

VirtuCards

CS 30700 Sprint 1 Planning Document



TEAM 8

June Seo

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Sprint Overview

During this sprint we hope to implement the setup and creation of rooms, creating an account and logging in, and some chat features. We will be setting up the Photon plug-in on Unity and the creation of a game lobby and rooms and allowing players to join a room of their choice by using a specific join code. We will also be setting up Firebase to handle authentication during login and storage of information.

Scrum Master: Aryan Wadhwani

Meeting Plan: Tuesday @ 3:00pm and Thursday @ 7:00pm

Risks and Challenges:

As this is the first sprint of the project, we anticipate some delays in setting up the project, installing the Photon plug-in and organizing the code repository. While we are familiar with most of the technologies being used in our project, there are some that we do not have much experience with, therefore, we assume that there will be some additional that will be required to familiarize ourselves with the technologies - watching online tutorials, reading articles, etc. Additionally, this is the first sprint where our team is working as a group on development efforts, there will be some time spent understanding everyone's areas of comfort and expertise, and then assigning tasks based on that.

Current Sprint Detail

User Story #1

As a user hosting the game, I would like to be able to create a game lobby on my laptop/desktop as a common external screen, acting as a table.

#	Description	Estimated Time	Owner
1	Have a landing screen with a <i>Create Game</i> button, login/registration options, user profile link and a settings button on the host computer.	5 hours	Kade
2	Create a screen that displays the join-code, a setting for the maximum number of players, the selected game, and a cancel button.	4 hours	Aryan
3	List all the players in the room.	3 hours	Shayne
4	Add a start game button when the lobby has enough players in it.	2 hours	Shayne
5	Create unit tests that test the game lobby GUI.	2 hours	Aryan

Acceptance Criteria

- Given that the host has the game installed, when they launch it they should be able to click the *Create Game* button.
- Given that the game is launched, when the *Create Game* button is clicked, a unique code is generated and displayed, along with options for the game and a cancel button.
- Given that the join-code has been displayed, when different players join or leave the room, the list of players in the room should be updated to reflect that.
- Given that the user first clicked *Create Game*, when the user clicks cancel, they should be sent to the welcome page

User Story #2

As a user hosting the game, I would like to create a game lobby easily.

#	Description	Estimated Time	Owner
1	Set up a Photon account and connect it with the game application. Also set up all users to connect to appropriate regions.	3 hours	Umang
2	Generate a room with the host name on Photon.	2 hours	June
3	Create a unique code and add it to Photon as a room.	1 hour	Umang
4	Setting the maximum number of players and the selected game.	1 hour	June

5	Implement unit tests to debug creating Photon rooms with the unique code.	2 hours	Umang
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Acceptance Criteria

- Given that the Photon plug-in is added to the Unity project successfully, when a user clicks the *Create Room* button, a room can be created with a unique join code
- Given that the settings is set up properly, when they use the *Settings* interface, they can modify the room settings to change the number of players
- Given that the host has a specific game in mind, when they are creating the room, they can select it.
- Given that the join code is displayed and noted, when a sufficient number of players are in the room, the host can begin the game.

User Story #3

As a user hosting the game, I would like to be able to allow my friends to join my game using a generated join code.

#	Description	Estimated Time	Owner
1	Create a method for connecting using a join code.	2 hours	Kade
2	Attempt to connect the client to the game room.	2 hours	Ryan
3	Throw error if joining the room fails.	1 hour	Ryan
4	Return room information if joining is successful.	1 hour	Ryan
5	Create a method to disconnect the client from the room.	2 hours	Aryan
6	Create unit tests for clients joining a game room.	2 hours	Shayne

Acceptance Criteria

- Given that a user enters an incorrect join code, when the user attempts to join the room, they are shown an error and prompted to try again.
- Given that a user has entered the correct join code, if/when they are unable to connect to the Photon server, the method throws an error.
- Given that a user has opened the game, when the user is able to join the server, the method returns room information.
- Given that a user has entered the room, when they choose to leave, there is a method to remove them from the game room.

