
Case Western Reserve University – CWRU

**Software Requirements
Specification**
for
Social Gaming Platform

Version 1.0

**Prepared by: TungHo Lin
 Jiahao Luo**

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Revision History

Name	Date	Reason For Changes	Version
TungHo Lin Jiahao Luo	9/29/18	initial draft	1.0 draft 1

1. Vision and Scope

1.1 Purpose

This SRS describes vision and scope, as well as its business requirements, user requirements, functional requirements, and non-functional requirements for the release 1.0 of the Social Gaming Platform. This document is intended to be used by the members of the project team that will design, implement and validate the functionality of the system. All requirements specified here are high priority and committed for release 1.0.

1.2 Business Requirements

1.2.1 Background

With the advancement in smartphone technology, users now have access to almost all aspects of life right on their palm; and among all the activities you can do on your phone, playing games and message-chatting with their friends are definitely two of the most popular. They provide moderate relaxation and a chance to socialize with other people anytime, anywhere. However, these two activities often have their own app, e.g. Messages and Texas Poker game. It can be frustrating trying to talk to your friends and play a game simultaneously because you lose a second of time to switch apps every time.

Most mobile games in the market right now don't allow players interaction. All you can see is other players' in-game name and maybe send him/her an emoji and nothing else. Therefore, we propose building a social gaming platform that a player can not only enjoy fun and challenging mini puzzle games, but also connect with your friends and other people on the platform and socialize with them.

1.2.2 Business Objectives and Success Criteria

- BO-1: Improve smartphone users' experience on gaming and communicating with friends simultaneously.
- SC-1: Gain at least 500 users within 6 months following initial release.
- SC-2: Attract at least 2 game-developing companies to develop games for the platform.

1.2.3 Business Risks

- RI-1: Not many users are willing to switch over to our gaming platform because of the need for registering/setting up one's profile.
- RI-2: Users might encounter rude/inappropriate messages from other opponents.

1.3 Vision of the Solution

1.3.1 Vision Statement

For users who are willing to switch to our gaming platform, the Social Gaming Platform is a smartphone based application that allow users to create a social account that allows you to enjoy free puzzle-themed mini games, add other players on the platform as your friends, challenge them and chat with other people that are online while playing the game. Unlike current online mobile games, users who use the Social Gaming Platform will be able to socialize with the people you know and play games using just one application.

1.3.2 Major Features

- FE-1: Account registration
- FE-2: Play free puzzles-themed mini games, both single and multiplayer
- FE-3: Earn points and virtual currency for completing each game level
- FE-4: Store: allows purchases of other games, powerups and lives
- FE-5: Talk to anyone currently online in the platform
- FE-6: Active Scoring Board
- FE-7: Friend system: Add other players as friends and view their statuses
- FE-8: Level system: Level-up if you earn enough points

1.3.3 Assumptions and Dependencies

- AS-1: All users of the platform will behave appropriately.
- AS-2: All users will have iOS devices.
- DE-1: The iOS devices the users have will be able to connect to the server.

1.4 Scope and Limitations

1.4.1 Scope of Initial and Subsequent Releases

Feature	Release 1	Release 2	Release 3
FE-1	Not implemented	Fully Implemented	
FE-2	Multiplayer: BlackJack	Single player: 8/15 puzzle slider	Multiplayer: Connect 4
FE-3	Fully implemented		
FE-4	Not implemented	Allow purchases of lives and power ups	Allow purchases of games

FE-5	Not implemented	Fully Implemented	
FE-6	Not implemented	Not implemented	Fully Implemented
FE-7	Not implemented	Not implemented	Fully Implemented
FE-8	Fully implemented		

1.4.2 Limitations and Exclusions

LI-1: Currently the application can only operate on iOS devices.

1.5 Project Priorities

Dimension	Driver	Constraint	Degree of Freedom
Schedule			Release 1 planned to be available by 10/29. Release 2 planned to be available by 11/12. Final Release planned to be available by 12/7.
Features		All features scheduled for Release 1.0 must be fully operational	
Quality		90% of user acceptance tests must pass. 90% of user should give positive feedback on the platform.	
Staff	Projected team size: 2 developers who will also be in charge of project management and testing.		
Cost			N/A

2. Overall Description

This section of the document describes the platform as a whole by specifying the different aspects including product perspective, user classes and characteristics, operating environment, design and implementation constraints, user documentation and assumption and dependencies. A list of use cases based on users will be presented in both diagram Figure 1 and context.

