

# **VirtuCards**

## **Project Backlog - Group 8**

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### **Problem Statement:**

In response to the COVID-19 pandemic, social distancing policies were implemented in public areas, which limited physical interaction and some social activities. One of these activities is playing card games with friends. In real-world situations, the card deck and other surfaces become points of contact between players. VirtuCards can replace this, as a mobile game with a common external screen that allows for in-person contactless play with a similar experience as before the pandemic.

### **Background Information:**

#### **Audience:**

The main audience for this game is anyone who has a smartphone, a basic understanding of how to use it, and some knowledge of playing different card games. We hope to make VirtuCards simple enough for anyone to learn how to use it and play it with their friends or family. Doing so would allow for VirtuCards to be used by a vast amount of players.

#### **Similar Platforms:**

There are already existing online card games that people can play, such as playingcards.io, UNO! for Mobile, Houseparty, and Tabletop Simulator. Even though these have a big audience for online card games with friends, it works differently than VirtuCards. playingcards.io focuses on playing synchronously online, UNO! For Mobile focuses specifically on the game UNO, Houseparty focuses more on video calling, and Tabletop Simulator also focuses on playing synchronously online. All of these games can also be played online without coming out to meet up with friends, which is not the goal of VirtuCards.

#### **Limitations**

While many of these existing platforms are fun and do allow users to play games with their friends over long distances, many of them are catered towards playing a singular game. We believe that users shouldn't have to download a plethora of apps to play multiple games. They can use one app to consolidate all of their card game needs. Most of the existing similar platforms are not usually centered around a traditional deck of playing cards. This can be unfamiliar and tedious to learn for older card game players who prefer games based on the standard deck of cards. We believe that allowing a free-play mode and incorporating a normal deck of cards can allow older users to enjoy all their favorite games. Our goal is to make our game's playstyle very similar to that of traditional cards to make learning the games very simple for all, regardless of age. Our virtual recreation of hands of cards on users'

phones and the deck (and played cards pile) on a shared screen allows users to play in small gatherings without the need for any physical contact.

### **Functional Requirements:**

1. As a game host, I would like to be able to create a game lobby on my laptop/desktop as a common external screen, acting as a table.
2. As a game host, I would like to create a game lobby easily.
3. As a game host, I would like to be able to allow my friends to join my game using a generated join code.
4. As a game host, I would also like the option to invite my friends to join my game.
5. As a game host, I would like to have the cards played by the game players on their mobile appear on the shared screen.
6. As a game host, I would like to have the option to play another game with the same players at the end of a game.
7. As a game host, I would like to have the option to play games whose rules aren't in the library of VirtuCards.
8. As a game host, I would like to declare a winner for games whose rules aren't in the library of VirtuCards.
9. As a game host, I would like to be able to choose my preferred game easily.
10. As a game host, I would like to be able to kick players from the game, when necessary.
11. As a game host, I would like to be able to mute the chat if needed.
12. As a game host, I would like to have songs being played from a queue from the common external screen, if time allows.
13. As a game host, I would like to be able to remove songs from the queue played by the shared screen, if time allows.
14. As a game host, I would like to be able to shuffle the songs currently in the queue, if time allows.
15. As a game host, I would like to be able to set a timer for each player to play their move.
16. As a game host, I would like to choose custom backgrounds for the table.
17. As a game host, I would like to be able to join the game lobby through my phone as a game player.
18. As a game host or game player, I would like to be able to shuffle the deck of cards easily.
19. As a game player, I would like to be able to register for an account for VirtuCards.
20. As a game player, I would like to be able to login into my account for VirtuCards.
21. As a game player, I would like to reset my password, in the event I forget.
22. As a game player, I would like to login with my Google account.
23. As a game player, I would like to login with my Facebook account, if time allows.
24. As a game player, I would like the option to play as a guest, not having to make an account.

