Insatiable Insatiable Inchworms Screen Sketches

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Actors/Use Cases

- In Game Roles
  - Players
    - Players who are actively in a game
  - Spectators/Betters
    - Users who are watching other players play
    - Allowed to bet on the outcome of said games – earn worm bucks
- Players out of Game
  - Participate in global chat and the users chosen club's chat
  - Report other offending players
  - Select and customize skins
  - Can buy/sell skins in the marketplace using worm bucks
- Administrators
  - View user submitted reports on other players
  - Can view chat logs filtered by players
  - Suspend or ban players

Non-functional Requirements

- Multiplayer functionality with 4 users per match and support 10+ active users
- UI elements outside gameplay load quickly, taking less than 1 second to respond to user input
- Gameplay display must have minimal delay of less than 0.5 seconds between user 1's input appearing to all users (spectators and players)
- Application should run on typical browsers (Chrome, Firefox)

Functional Requirements

- Users shall be able to purchase skins, and skins shall not provide any competitive advantage or disadvantage during gameplay.
- Gameplay time shall be limited to 60 second matches.
- Bets made earlier in the game shall have a higher monetary return from the user that placed the bet, than if the same bet was to be made by the same user later in the game.

- Spectator and Player user types shall be able to write, read, and send chats to the lobby chat, and the lobby chat shall not be visible outside the game lobby.
- Gameplay mechanics and input/output responses shall be handled by the backend game engine and communicated to the frontend via WebSocket.

Tables and Fields

- Users
    - Id (primary key)
    - Username (alt. Primary key)
    - Email (unique)
    - Password
    - SSN (for information resets) (unique)
    - Betting Streak (how many bets won in a row)
    - Club ID (ID of the user's club – user allowed 1 club)
    - Active Status (T/F)

- Cosmetics
    - ID (primary key)
    - Username (of the user connected to this account 1-1 for both) (unique)
    - Worm-bucks (User money)
    - Worm box – sub table that contains the skin counts of the cosmetics
- Marketplace - single table used for keeping prices and counts of available skins to buy/sell
    - ID (primary key) - since only 1 table, this is just used to find the table for frontend
    - Available – an integer array of the counts of each skin
    - Skins – a string array of the available skins
    - Base-prices – the base price of the skins used to calculate cost of the skins
    - Prices – the calculate prices of each of these skins based on the counts available
    - - Each of these arrays has the same length, and all of the values in index 0 correspond to one another (if index 0 of skins is "red" it also has the price given in index 0 of that array)

