Casino Simulator

Paige Johnson, Derek Gorthy, Michael Condon

March 14, 2017

Summary

A website that models a business environment by giving users the ability to play as a business owner or a business patron. Initially, the only business this project supports is a casino; the project supports the owners' accumulation of one or more businesses, the ability to add games to the casino, the modification of bet amounts of the games, and gives the patrons the ability to play the games and oversee their funds.

Project Requirements

Our system does not have any Business Requirements. Instead, Functional Requirements in Table 3 are a substitute for the Business Requirements.

Table 1: Non-Functional Requirements

ID	Requirement	Category	Priority
NFR-001	Longest login authentication will be 5 seconds	Authentication	Critical
NFR-002	System will support up to 1,000 casinos and 100,000 patrons	Volume Limits	Critical
NFR-003	Databases for users and casinos will be independent	Databases	High
NFR-004	Databases will be easily replaceable with other databases	Databases	High
NFR-005	Users will only need to authenticate once every 24 hours	Authentication	Moderate
NFR-006	Website will perform identically across Windows, Mac, Linux, iOS and Android	UI/Performance	High
NFR-007	A legal page on the website will be easy to find and will clearly state that this is merely a casino simulator and does not function as a gambling website	Legal	High
NFR-008	Make the system as extensible as possible, especially thinking about the addition of new types of businesses	Extensibility	High

Table 2: User Requirements

ID	Requirement	Topic Area	Actor	Priority
UR-001	As a new User, I want to create an account, so that I can play as an Owner or Player	Startup	Program Driver	Critical
UR-002	As an Owner, I can create a casino, and chose what games to add into it	Casino functionality	Owner/Casino	Critical
UR-003	As an Owner, I want to be able to adjust the required bets of the games that I have already added to my casino	Casino functionality	Owner/Casino	Moderate
UR-004	As a User, I want to be able to log in to my account	Authentication	Owner	Critical
UR-005	As an Owner, I want to be able to view my list of businesses	Gameplay Backend	Player	Critical
UR-006	As an Owner, I want to be able to access an overview of my business.	Gameplay Backend	Owner	Critical
UR-007	As an Owner, I want to be to make my casino exclusive to the Players that I choose to invite	Gameplay Backend	Owner/Casino	Moderate
UR-008	As a Player, I want to be able to navigate to what game I want to play and be able to exit that game when I'm done, so that I can spend my funds where I want	UI/Gameplay	Player	Moderate
UR-009	As an Owner, I want to be able to see who is in my casino, so that I can moderate it	Gameplay Backend	Owner	Moderate
UR-010	As a Player, I want to be able to view a Casino's games, Payout Ratio and Net Worth, so that I can make a decision on what casino to gamble in	Player Capabilities	Player	Moderate
UR-011	As an Owner, I want to be able to sell a business, so that I can make money off of it and no longer moderate it	Owner Capabilities	Owner	Moderate

Table 3: Functional Requirements

ID	Requirement	Priority
FR-001	Amount of money belonging to player shall be stored and player should be removed if money reaches 0	High
FR-002	When creating a Player profile, the "bankroll" for that Player will be set to $50,000	High
FR-003	When creating a Owner, the "initial capital" for the Owner will be set to $500,000	High
FR-004	When displaying the list of casinos for a Player to enter; total played, total paid out and win/loss ratio will be sorted and displayed	Moderate
FR-005	When selling a casino, the instance of the casino will be removed from the databases and the funds from scrapping the casino will be added to the Owner's balance	Moderate