User Story #4

As a user, I would like to join the game host's common screen on my mobile device through the join code the host provides.

#	Description	Estimated Time	Owner
1	Create Landing Screen for Mobile app with <i>Join Game</i> text field and button, login/registration options, user profile link and settings button.	5 hours	Aryan
2	Connect <i>Join Game</i> button to method. Show error message for incorrect join code.	2 hours	Ryan
3	For correct join code, display a "Waiting..." screen while users wait for the lobby to fill up for mobile clients with a <i>Leave Game</i> button and information about game settings.	4 hours	Umang
4	Create unit tests that correct settings are displayed, and buttons are functional.	2 hours	June

Acceptance Criteria

- Given that a user launches the app, when the application loads on their mobile device, the landing screen loads successfully on every launch of the game.
- Given that the user enters a join code and clicks *Join Game*, when the user provides a valid join code, redirect them to a waiting room.
- Given that a user has opened the game, when the user attempts to join the room, their device should show a loading screen while the game loads.
- Given that the user has joined a room, when the user has been connected properly, display the current players in the room and the current selected game settings.
- Given that the joining room has been implemented correctly, when the user enters a valid room, then the "Waiting..." screen will show up while the lobby is being filled.
- Given that the user is in a joining room, when the user clicks the *Leave Game* button, they are taken back to the landing screen.

User Story #5

As a user, I would like to be able to register for an account for VirtuCards.

#	Description	Estimated Time	Owner
1	Set up the Firebase authentication and realtime database and connect host and mobile apps to it.	3 hours	Aryan
2	Set up a testing Firebase database.	2 hours	Aryan
3	Create a registration method in the host/client apps.	2 hours	Aryan

4	Check if the email is valid.	1 hour	Ryan
5	Check password strength.	1 hour	Ryan
6	Disable the register button until all registration fields are filled accurately.	3 hours	Shayne
7	Check if the account already exists with the same email or username, if so, display an error message.	2 hours	Kade
8	Add account to Firebase.	2 hours	Aryan
9	Implement unit tests to verify that user accounts can be created.	3 hours	Kade

Acceptance Criteria:

- Given the Firebase is correctly implemented, when the user registers for the account, the user's information will be safely stored.
- Given the user is planning to register for an account for VirtuCards, when they press the *Login* button, there will be a *Register Account* button.
- Given the user is registering their account, when they input a password, there will be a visual indicator to tell them of the strength of their password. If their password is too weak, the registration button is disabled from being pressed.
- Given that the account register is implemented properly, when the user inputs a valid email, the app will tell the user if the account can be created or not.
- Given that the app alerts are implemented correctly, when the user inputs a weak password, the *Create Account* button will be disabled.

User Story #6

As a user, I would like to be able to login into my account for VirtuCards.

#	Description	Estimated Time	Owner
1	Create a login method	2 hours	June
2	Validate entered credentials using Firebase	3 hours	June
3	Display an error message for invalid credentials	1 hour	June
4	Create a confirmation message if the login was successful	1 hour	June
5	Design unit tests to verify that a user can log into an existing account	3 hours	Ryan

Acceptance Criteria:

- Given that a user has an account, when they input their credentials, the credentials are validated and the user is notified if the login was successful.
- Given that Firebase is set up correctly, when the user inputs credentials that already exist, then they are shown an error message.
- Given that a user has an account, when they input invalid credentials, they are shown an error message.

User Story #7

As a user, I would like to reset my password, in the event I forget.

#	Description	Estimated Time	Owner
1	Create a <i>Forgot Password</i> button	1 hour	Shayne
2	Create an interface to enter the email address linked to the account	1 hour	Shayne
3	Generate a Reset Password Code	1 hour	Shayne
4	Send email to user with Reset Password Code	2 hours	Shayne
5	Method to validate the Reset Password Code in client.	1 hour	Shayne
6	Update password on Firebase	1 hour	Shayne
7	Create unit tests to verify that a password can be reset	3 hours	Kade

Acceptance Criteria

- Given that a user has forgotten their password, when they press the *Forgot Password* button, they are able to recover their account.
- Given that a user is a valid user, when they press the *Forgot Password* button, they receive an email with a password recovery code.
- Given that a user had a prior account, when they enter the correct password recovery code, they are able to reset their password.
- Given that a user had a prior account, when they enter the incorrect password recovery code, they are shown an error message.
- Given that a password reset email is sent properly and the user receives it, when they go through the instructions given they are able to regain access to their account and their new password is updated properly in Firebase.