- Leaderboard
  - ID (Primary key)
  - Score
  - Win streak
  - User ID (references the User table and 1-1)
- Messages
  - ID (primary key)
  - Username (the username of the player who sent the message)
  - Clubname - the club name of the player (if applicable)
  - ClubID – the ID number of the player's club (used to determine what messages are shown to a player by club – shows messages of the same club id as the player)
  - Content – A string of the contents of the message
  - Sent – the time the message was sent
- Reports
  - ID (primary key)
  - Time – when the report was made
  - Username (who was reported)
  - Reported By (who reported this)
- Bets
  - ID (primary key)
  - UserID(who made the bet)
  - Position (an integer of which player position will win)
  - Multiplier (the rate the player will receive if they win the bet)
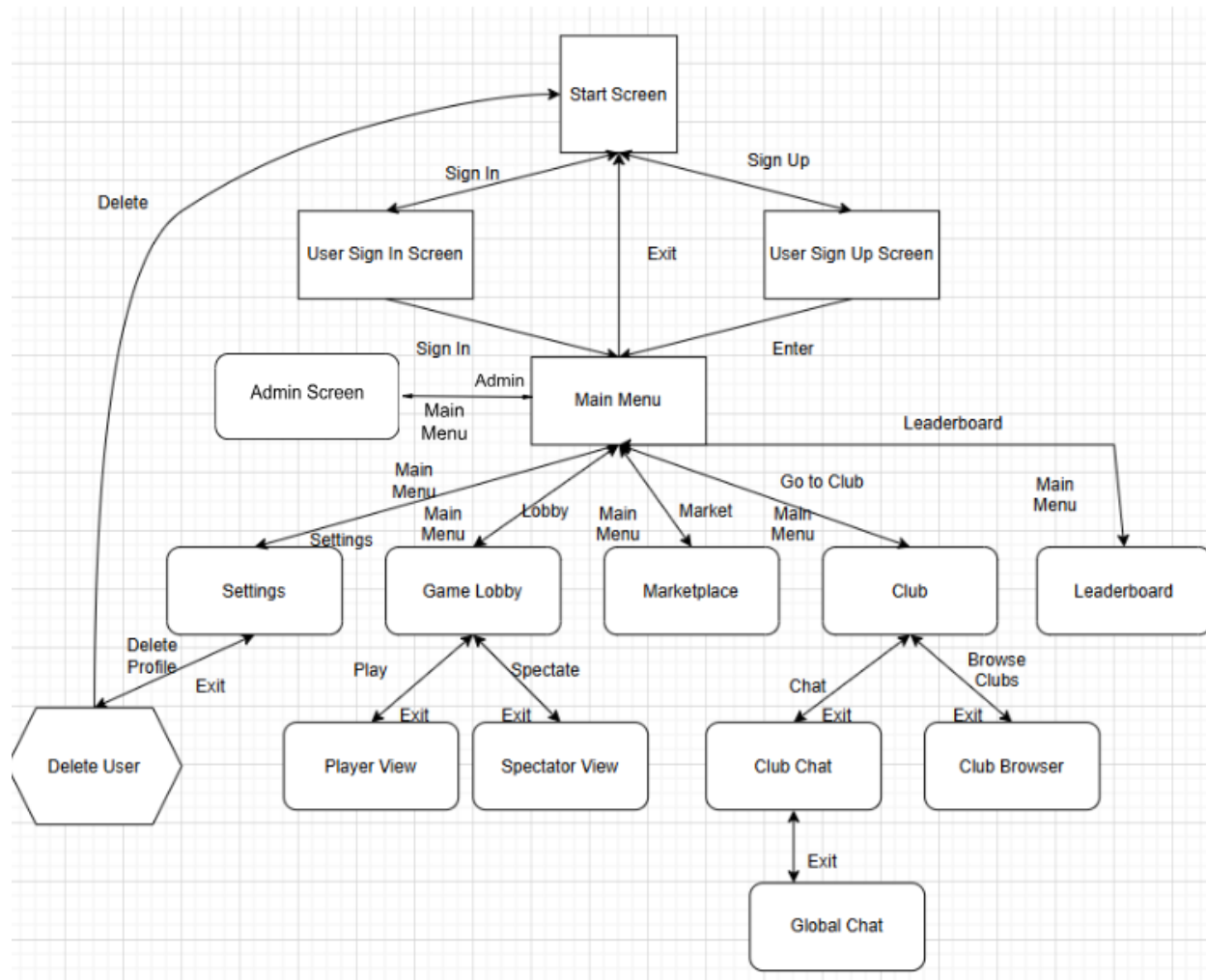 - Amount (how much is bet by the player)

Screen Flow Diagram

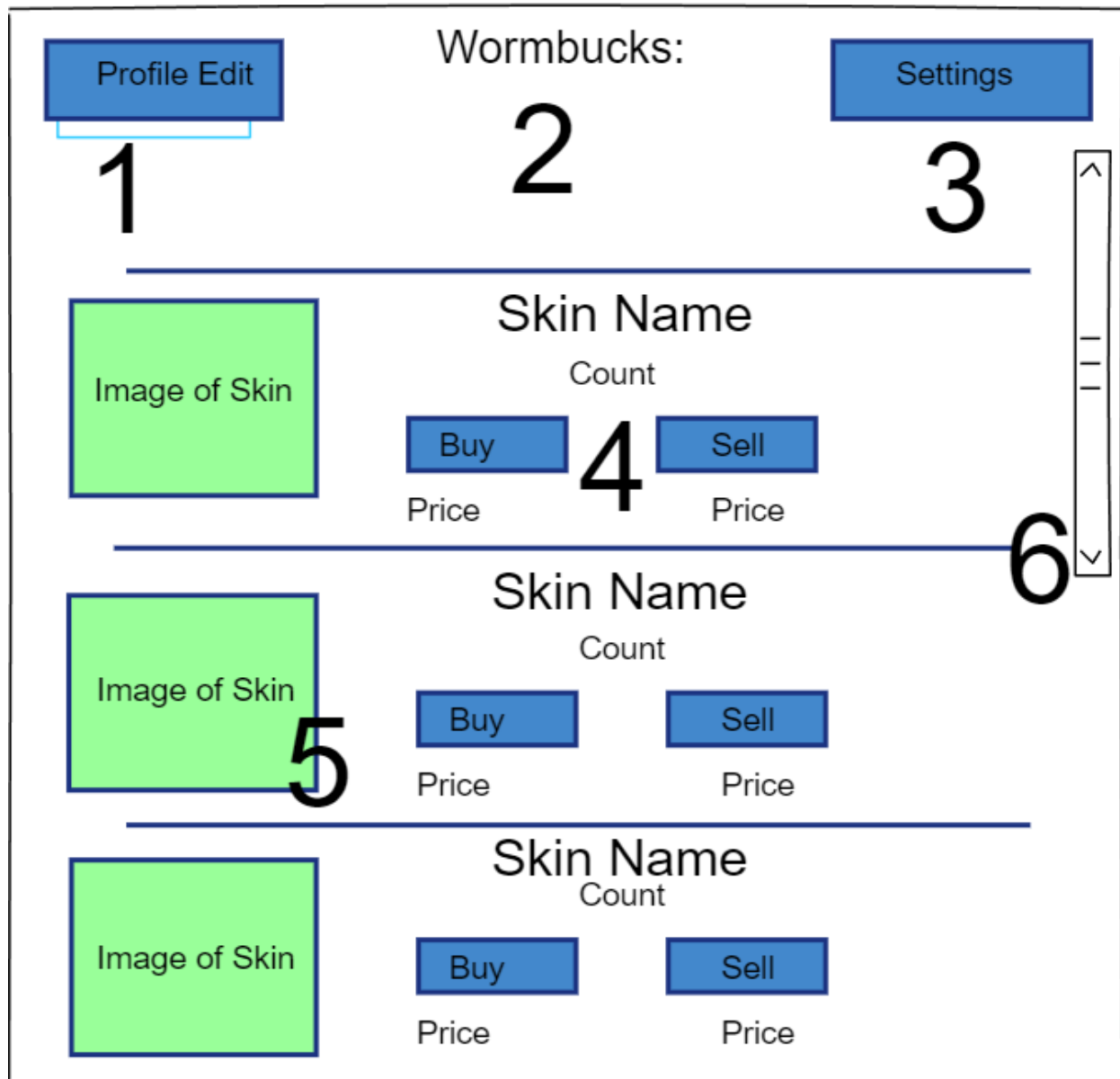Figure 1: Screen Navigation Diagram - Emmet