2.1 Product Perspective

The Social Gaming Platform is a platform that encourages users to make new friends, interact with in-game friends and enjoy their time playing games.

The following are the main features that are included in Social Gaming Platform

- User account: The platform allows the user to create their accounts and provide features of updating and viewing profiles.
- Single-player gaming system: Registered users will be able to play single-player games in their game list to earn points and virtual currency.
- Multiplayer gaming system: Registered users will be able to play multiplayer games in their game list to earn points and virtual currency and invite friends that's currently online.
- Friend system: The platform allows users to add friends through IDs, see what games their friends are playing currently and join the game if possible.
- Live message board: Provides users with a platform to discuss the games or random issues
- Game store: The platform allows users to purchase games that are available, lives for playing extra games and power-ups for scoring more points with their virtual currency.

2.2 User Classes and Characteristics

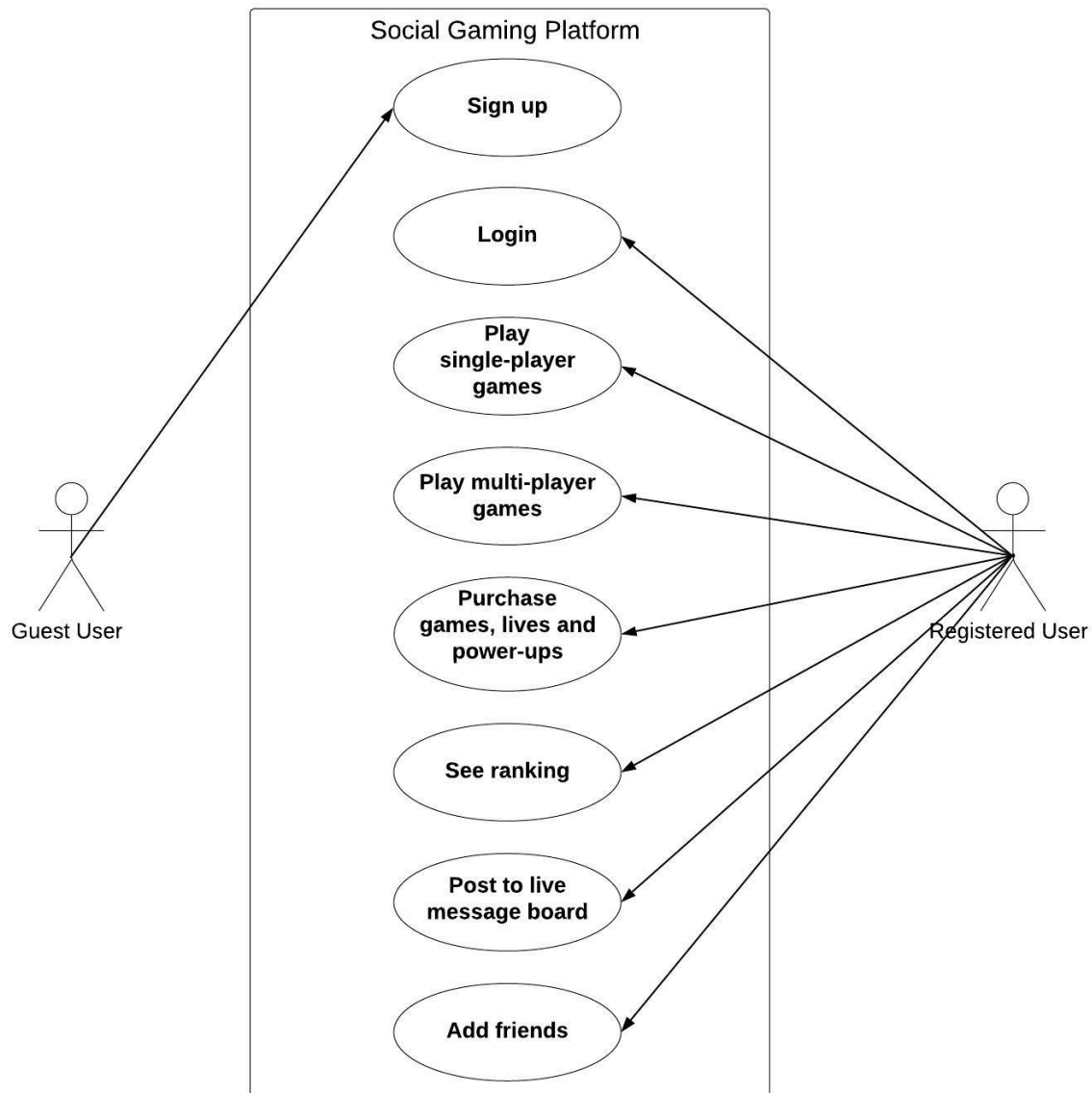


Figure 1. Use Case Diagram

Guest User

A guest user is a user that hasn't registered for an account with validated username. There is a sign up page for guest users to create an account in order to unlock the full features of the platform.

Registered User

A registered user is a user that has a valid account with username and password. A Registered user can login to his/her account on the login page. Once the registered user logs in, the user can view all unlocked games in the game list page and click the game to play to earn scores and

virtual currency. There are single-player and multiplayer games, lives for playing extra games and power-ups for scoring more in the game store for logged-in users to purchase with their virtual currency. With the points earned in each game played, users can level up and see the global and friends ranking. The users can also post messages to the live board and see what other users have posted in the live message board. Users can add each other as friends and see what their friends are playing currently and join if the game is multiplayer.

2.3 Operating Environment

OE-1: The Social Gaming Platform shall operate on iOS devices.

2.4 Design and Implementation Constraints

CO-1: The iOS application code shall be written in Swift.

CO-2: The server code shall be written in Go or Ruby.

2.5 User Documentation