25. As a game player, I would like to select an avatar from a given list to represent me
26. As a game player, I would like to upload a custom photo as my avatar
27. As a game player, 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
28. As a game player, I would like to be able to change my username.
29. As a game player, I would like to search for my friends on VirtuCards with their username.
30. As a game player, I would like to join the game host's common screen on my mobile device through the join code the host provides.
31. As a game player, I would like to listen to the lobby's song playlist, if time allows.
32. As a game player, I would like to add songs to the queue played by the shared screen, if time allows.
33. As a game player, I would like to view the actions of other players in real-time and without any delay.
34. As a game player, I would like to be able to accept invites from a game host to join their game.
35. As a game player, I would like to view the cards that I have been dealt at the beginning of the round from my mobile device.
36. As a game player, I would like to play the cards I have been dealt with on the table, from my mobile device.
37. As a game player, I would like to draw cards from the table using my mobile device.
38. As a game player, I would like to be able to pass my turn.
39. As a game player, I would like to be able to fold my hand.
40. As a game player, I would like to be able to see the number of games I have won and lost, if time allows.
41. As a game player, I would like for the cards held by each player to be visible on the shared screen, hidden face down.
42. As a game player, I would like to be able to send and receive private messages to others in the same game lobby.
43. As a game player, I would like to be able to send public messages to the game lobby.
44. As a game player, I would like to be able to view public messages on the common screen shared between players.
45. As a game player on Android, I would like to have achievements unlocked on Google Play Games for certain milestones, if time allows.
46. As a game player on iOS, I would like to have achievements unlocked on Game Center for certain milestones, if time allows.
47. As a game player, I would like to be able to change game settings easily.
48. As a game player, I would like to be able to exit a game without disrupting the flow of play.
49. As a game player, I would like sound effects when an action happens on the screen, if time allows.
50. As a game player, I would like haptic feedback when it is my turn to play or I make an illegal move.

51. As a game player, 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.
52. As a game player, I would like to use a default messaging system to say something very fast.
53. As a game player, I would like to have default animated reactions I can use, like “Boiler Up!”, if time allows.
54. As a part of a group of friends, I would like to have an indication of a winner, allowing us to end a game.
55. As a part of a group of friends, I would like to have the games I play have the rules related to the game enforced, ensuring only legal moves are allowed.
56. As a part of a group of friends, I would like to be able to see where I stand compared to my peers, if time allows.
57. As a part of a group of friends, I would like to choose a custom card sleeve for my group or myself.

## **Non-Functional Requirements:**

### **Development**

VirtuCards will be developed with a separate client-side and server-side. This will reduce the number of times we run into conflicts by not requiring other sections to be completed beforehand. This will also allow us to develop the game more quickly. Both sides will be created with the Unity game engine. Being we are planning to use the Unity engine, it can be deployed to Android and iOS if we decide to support both.

### **Security**

For handling account information, we will be using Google Firebase’s Authentication system, which allows for signing in not just through Email/Password, but also through Sign-in providers Google, Facebook, Apple, Play Games, and Game Center.

We then will use Firebase’s Realtime Database to store related information for each player, including their username, account avatar, list of friends, games played, games won and games lost, and a unique ID for that player. The only identification players will be able to see about another player is their username and avatar

### **Response Time**

Being VirtuCards is a game played amongst people that have a shared screen, it must have a low response time for playing and drawing cards. It cannot have a substantial amount of server-side lag, otherwise, there will be a noticeable time delay between users performing actions on the client-side and the server-side recognizing that change. If this delay is below 500ms it should allow enough time to complete all the computations required, and still allow for a smooth gameplay experience. Additionally, if a user is cycling through their hand of cards, there should be minimal lag and transitions to make it smooth. Cycling through

individual cards should be less than 100ms. Users would recognize the noticeable lag if it is too much higher.

### **Usability**

The game's interface will be intuitive, in an effort to create a smooth transition from physical card games to virtual ones. Our game seeks to serve as an alternative to regular card games, so family settings would usually have players of all ages. Our game will be user-friendly so that players of all ages can easily navigate the interface and focus on their strategy and gameplay. The web app shall be compatible with all browsers and screen sizes so setting up a shared screen will not be difficult and users can easily connect to it and it can act as the table for the game.

### **Hosting/Development**

The mobile game will be developed using the Unity Game Engine and multiplayer integration will be achieved using the Photon asset which can be imported into Unity. Builds for Android and iOS devices can be created using Unity. The web interface that acts as a shared screen will be created using Unity WebGL.