Screens

Figure 2: Marketplace Screen - Kaden

This screen shows all of the skins available to purchase. This screen can be reached via the main menu. The user can then return to the main menu screen via the "Profile Edit" button (1), or they may alter their settings by navigating to the settings page using the "Settings" button (3). Various pieces of information are taken from the user's cosmetics

table entry and from the marketplace table to display. The worm bucks count at the top (2) is pulled from the cosmetics table for the user so they know how much they can spend.

The information "Skin name", "count", and the two "price" text boxes (near 4) display information from the marketplace table for the skin in question. Each of these lines represent the name of the skin, the number of skins available to buy from the marketplace, and then the price to buy and sell the skin respectively. Note the sell price is cheaper than the buy price hence the separate labels.

A user can then click the "Buy" button (4) after which a check is performed to determine if they have enough worm bucks to purchase the skin. If they do, the skin is added to their cosmetics entry, the marketplace count is decreased by 1, and the prices for buy and sell are updated to reflect the new number of skins available. If they lack the funds nothing happens.

Similarly, the user can click "Sell" to sell the skin shown. A check is performed to confirm the user has at least 1 of the skin in question. If they do, the sell price is added to their worm bucks and their count for that skin is decreased by 1. The marketplace prices and counts then update to reflect the new number of skins. As hinted already, a user may own multiple copies of a skin, and if the market count for a skin reaches zero it can no longer be bought.