UD-1: The system shall provide a text tutorial describing the current view features to the users, users can click the question mark on each view to show the tutorial.

3. System Features

3.1 Signup/Login System

3.1.1 Description and Priority

A user of the platform has to sign up for an account before he/she can have access to the platform. After the user has signed up, he/she can use his/her username and password to log in.
Priority = Medium

3.1.2 Stimulus/Response Sequences

Stimulus:	User request to sign up for an account
Response:	System queries User for username and password
Stimulus:	User inputs username and password
Response:	System sends the input to the server, check for availability. If the status is “Accepted”, a new user account is created.
Stimulus:	User input username and password to log in
Reponse:	System send the input to the server, check for correctness. If the status is “Correct”, user will be logged in.

3.1.3 Functional Requirements

Account.Signup	The system should let a user who has never signed up before create an account.
Account.Signup.Username	The system should prompt the user for the username.
Account.Signup.Password	The system should prompt the user for the password.
Account.Login	The system should let a user who has already signed up log in.
Account.Login Username	The system should prompt the user for the username.
Account.Login.Password	The system should prompt the user for the password.
Account.Check.SignupCredentials	The system should check if the credentials are available.
Account.Check.LoginCredentials	The system should check if the credentials are correct.

3.2 Play games

3.2.1 Description and Priority

The user can select the game he/she wants to play and play the game. Throughout the gameplay, the player will earn points for completing tasks. If the player reach a certain amount of points, he/she will level-up.

Priority: High

3.2.2 Stimulus/Response Sequences

Stimulus: User requests to play a game he/she selected
Response: System runs the game the user selected
Stimulus: User plays a game
Response: System calculates the score and the level of the user while running the game.

3.2.3 Functional Requirements

Game.Select	The system should allow the player to select a game
Game.Select.Run	The system will run the game the player selected
Game.Points	The system will actively calculate how many points the player earned in-game.
Game.Points.LevelUp	The system will level-up the player if he reached certain amount of points

3.3 Live Message Board

3.3.1 Description and Priority

The user can open up the live message board, view and send messages that can be seen by other online members of the platform.