Use Cases

3.1 Use Case Overview
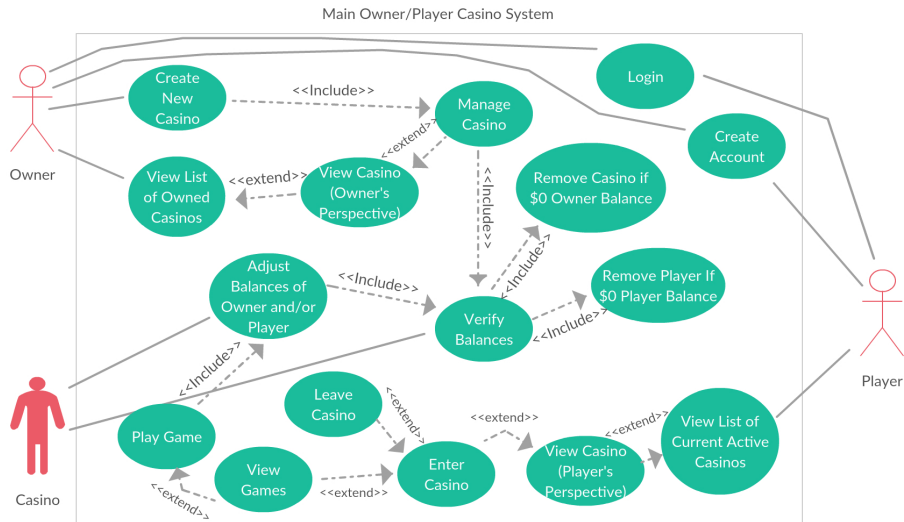
Figure 1: UR-002, UR-004,UR-006, UR-009

3.2 Sub-diagrams

Figure 2 shows the detailed creating account and login process.
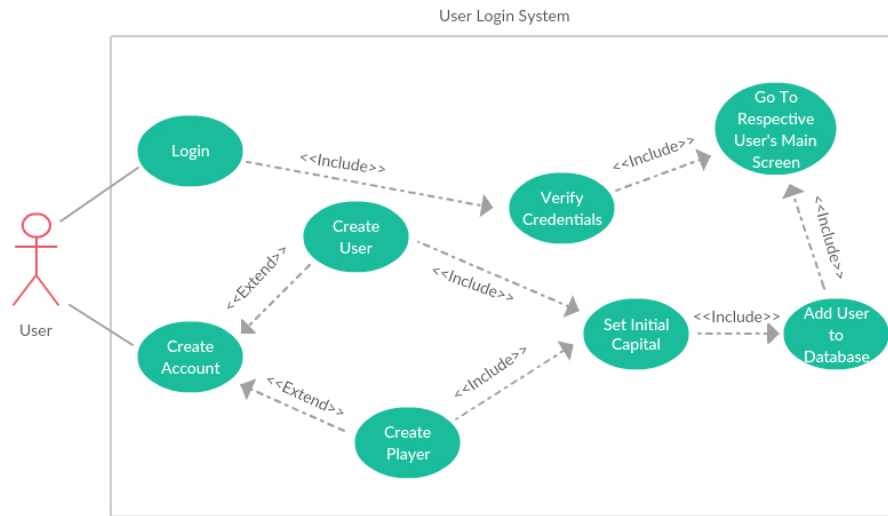
Figure 2: UR-001, UR-004

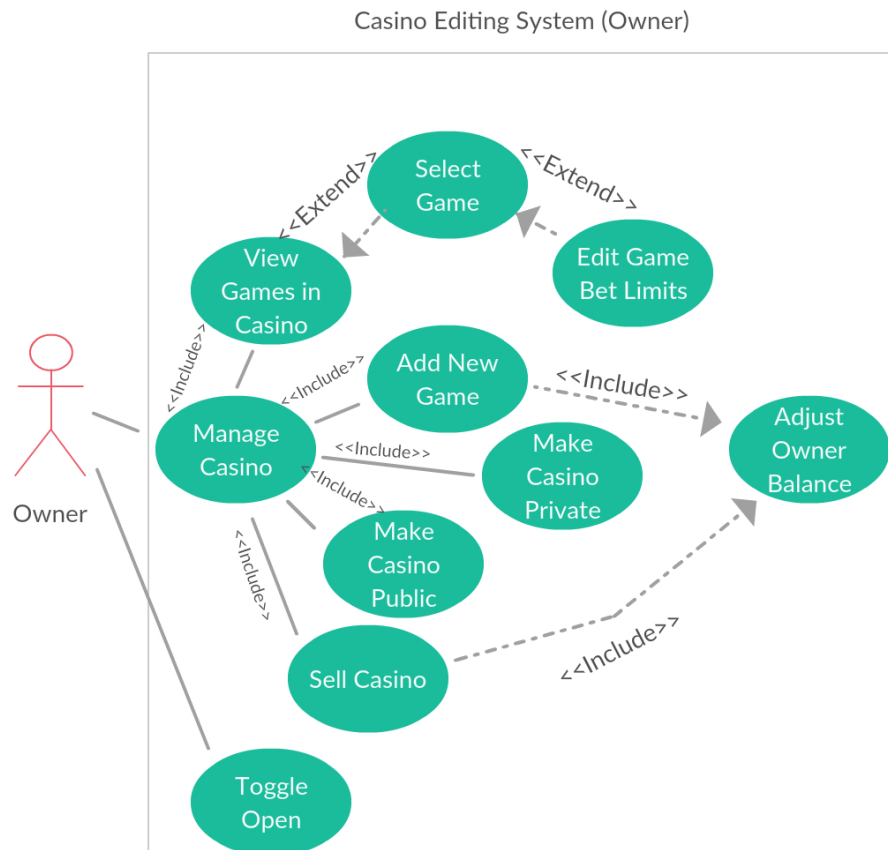Figure 3 shows the extensive casino management process available to Owners.