To the left of each skin is an image of the skin in question (5). There are also too many skins available to be displayed in one screen. As such, the user is able to scroll through the list of skins available (6).
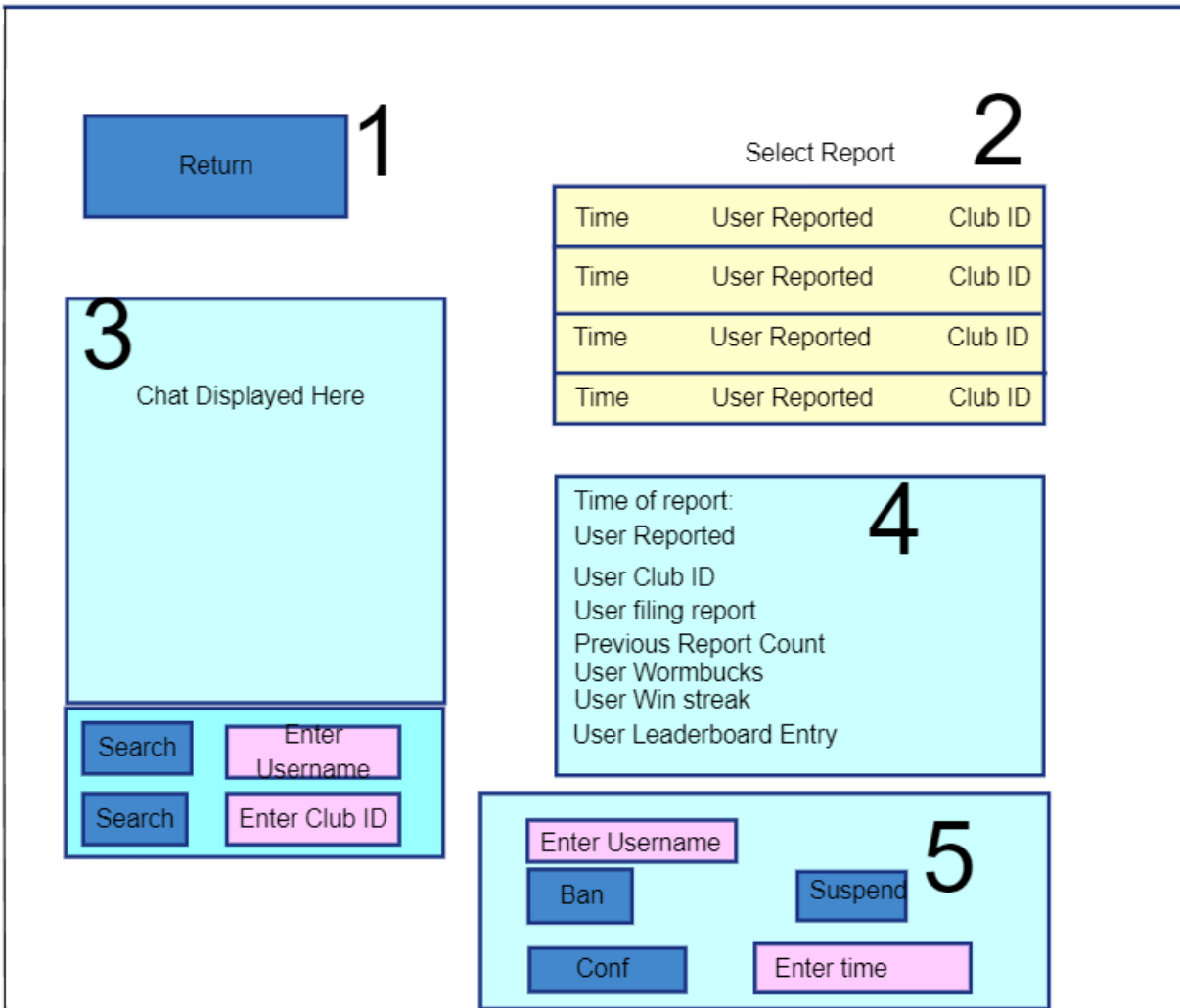
Figure 3: Administrator Screen – Kaden

This screen provides a panel of various administrative features for select actors (admins). This page is accessible from the main screen after login, but only by user accounts with the correct privileges. The top left corner has the "return" button (1) to go back to the main menu.

The table shown in the top right (2) represents a scrolling list of all of the currently unresolved reports. Each row of this scrolling list contains an entry from the reports table and information relevant to the report: time of report, who was reported and the club ID (as this is used to search for their club chat).

The admin is then able to use the window and search bar (3) to search for the chat logs of a given username, or search for chat logs for a given club (or the global chat if the global chat ID is inputted).

Upon clicking on a report from the scrollable list (2), more detailed information is supplied in the lower window (4). The basic information and extra information (who reported this, the number of prior reports, and game stats) is supplied. Game information is supplied for use in the event of suspected cheating.

Below this window is the panel for banning and suspending users (5). Here, the admin will type in the username of the player to be banned, and then select a ban or suspension. If a ban is selected, the admin simply hits confirm for it to take effect. For a suspension, the admin hits the suspension button, types in a time in hours in the below text box and then hits confirm.
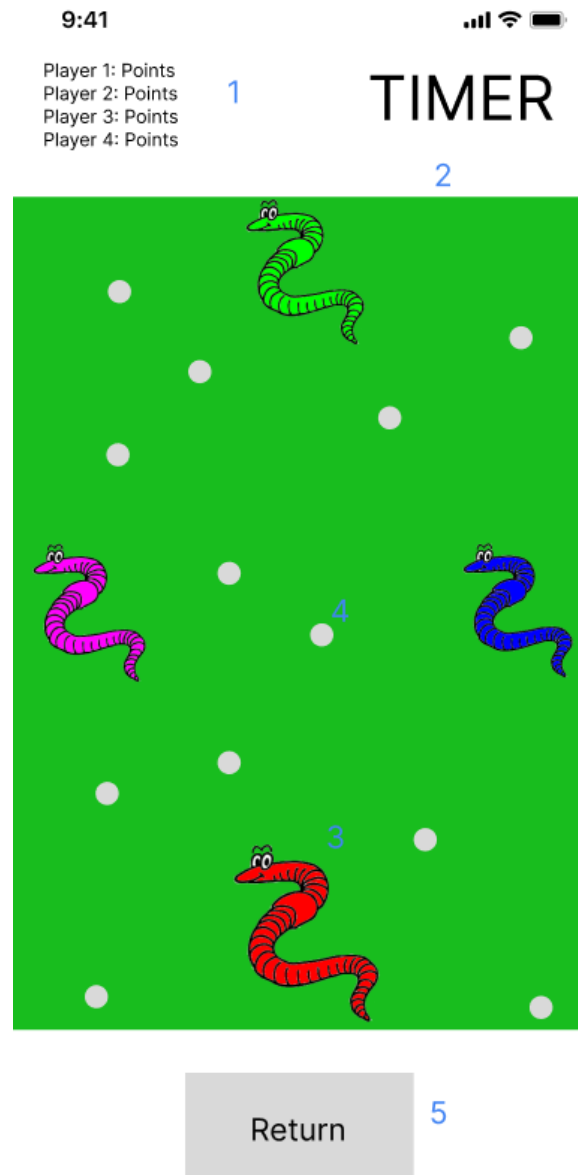
Figure 4: Gameplay Screen – Emmet

