboard will be displayed upon clicking a button in the **top right corner** where all the players will be displayed sorted descending by their number of chips. In case equality persists, the next filtering criteria will be the number of hands played.

As a player, I want to be able to communicate with the others at the table during a game

The player should be able to communicate with other players through a messaging system, making the game more interactive.

The player will be able to choose from a list of predefined messages to send to the other players (while playing the game). The message shall be received by everyone playing at the table and kept in a local chat for that table.

This will be achieved by having an entity that holds the messages and will be accessed through an API endpoint. If the endpoint is not accessible (i.e. the endpoint is returning an error or it's not reachable) the player will be shown an error message stating "messages not currently available" when trying to select or send the message.

Sending the message will happen through an API call specifying the message ID and the player's name. The API will return a success or error message to the player sending (P1), the selected message and will notify the rest of the players of the new message (the one sent by P1). If the message couldn't be sent, the player will receive a specific error message.

If any error appears due to network issues the player should receive a message specifying this. Any error message will appear as an overlay on the screen.

For each table, there will be a queue of the last ten sent messages and their sender's name. When the message queue is filled, the oldest message gets deleted.