Described herein is a Casino game in which a player can play multiple games of chance.

High Level Requirements:

Technology stack:

I have selected Tcl/Tk as the implementation language for several reasons. Tcl/Tk allows execution on any operating system (Windows, linux, MacOs) that is supported by Tcl/Tk. All a user would have to do is to install the Tcl/Tk environment (https://www.activestate.com/activetcl/downloads) to play a game. Tcl/Tk is supported by ActiveState.

The hardware platform and operating system can be any that supports Tcl/Tk.

An internet connection is required in order to obtain access to the Casino player database. For this example, no connection is required.

There will be a Casino database which contains each player's data, as follows:

- Name
- Address
- Social Security Number (for IRS reporting — assuming real money)
- Contact information (phone, email)
- Bankroll
- Any saved games
- Unique token to identify the player
- Bank information for transfers
- saved game

This database can be in any form. It does not have to be a SQL database or a database at all. It must provide mechanisms to add, delete, update, archive, retrieve, etc. Security is also paramount and must be addressed. For this example, a SQL database will be used to allow remote connections and client monitoring.

** As a side note, I only have access to an Apple laptop and the only compiler I have is for Tcl/Tk. In reality, if this was a real casino with real money, one would not want to run a scripting language like Tcl due to the obvious problems of users modifying the scripts to allow altered odds or results. If it was required, then I would hash the scripts on the player's computer and not allow games whose hash value didn't match the reference version.

Structure:

There will be several independent programs. Each program will perform a single function. Programs are:

- Lobby - This program will authenticate the player using the casino database and allow the player to initiate any game the casino offers. To initiate a game, Lobby will spawn the appropriate program to play the requested game, passing the player token as id. The

Lobby must also enable a player to deposit or withdraw money (check, credit card, ACH transfer, bank wire, etc). There must also be a process for redress of any grievances handled in the Lobby (network disconnections for example)

- Blackjack:
    1. At startup, ask the player to indicate how large a bankroll to use. If its less than the player has on deposit in the Casino, allow it. If not, provide the bankroll available on deposit in the Casino. When implemented — if there is a saved game, restore the data. If the database connection is terminated, do not allow a new deal until the connection is established and the bankroll is updated in the Casino database.
    2. Present player with the GUI showing
        A. Player and Dealer cards - standard 52 deck of cards
        B. New Deal button- Begin the next hand. Reduce the bankroll by the wager amount. Check to see if either the player or dealer or both have blackjack.
        C. Hit button - Drawn top card, add it to the player's cards. Calculate player's total. If > 21, player busts and hand is over and update the casino database with the new bankroll.
        D. Stay button - Player takes no cards, complete the dealer's hand. Dealer stays on all 17's. If the dealer busts, player wins. If the dealers hand is greater than the player's, dealer wins. Equal hands are a tie and if the player's hand is greater, then player wins. If the player wins, increment the bankroll by the wager amount. Update the casino database with the new bankroll.
        E. Cash Out button - Ensure Casino database bankroll is equal to the local bankroll by comparing sequence numbers to see if any have been missed.
        F. Bankroll and wager - wager must be less than or equal to the bankroll.
        G. Session statistics - hands played, won, lost
        H. Save Game button - Future feature. Pressing this button causes player, dealer, remaining shoe (cards not yet dealt), active cards for player and dealer and the wager amount in the casino database.

- poker room (hold'em, 7 stud, omaha, etc)
- craps
- roulette
- big wheel
- and on and on