Priority: High

3.3.2 Stimulus/Response Sequences

Stimulus: The user requests to open the live message board
Response: The system will display the live message board
Stimulus: The user requests to send a message to the board
Response: The system queries the user for the message
Stimulus: The user requests to post to the board
Response: The system will send the message to the server

3.3.3 Functional Requirements

LiveMessage.Open	The system will let the user open up the live message board
LiveMessage.Write	The system will let the user compose a message
LiveMessage.Post	The system will let the user post a message on the board

LiveMessage.Update	The system will constantly update the message board while the player is in the game menu or playing a game
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3.4 Store

3.4.1 Description and Priority

The user can purchase power ups such as 2x points earned for a limited amount of time and even unlock games with the amount of points he has earned.

Priority: Medium

3.4.2 Stimulus/Response Sequences

- Stimulus: The user requests to open the store page.
- Response: The system will open up the store page.
- Stimulus: The user requests to buy a certain powerups/game
- Response: The system will check if the player has enough points and assign a powerup to the user's account.

3.4.3 Functional Requirements

Store.Open	The system will open the store page.
Store.Select	The system will let the player select the powerups/games he/she wants to purchase.
Store.Purchase	The system will let the player purchase the powerups/games he/she selected after doing a check.
Store.Check.Balance	The system will check if the player has at least the amount of points the item he/she is buying.

4. External Interface Requirements

4.1 User Interfaces

- UI-1: Each game will have a small "i" button that contains tutorial information about how to play that game.

UI-2: While in-game, the user will have a small button on the side that can open up the live chat board.

4.2 Software Interfaces

SI-1: Login/Signup System

SI-1.1: The system should transmit the user's credentials to the server for verification(login) and for availability check(signup).

SI-1.2: The system will display a validation message once the guest user request a username validation.

SI-2: User Profile System

SI-2.1: The system will keep track of the user's points, level, virtual currency and ranking.

SI-2.2: The system will display the user's level among all other users on an active ranking board.

SI-3: Store System

SI-3.1: The system will show available items for the user to purchase.

SI-3.2: The system will deduct the user's virtual currency balance if he/she decided to purchase an item.

SI-3.3: The system will display a confirmation message once the purchase request is made.

SI-4: Live Message System

SI-4.1: The system will show the current messages posted.

SI-4.2: To send messages from any user.

SI-5: Gaming System

SI-5.1: To allow a user to make game moves.

SI-5.2: To show users the current game state.

SI-5.3: To allow a user to invite friends to join the multiplayer game.

Users who are invited by their friends will receive invitation messages.

SI-5.4: The system shall display the game result at the end of the game.

SI-5.5: The system will increase responsive points and virtual currency to users at the end of the game.

SI-6: Friend System

SI-6.1: To allow a user to add friends through their usernames.

SI-6.2: To allow a user to view what his/her friends are playing currently and if the game is joinable.

5. Other Non-functional Requirements

5.1 Performance Requirements

- PE-1: The platform shall accommodate 250 users during the peak time.
- PE-2: Responses to the server shall take no more than 5 seconds to load onto the screen after the user makes game move requests.
- PE-3: The system shall display validation message to guest users within 5 seconds after the user submits a validation request to the sign up system.
- PE-4: Responses to the server shall take no more than 10 seconds to load onto the screen after the user submits a login request to the login system.
- PE-5: The system shall display confirmation message to users within 5 seconds after the user purchases an item in the game store.
- PE-6: The system shall update user points, virtual currency and ranking after the end of each game.
- PE-7: Latency of live message response to inputs will not exceed 100 milliseconds.
- PE-8: The server connection failure shall not happen in more than 1 in 1,000 user requests on average.

5.2 Safety Requirements

No safety requirements have been identified.

5.3 Security Requirements

- SE-1: Users shall be required to log in to the Social Gaming Platform for all operations except registering a new account.

5.4 Software Quality Attributes

- Robustness-1: If the connection between the user and the server is broken during the game, the Social Gaming Platform shall enable the user to reconnect.