This screen provides the user gameplay experience. It is intentionally simple as to not add distractions to the user because the game will be quick and competitive. It provides only the bare necessary information the user needs to see during the game such as the current scoreboard (1) and the time left in the game (2).

The possible actions of the user are limited to only tapping the screen, anywhere, to extend the user's worm (3) to attempt to catch some balls (4) and score points. Due to the scope of this course, the skin picture will simply extend along with the hitbox. Any balls in contact with the hitbox will be registered as scored points for the user.

A savvy engineer would contemplate how the app will prevent button mashing approaches to winning the game, and the answer is that the group will implement a time delay for the extension and retraction of the user hitbox, but not for the time between taps. By constraining the animation instead of the input frequency, the group can use a more robust and simple game engine, which is critical to the scope of the course. The team also believes that by allowing the users to frequently tap the screen and score points within a very small time-frame, the gameplay experience will be more competitive, and therefore more enticing for users to return.

The return button (5) at the bottom of the screen will only be displayed after the game ends and will return the user to the lobby screen.
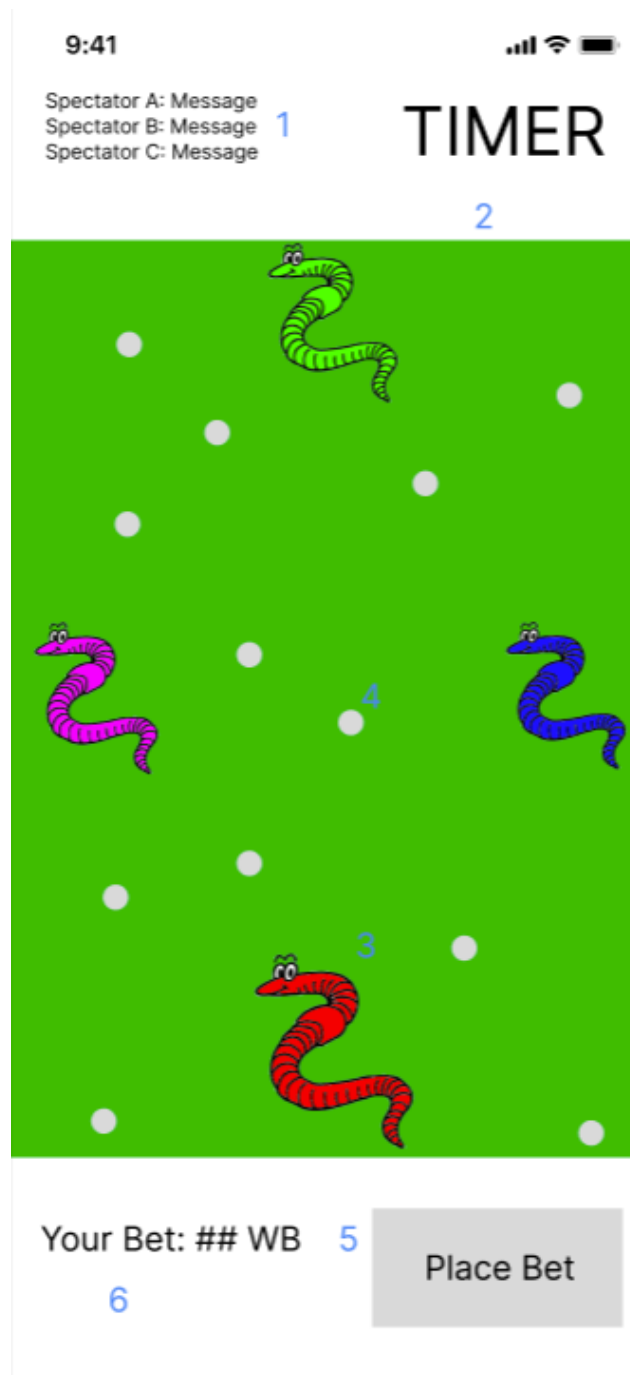
Figure 5: Spectator Gameview Screen