User Story #8

As a user, I would like to login with my Google account.

#	Description	Estimated Time	Owner
1	Set up Firebase to allow Google authentication	3 hours	Umang
2	Open Google Sign-in window	2 hours	Umang
3	If an account with VirtuCard linked to the Google Account doesn't exist, create a new account	4 hours	Umang
4	If an account with VirtuCard linked to the Google Account exists, display a confirmation message	2 hours	Umang
5	Display error message if sign-in with Google Account fails	1 hour	Umang

Acceptance Criteria

- Given that a user would like to create an account for the game, when they press the *Login with Google* button, the Google Sign-In interface is loaded.
- Given that a user would like to create an account for the game, when they press the *Login with Google* button, they can create a new VirtuCard account using their Google account.
- Given that a user has a valid Google account and a VirtuCard account, when they press the *Login with Google* button, they are able to successfully log into the app.
- Given that a user doesn't have a valid Google account or closes the signing in page, when they press *Login with Google* button, they receive an error message.

User Story #9

As a user, I would like to login with my Facebook account

#	Description	Estimated Time	Owner
1	Set up Firebase to allow Facebook authentication	3 hours	Umang
2	Open Facebook sign-in window	2 hours	Umang
3	If an account with VirtuCard linked to the Facebook Account doesn't exist, create a new account	4 hours	Umang
4	If an account with VirtuCard linked to the Facebook Account exists, display a confirmation message	2 hours	Umang

5	Display error message if sign-in with Facebook Account fails	1 hour	Umang
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Acceptance Criteria

- Given that a user would like to create an account for the game, when they press the *Login with Facebook* button, they can create a new VirtuCard account using their Facebook account.
- Given that a user has a valid Facebook account and a VirtuCard account, when they press the *Login with Facebook* button, they are able to successfully log into the app.
- Given that a user doesn't have a valid Facebook account or closes the signing in page, when they press *Login with Facebook* button, they receive an error message.

User Story #10

As a user, I would like the option to play as a guest, not having to make an account.

#	Description	Estimated Time	Owner
1	Add a " <i>Play as Guest</i> " button	1 hour	Aryan
2	Deny access to the profile/statistics page unless signed in.	2 hours	Aryan
3	Generate a temporary random name for the user	1 hour	Aryan
4	Ensure the random name is unique in Photon	1 hour	Aryan
5	Discard name upon exiting the game	1 hour	Aryan
6	Add unit tests that check if a player can play as a guest, receive a random username and ensure name is unique	3 hours	Shayne

Acceptance Criteria

- Given that a user wouldn't like to login, when they press the *Play as Guest* button, they can choose to play using a guest account.
- Given that a user is a guest, when they attempt to open the profile or statistics page, it is not visible to them.
- Given that a user is a guest, when they open the app, they're assigned a name of the form "*Anonymous#####*", where each of the hashes are any alphanumeric characters, such that the name is unique.
- Given that a user is a guest, when they have finished playing a game, their profile is destroyed upon exiting the application.

User Story #11

As a user hosting the game, I would like to be able to join the game room through my phone as a game player.

#	Description	Estimated Time	Owner
1	Show option while creating game to allow host account to join game	2 hours	Kade
2	If the host account attempts to join the game from an app, check if the user setting was enabled.	2 hours	Ryan
3	If setting is disabled, show error message while attempting to join	2 hours	June
4	Create unit tests to ensure a person can join as a player from their mobile device if they have already created a lobby from their laptop or desktop computer	3 hours	Aryan

Acceptance Criteria:

- Given that a host has created a game, when they toggle the setting for allowing the host, the host should accordingly be allowed/barred from joining the game.
- Given that a user on a mobile device is the host, when they attempt to join the game, they should not be allowed if the option is disabled and an error message should be displayed.
- Given that a user on a mobile is the host, when they attempt to join the game, they should be allowed if the option is enabled.