Appendix A: Data Dictionary and Data Model

User account	=	id
	+	username
	+	password
	+	rank
	+	points
	+	virtual currency
	+	inventory
	+	online status
Id	=	integer value * an auto-generated id*
Username	=	String of characters
Password	=	String of characters
Rank	=	integer value * the current global rank *
Points	=	integer value * the current points earned *
Virtual currency	=	integer value * the current currency value *
Inventory	=	games
	+	lives
	+	power-ups
Games	=	String of characters * the games unlocked *
Lives	=	integer value * the game passes available *
Power-ups	=	expiration date
	+	multiplier
Expiration date	=	timestamp * the expiration date for the power-up item *
Multiplier	=	integer value * the multiplier for the power-up item *
Online status	=	String of characters * the game the user is playing or empty *
Messages	=	sender
	+	time
	+	text
Sender	=	account ID * the ID of the message sender*

Time = timestamp * the time the message sent *

Text = String of characters * the content of the message *

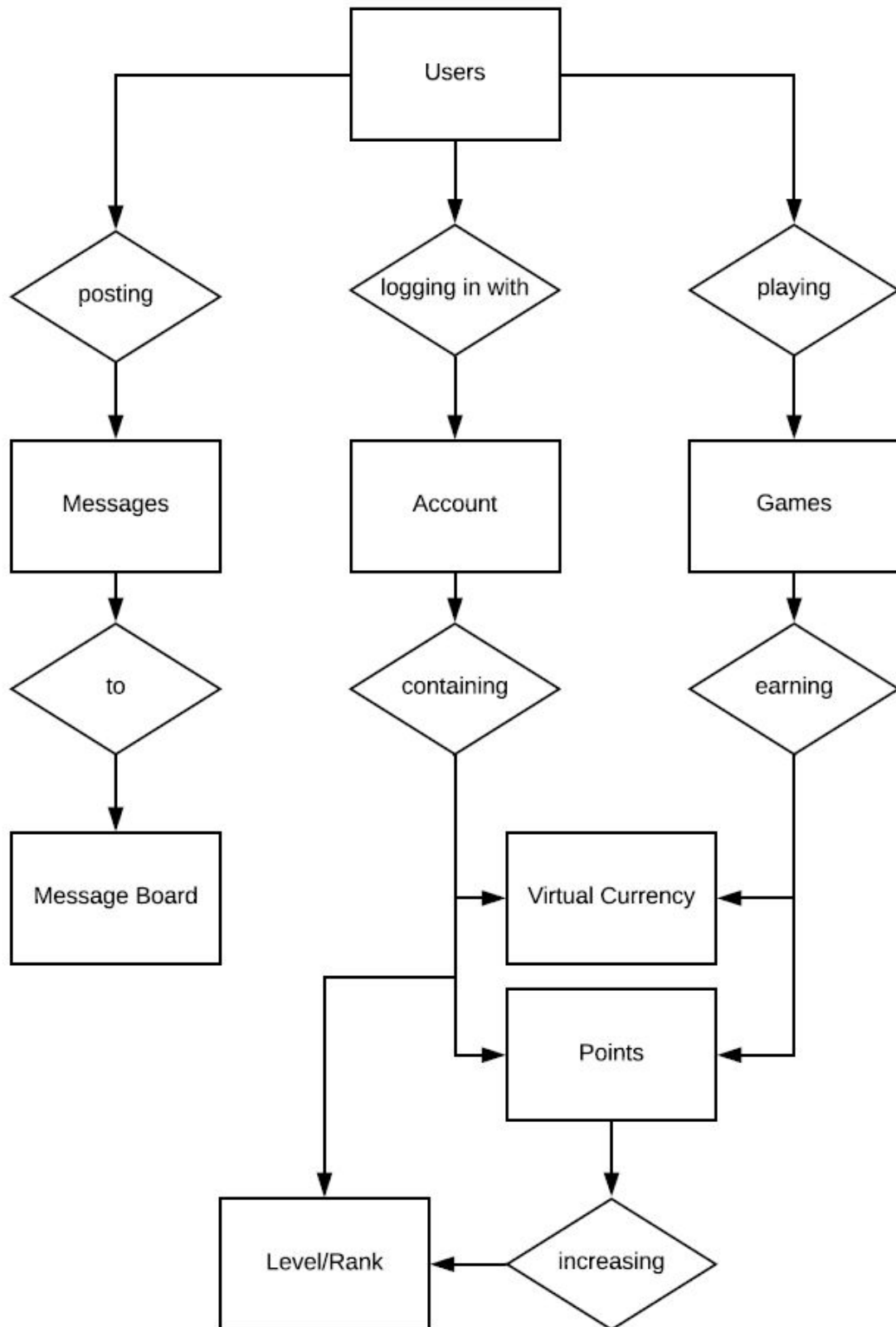


Figure 2. Data Flow Diagram

Appendix B: Analysis Models

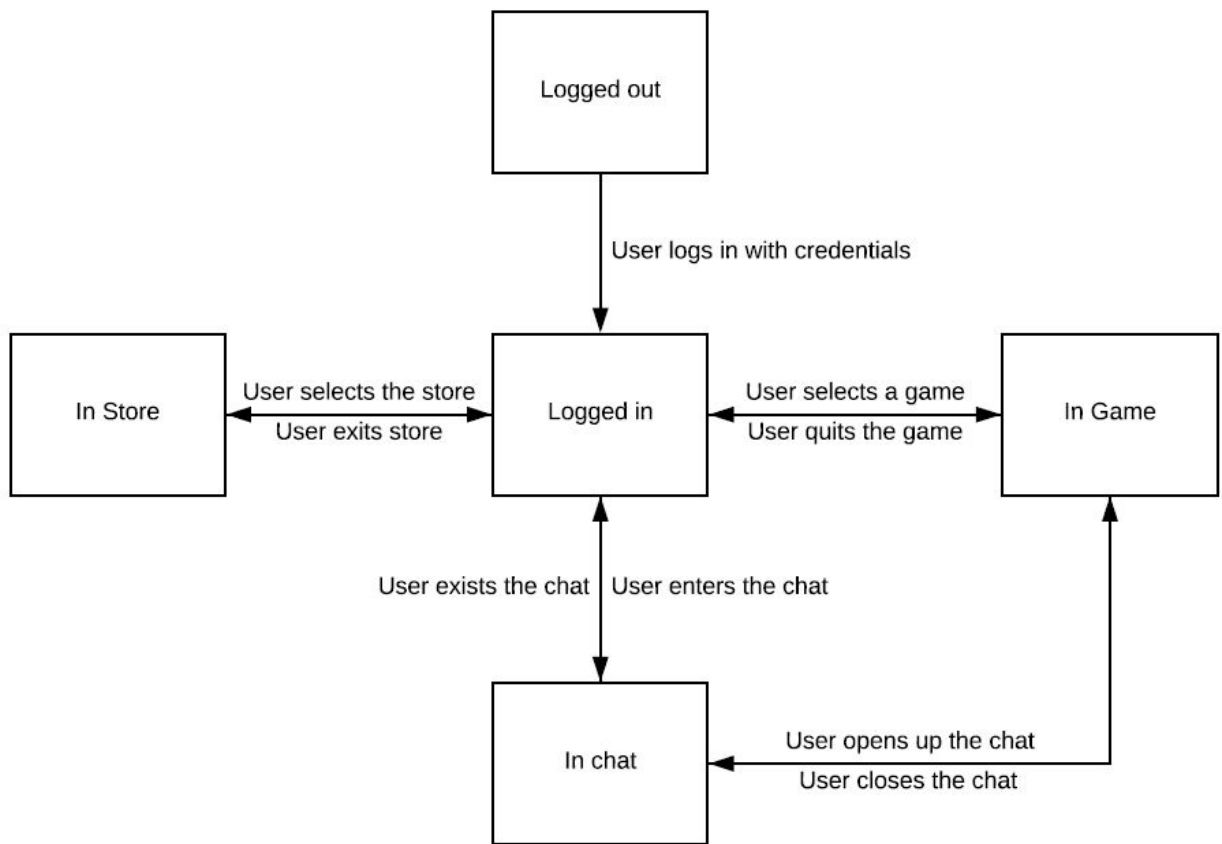


Figure 3. State Transition Diagram