In this screen the user will be a spectator user type and cannot directly influence the gameplay. The function of this screen is to observe ongoing gameplay in a lobby. One primary attraction of this feature is the betting component. Spectators can place bets using the "Place Bet" button (5), and the bet information will be displayed to the left of the button at (6). The chat box (1), will display any chats made between the Spectors in the

lobby, and if feasible, the players in the game. The time left in the game will be displayed at (2), in the same spot as the player gameplay screen (see figure Z).

After the game ends, the bet button and bet information window will disappear, and be replaced with the return button (5) from figure Z. The user will be able to become a spectator by navigating to the game feature lobby screen and selecting a "Spectate" button as opposed to a "Play" button.

The design of this screen is intentionally simple, as bombarding a spectator with information, such as player statistics, would take away from the novel fun experienced with guessing a winner. The aim of Insatiable Insatiable Inchworms is to provide a simple and fun experience to all users, regardless of how much time they spend in the app. Another reason for keeping the bettor unaware of player statistics is because the house (the developers and any stakeholders) would have a more probable win return per match than if the bettors had player statistics to base their bets on.

Home   UserName   Help

User Settings

UserName Reset

Password Reset

Email Reset

Volume   100%

⬤

UI Scale   50% (Default)

⬤

(Account Standing Status)

Appeal Ban/Suspension

Deactivate Account

Figure 6: User Settings - Carter

This screen provides users with a convenient, easy to understand way to change basic game settings, as well as change their account information. This screen combines all functions users might need to manage their account as well as make the game more accessible.

The home button in the top left corner of the screen simply returns users to the main screen of the game, allowing them to easily get back to playing the game. The help button in the top right can give some information on how the information changing process works, as well as information on the banning/suspending process, and informing players how to appeal a ban/suspension.

The settings screen implements two different setting slider bars, allowing users to change a global volume option, raising or lowering the volume of the game independent of the device's volume level. There is also a slider for UI scale for those who have potentially worse eyesight and also accounting for the different sizes of devices that could be used.

Finally, the settings screen actively displays a user's account standing, which could be good standing, suspended, or banned, depending on the user's activities. There is a button that will allow users who are suspended/banned to appeal their ban and attempt to regain good standing. There is also an option to delete a user's account at the bottom of the screen and in a red box, so it is easy to find for those who want it and is easy to tell apart from options that simply edit user information due to the red coloration.

Home UserName

Current Standing

Position: ####   High Score: ####

Top 10 Users

Position: 1	High Score: ####
Position: 2	High Score: ####
Position: 3	High Score: ####
Position: 4	High Score: ####
Position: 5	High Score: ####
Position: 6	High Score: ####
Position: 7	High Score: ####
Position: 8	High Score: ####
Position: 9	High Score: ####
Position:10	High Score: ####

Hall Of Fame

Position: ####	WinStreak: ####
Position: ####	WinStreak: ####
Position: ####	WinStreak: ####
Position: ####	WinStreak: ####
Position: ####	WinStreak: ####
Position: ####	WinStreak: ####
Position: ####	WinStreak: ####
Position: ####	WinStreak: ####
Position: ####	WinStreak: ####
Position: ####	WinStreak: ####

Wall Of Shame

Position: ####	High Score: ####
Position: ####	High Score: ####
Position: ####	High Score: ####
Position: ####	High Score: ####
Position: ####	High Score: ####
Position: ####	High Score: ####
Position: ####	High Score: ####
Position: ####	High Score: ####
Position: ####	High Score: ####
Position: ####	High Score: ####

Figure 7: Leaderboard, Hall of Fame, Wall of Shame - Carter

This page gives users convenient access to a leaderboard, which should be directly accessible from the home page. This screen combines all the functions of the leaderboard into one screen, with no need for alternate menus or drop-down menus. This screen exists as a sort of motivator for players to improve their scores, immediately displaying each user's current standing at the top.

The first board to appear on this page is the top 10 board, which displays a real time list of all of the players with the highest scores from one individual game. We hope to inspire a very competitive atmosphere through this display. However, it will only be possible to

score so many points in one game, so we have another board to keep players motivated: the hall of fame. This displays the players with the longest current win streaks, which is a value that theoretically could increase infinitely. However, upon losing one game, a win streak is reset to 0, and any position held on this board is reset as well.