User Story #12

As a user, I would like to view the actions of other players in real-time and without any delay.

#	Description	Estimated Time	Owner
1	Set up Photon to synchronize multiplayer user actions	5 hours	Shayne
2	Account for the delay while displaying information to the other players	4 hours	Shayne
3	Show status of a current, active player based if it's their turn to play	2 hours	June
4	Show status of passive waiting for their turn	1 hour	June
5	Design unit tests that evaluate the propagation delay between user actions and the appropriate response from the server	3 hours	June

Acceptance Criteria

- Given Photon is implemented correctly, when the user is playing a game with multiple people, then the gameplay is smooth and without any significant delays
- Given that the status algorithm is correctly implemented, when the players are unsure of their next actions, they can view the status of other players and if it is their turn
- Given that the compensation for delay is implemented correctly, when the user has lag, then the game will still be matched with everybody else.

User Story #13

As a user, I would like to draw cards from the table using my mobile device.

#	Description	Estimated Time	Owner
1	Once the game has started, have a button to allow the player to draw a number of cards from the table	2 hours	Ryan
2	Only enable button this if it is an allowed move and it is their turn.	2 hours	Ryan
3	Add the cards to the player's hand	2 hours	Ryan
4	Remove the cards from the deck	2 hours	Kade
5	Create unit tests that check that a player can draw cards successfully	4 hours	Kade

Acceptance Criteria

- Given that the game has begun, when a player requires more cards, they can be given cards from the game deck by clicking a button.
- Given that a player's turn allows for drawing of cards, when a player draws cards, they are allowed to draw some and those cards are then added to the player's hand.
- Given that a player has drawn cards, those cards are removed from the global game deck.
- Given that the buttons are implemented correctly, when the user tries to get the card when it is not their turn, the button will not be available for the player.

User Story #14

As a user, I would like to play the cards I have been dealt with on the table, from my mobile device.

#	Description	Estimated Time	Owner
1	Once the game has started, allow the user to select a card and play it	3 hours	Ryan
2	Update the interface to display the selected card by the user	2 hours	Shayne

3	Verify if the selected card is valid to play according to the game rules	2 hours	Kade
4	Remove card from a player's hand, add it to played cards on the common screen.	3 hours	June
5	Create unit tests that verify that a player can play valid cards during a game	4 hours	Ryan

Acceptance Criteria

- Given that the user is in an active game, when the user has chosen a valid card to play, allow them to play it at the table.
- Given that the user has chosen a card to play, when the card intended to be played is invalid according to game rules, prevent the user from playing the card.
- Given that the user is in an active game, when the user has played a card, update the display of the player's hand and the common screen to depict the move.
- Given that the user has played a card, when the played card is determined to be a valid play and everything has been updated properly, move the turn to the next player.

User Story #15

As a user, I would like to be able to pass my turn.

#	Description	Estimated Time	Owner
1	Add a button that allows the user to skip their turn	1 hours	Kade
2	Verify if the game rules allow skipping their turn	1 hour	Ryan
3	Pass the turn to the next player, notifying the player	2 hours	Ryan
4	Implement unit tests that check a player can skip their turn	2 hours	Kade

Acceptance Criteria

- Given that the turn rotation falls on a player, when they look at their user interface, there should be a *Skip Turn* button.
- Given that a game's rules do not allow skipping a player's turn, when they press the *Skip Turn* button, they should be met with an error message.
- Given that the user meets the criteria to skip their turn, when they press the *Skip Turn* button, the turn rotation is moved to the next player.

User Story #16

As a user, I would like to be able to send public messages to the game lobby.