Figure 3: UR-003,UR-007,UR-011

Figure 4 shows the ability of the Player to view and play casino games.
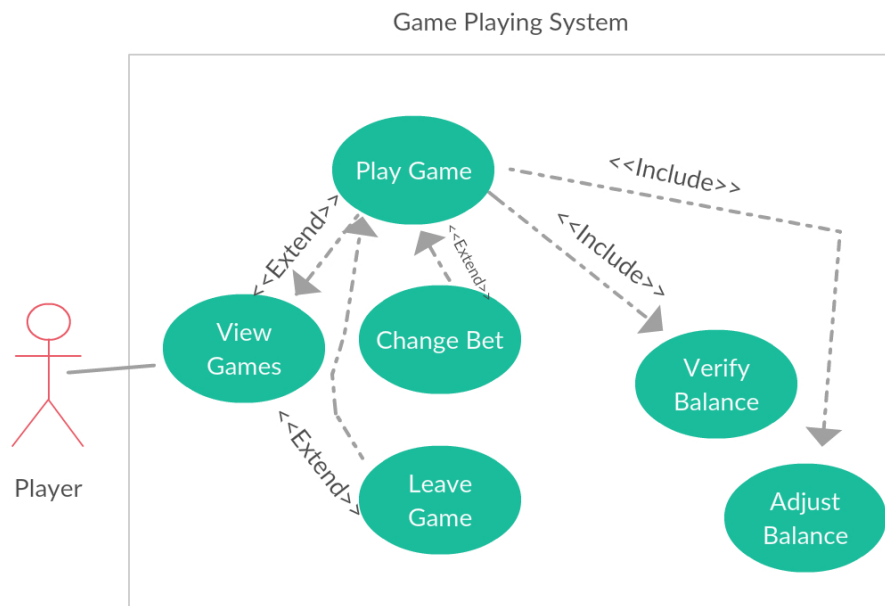
Figure 4: UR-008, UR-010

UI Mockups

4.1 Users

The User will initially land on a login/create account page, as shown in Figure 6. This directly maps to user requirement(s): UR-001, UR-004.

Figure 5: Initial landing page for User.

Because Figure 5 is used by both new and existing Users, Figure 6 shows the page where the User can specify which account type they would like. This directly maps to user requirement(s): UR-001.

Figure 6: Create account page.

4.2 Players

Figure 7 shows the page where Players can choose which casino they would like to enter. This page will display the name of the casino, the games and seat available to Players, the total Payout Ration of the casino, and the Net Worth of the casino. This directly maps to user requirement(s): UR-008, UR-010.

Figure 7: Casino browser for Players.

In the case that a casino is password protected, the user will be prompted to enter the password as seen in Figure 8

Figure 8: Enter password to restricted casino.

Once inside a specific casino, a Player can see all of the games in the casino. The interface will indicate which games are currently available for use by the Player and all the attributes that a Player must enter, such as bet, color and number. The Player will be able to play a game by clicking a button on the interface. Here the user will also be able to leave the casino by clicking a "Back" button. All of these functions are shown in Figure 9. This directly maps to the user requirement(s): UR-008.