The final board displayed is the wall of shame, which features all of the players with the lowest high scores in the game. As players continue participating in the game, it will become harder to keep off of the wall of shame, inspiring players to continue pushing their performance in game and continue participating in the game generally.
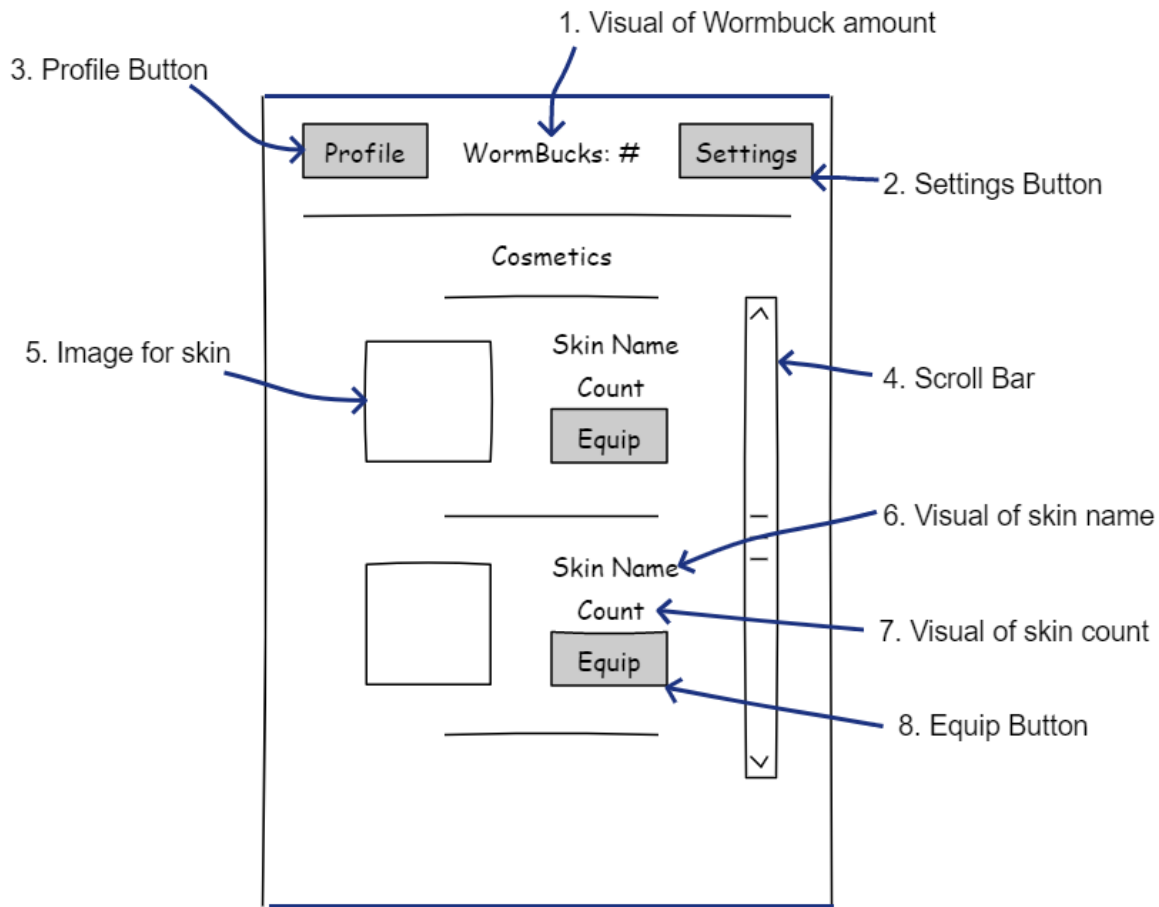
Figure 8: Cosmetics Screen - Jared

This screen shows all of the skins that the user currently has available to them. It is accessible for all individual users through the bottom navigation bar. From this screen, the user can also access the home, marketplace, club, and leaderboard main screens. If the user so chooses, they can edit their settings via the settings button (2) located on the top right of the screen. They can also edit their profile via the profile edit button (3) on the top right.

To populate the screen, the user's information is taken from a table located in the backend. This then updates the text field "Wormbucks: #" (1) to display the current amount of wormbucks that the user has. It will also update the skin image (5), the Skin Name text field (6), and a count

showing the amount of said skin that the user has (7) so that they all correctly represent the user's data.

If the user wants to equip a skin, they can click the "Equip" button (8). If the user currently owns the skin (owns at least one of the desired skin), then they will be able to successfully equip the skin. They will then be able to showcase this skin in the gameplay where there inchworm skin will represent the equipped skin.