#	Description	Estimated Time	Owner
1	Set up a chat operation to send and receive messages using Photon while in the game room.	3 hours	Aryan
2	Create a message button and interface on the user's screen to send messages	2 hours	June
3	Allow message display to be hidden/unhidden with a button	2 hours	June
4	Create unit tests that verify messages can be sent from a player to all other players	4 hours	June

Acceptance Criteria

- Given that the user is in a game room, when the user presses the message button, the chat interface is loaded into their device's screen.
- Given that the user wants to send a message, when the chat interface is loaded, the *Send Button* delivers the message to the Photon server.
- Given that a message is received on the Photon server, it should redirect the message to all connected players and the host.
- Given that the user is in a game room, when the user no longer wishes to view the chat log, the button should hide the message display.

User Story #17

As a user, I would like to be able to view public messages on the common screen shared between players.

#	Description	Estimated Time	Owner
1	Create a public chat log that is shown on the common screen	2 hours	Kade
2	Update chat when messages come in.	1 hour	Kade
3	Display sent messages on other user's screens	2 hours	Ryan
4	If chosen by the host, the chat should not be displayed on the shared screen.	2 hours	Ryan
5	Design unit tests to verify that the public messages are displayed	2 hours	Kade

Acceptance Criteria

- Given that the host has allowed for there to be a public chat, when the users send messages, the common screen properly displays messages.
- Given that the host has allowed for there to be a public chat, when the users send messages, the common screen displays a certain number of past messages that fit onto the screen.
- Given that the host has chosen to disable chat, when the users have sent messages, the interface will be disabled on the shared screen.
- Given that the chat is implemented correctly, when the user sends something, then the message should be visible on the common screen and the mobile device.

User Story #18

As a user hosting the game, I would like to be able to disable the chat option, if it may be detrimental to the game experience

#	Description	Estimated Time	Owner
1	Add an option in the Create Game screen to turn off the chat feature for the entire game	2 hours	Shayne
2	Add a button to <i>Disable Chat</i> on the host's device during the Game	1 hour	Kade
3	Enable/Disable Chat as the button is toggled.	2 hours	Aryan
4	Ensure players are not able to access the chat interface once disabled.	3 hours	June
5	Implement unit tests to check that chat is either displayed or hidden depending on the game settings	2 hours	Ryan

Acceptance Criteria

- Given that the host has started a game, when they click the *Disable Chat* button, they are able to disable the chat feature from all players.
- Given that the host decides to disable the chat feature, when they disable the chat, the gameplay is not disrupted and other players are able to view this decision of the host.
- Given that a request is made to disable the chat, when there are past chat messages, the past messages can not be seen by anyone.
- Given that a request is made to disable the chat, when players attempt to send messages, there will be an error message.

Remaining Backlog

Functional Requirements

1. Game Host

As a user hosting the game,

- ~~a. I would like to be able to create a game lobby on my laptop/desktop as a common external screen, acting as a table.~~
- ~~b. I would like to create a game lobby easily.~~
- ~~c. I would like to be able to allow my friends to join my game using a generated join code.~~
- d. I would also like the option to invite my friends to join my game.
- e. I would like to have the cards played by the game players on their mobile appear on the shared screen.
- f. I would like to have the option to play another game with the same players at the end of a game.
- g. I would like to have the option to play games with rules, like Go Fish.
- h. I would like to have the option to play games whose rules aren't in the library of VirtuCards.
- i. I would like to declare a winner for games whose rules aren't in the library of VirtuCards.
- j. I would like to be able to choose my preferred game easily.
- k. I would like to be able to kick players from the game, when necessary.
- l. I would like to be able to mute the chat if needed.
- m. I would like to have songs being played from a queue from the common external screen if time allows.
- n. I would like to be able to remove songs from the queue played by the shared screen if time allows.
- o. I would like to be able to shuffle the songs currently in the queue if time allows.
- p. I would like to be able to set a timer for each player to play their move.
- q. I would like to choose custom backgrounds for the table.
- ~~r. I would like to be able to join the game lobby through my phone as a game player.~~
- s. I would like to be able to shuffle the deck of cards easily.