Figure 9: Casino interface for Player.

4.3 Owners

Owners are able to log in and will be directed to an overview page of their businesses; this is shown below in Figure 10. Owners can view the performance of their businesses, their total performance and navigate to the manage page for each business. This directly maps to the user requirement(s): UR-002, UR-005, UR-007.

Figure 10: Business overview for Owner.

An Owner can choose to set a business to private. This is done by entering text into the "Passcode" field and then checking the "Protect" box. The Owner is then prompted with the screen shown in Figure 11.

Figure 11: Owner confirm password page.

The only supported business initially is a casino. The casino manager is shown in Figure 12. This directly maps to the user requirement(s): UR-002, UR-003, UR-006, UR-009, UR-011.

Figure 12: Manage specific casino.

The Owner has the ability to sell the casino on this screen. Once they click the "Sell Casino" button, they will be prompted with the page shown in Figure 13.

Figure 13: Confirm sale of casino.

Data Storage

We are choosing to use Firebase for our data storage. The objects we intend to persist are: the Casinos, the Players, and the Owners because these objects should be stored beyond the duration of the program's run time – in this case longer than a single use of the website. This is so the current Users can access their accounts, progress, and attributes regardless of whether the program has been previously terminated or not.
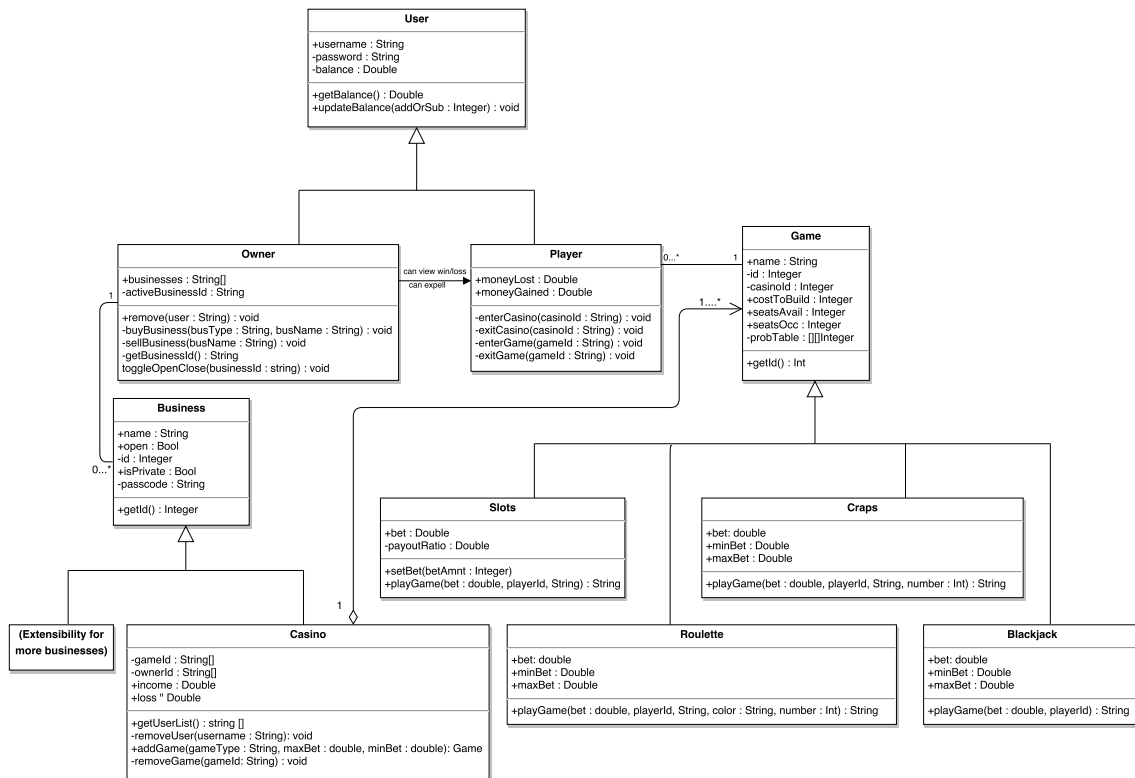
Class Diagram

Figure 14: Class Diagram