Lastly, there are almost guaranteed to be too many skins that a user can choose from on any given screen, so the user can use the scroll bar (4) in order to view all of the skins that they can equip or look forward to buying in the future.
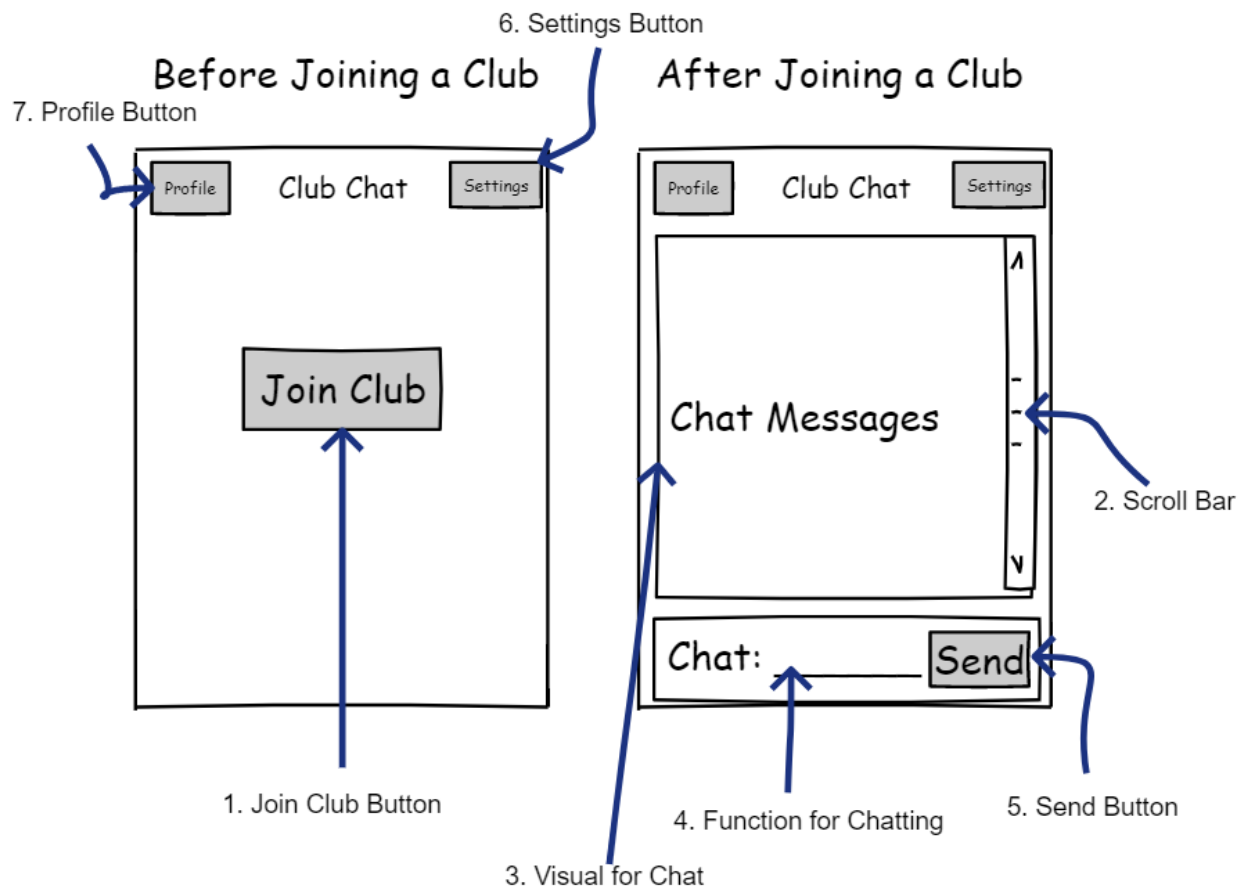
Figure 9: Club Chat Screen - Jared

This screen provides the user with an option to join a club and be able to talk to members of their club to form a sense of community. Users are able to access the club screen through the bottom navigation bar. From this screen, the user can also access the home, marketplace, cosmetics, and leaderboard main screens. If the user so chooses, they can edit their settings via the settings button (6) located on the top right of the screen. They can also edit their profile via the profile edit button (7) on the top right.

   If the user wants to join a club, they can press the "Join Club" button (1) where they will then be given options of existing clubs for them to choose from. Once the user picks a club to join, their club chat screen will then be populated with the existing club's chats (3) which are found using a Websocket. The user can now also chat in the club chat via the "Chat" Edit Text Field (4). To send any chats that the user has made, they can send a chat via the "Send" button (5).

Lastly, if the chats exceed the given size of the screen/view, the user is provided a scroll bar feature (2) for their convenience so that they can read through the chats that the club members have sent.