2. Account Management

As a user,

- ~~a. I would like to be able to register for an account for VirtuCards.~~
- ~~b. I would like to be able to login into my account for VirtuCards.~~
- ~~c. I would like to reset my password, in the event I forget.~~
- ~~d. I would like to login with my Google account.~~
- ~~e. I would like to login with my Facebook account if time allows.~~
- ~~f. I would like the option to play as a guest, not having to make an account.~~
- g. I would like to select an avatar from a given list to represent me

- h. I would like to upload a custom photo as my avatar
- i. I would like to have my avatar and other details linked to my account, allowing me to sign in to different devices with the same account
- j. I would like to be able to change my username.
- k. I would like to search for my friends on VirtuCards with their usernames.

3. Gameplay

As a user,

- ~~a. I would like to join the game host's common screen on my mobile device through the join code the host provides.~~
- ~~b. I would like to view the actions of other players in real-time and without any delay.~~
- c. I would like to be able to accept invites from a game host to join their game.
- d. I would like to view the cards that I have been dealt at the beginning of the round from my mobile device.
- ~~e. I would like to play the cards I have been dealt with on the table, from my mobile device.~~
- ~~f. I would like to draw cards from the table using my mobile device.~~
- ~~g. I would like to be able to pass my turn.~~
- h. I would like to be able to fold my hand.
- i. I would like to be able to see the number of games I have won and lost if time allows.
- j. I would like for the cards held by each player to be visible on the shared screen, hidden face down.

4. Messaging

As a user,

- a. I would like to be able to send and receive private messages to others in the same game lobby.
- ~~b. I would like to be able to send public messages to the game lobby.~~
- ~~c. I would like to be able to view public messages on the common screen shared between players.~~
- d. I would like to use a default messaging system to say something very fast.
- e. I would like to have the option of censoring profanity in the chat
- f. I would like to have default animated reactions I can use, like "Boiler Up!", if time allows.
- ~~g. I would like to be able to disable the chat option, if it may be detrimental to the game experience~~

5. Social Interactions

As a user,

- a. I would like to have an indication of a winner, allowing us to end a game.
- b. I would like to have the games I play have the rules related to the game enforced, ensuring only legal moves are allowed.

- c. I would like to be able to see where I stand compared to my peers if time allows.
- d. I would like to choose a custom card sleeve for my group or myself.
- e. I would like to listen to the lobby's song playlist if time allows.
- f. I would like to add songs to the queue played by the shared screen if time allows.
- g. I would like to be able to hide my cards on my mobile device if I need to set my device in view of other players if time allows.

6. Miscellaneous

As a user,

- a. As a game player on Android, I would like to have achievements unlocked on Google Play Games for certain milestones if time allows.
- b. As a game player on iOS, I would like to have achievements unlocked on Game Center for certain milestones if time allows.
- c. I would like to be able to change game settings easily.
- d. I would like to be able to exit a game without disrupting the flow of play.
- e. I would like sound effects when an action happens on the screen if time allows.
- f. I would like haptic feedback when it is my turn to play or I make an illegal move.

Non-Functional Requirements

- **Security:**

As a developer,

- I would like to set up a secure Google Firebase authentication system to allow users to register and sign in using their email and password.
- I would like to set up alternative ways of signing in without passwords, such as Google, Facebook, and Apple accounts.
- I would like to ensure the only identification players can see regarding other players is their username and avatar.

- **Response Time**

As a user,

- I would like to be able to cycle through my cards with no visible lag.
- I would like my actions on my client game to appear on the host's screen in less than 500 ms.
- I would like the game to take less than 5 seconds to start on my mobile device.

- **Usability**

As a user,

- I would like the game to be easy to navigate.
- I would like the acts of playing and drawing cards to be simple.
- I would like all the options that I can perform visible in an uncluttered manner

- **Hosting/Development**

As a developer,

- I would like to use Unity to develop both the client-side and server-side.
- I would like to have the client-side and server-side developed as independently as possible to reduce dependency conflicts.
- I would like the game to be deployed to both Android and iOS if time allows.
- I would like to use Firebase's Realtime Database to store related information for each user such as their username, account avatar, list of friends, games played, games won and games lost, and a unique ID for that player.