Feature Proposal Document: Descriptions of two requested feature changes that need to include a high-level description of the features, expected impacts on the systems and suggestions for implementation or design.

Team 1: Charlie

Feature Change 1 of View other player's profile function:

High-Level Description:

To address players' privacy preferences and enhance the social experience, this proposal introduces a friends feature and privacy controls, allowing players to manage who can view their profiles. Players will be able to select options to make their profiles visible to everyone, only friends, or completely private. Also, this update provides players with a customized experience, enabling them to control the visibility of specific profile sections, such as game stats, achievements, and play history.

Expected Impacts on the System:

1. Database Adjustments: New tables or fields will be needed to store friendship relationships and profile visibility settings for each player.
2. Increased Data Security Requirements: Since privacy settings are involved, additional data protection and access control checks will be required to enforce these settings accurately.
3. Enhanced Social Interaction: The friends feature could boost engagement, as players can connect with others and selectively share their achievements and stats.
4. Enhanced Data Consistency Requirements: The system must keep profile data consistent across all instances, reflecting privacy and friend status updates immediately. This may need real-time data syncing and updates to data caching strategies.
5. Real-Time Game Data Synchronization: Implement efficient data synchronization mechanisms to broadcast game events to authorized spectators. Consider using WebSockets or similar technologies for real-time data transmission to improve the user experience and reduce latency.

Implementation/Design Suggestions:

1. Privacy Settings Interface: On the profile settings page, add privacy options for each section of the profile, with options like "Visible to Everyone," "Visible to Friends Only," and "Private."
2. Friends Management System: Implement a friends list where players can send, accept, or decline friend requests. Only friends will have access to profiles with restricted visibility settings.
3. Access Control Logic: Modify the profile retrieval function to check each player's privacy settings and determine the visibility of each profile section before displaying it to other players.

4. Friend Request Limits and Cooldowns: Set daily limits and cooldown periods on friend requests to prevent spam and harassment, adding moderation to keep users from being overwhelmed by unwanted requests.
5. Access Control Logic for Spectators: Modify the game session retrieval function to check each player's spectator permissions before allowing a user to view the live game. This will help maintain the privacy and security of each game session.

Feature Change 2: Post-Game Play Again Feature:

High-Level Description:

Implementation of “Play Again” button/screen to employ friendly competition and rivalry, by allowing users to compete in a game once again in the post-game menu, allowing them tally wins against each other and to measure whomever has the natural competitive advantage. This screen could also display the other player’s username. This would contribute to the community building aspect of the application, as recommended by the project document.

Expected Impacts on the System:

1. Enhanced Competition: Two players can now play multiple games in a row against each other without needing to rejoin the game queue. Players have the opportunity to build stronger connections using the in-game chat feature over multiple matches of a game.
2. Increased Community Building: Players can form stronger connections with other players through friendly competition. Additional functionality could include adding players to a friends list or having a search function to search for a player by their username post-game.
3. Improved User Interaction: Having a “play again” screen would make it easier for players to play multiple games in a row. This would improve the usability and encourage users to play more games.

Implementation / Design Suggestions:

1. Viewing Player’s Account: On the post-game menu, the other player’s profile image or username can be displayed with the button to play them again.
2. Play Again Proposal: When a player chooses to play a game again with the same opponent, an offer to play again is sent to the opponent. If the opponent accepts, a new game begins. If they deny, the player is notified and can choose to either exit the game or play again with a random opponent.
3. Notification System: A notification is sent to the other player when an offer to play the game again is made. From there, the other player can either accept or deny. This can be implemented as a popup screen.
4. Reconnecting Back into Match: While playing a match, if a player gets disconnected for any reason, they have a small period of time to reconnect back into the match before the match stops.

Team 2: Delta

Feature Change 1: Enhanced In-Game Chat with Emoji and Moderation

High-Level Description:

Expand the in-game chat feature by adding emoji support and automated moderation to filter inappropriate language. This will make the chat more expressive and safe, improving the social interaction aspect of the game.

Expected Impacts on the System:

1. Data Filtering Requirements: Requires an automated moderation layer to scan for inappropriate content in real time.
2. Resource Usage: Emoji rendering and language filtering could add minimal processing demands but enhance user satisfaction.
3. Positive Player Experience: A friendly and moderated chat will encourage more interaction between players and keep the environment positive.

Implementation/Design Suggestions:

- Emoji Library Integration: Integrate an emoji library with the chat interface, allowing players to use emojis in messages.
- Real-Time Moderation: Implement a lightweight NLP-based filtering tool or a keyword-matching system for inappropriate language detection.
- User Settings for Chat: Allow players to mute or restrict chats for a personalized experience.

Feature Improvement 2: Advanced Match Notification System

High-Level Description:

Enhance the “Queue Match” and “Challenge Player” features by introducing advanced notifications. Notifications could inform users about estimated wait times in the queue or notify challenged players about incoming requests, providing real-time feedback and improving transparency.

Expected Impacts on the System:

1. Real-Time Feedback: Keeps players informed about match progress, improving user engagement and reducing frustration.
2. Better Matchmaking Experience: Encourages players to remain engaged during matchmaking by setting realistic expectations.
3. Increased Retention: By keeping users informed, they are less likely to abandon the queue or reject challenges.

Implementation/Design Suggestions:

- **Dynamic Messaging System:**
    - Create a library of pre-written phrases, such as:
    - *“Searching for an evenly matched opponent…”*
    - *“Polishing the chessboard…”*
    - *“Looking for a worthy rival…”*
    - *“The hunt for your next challenger begins!”*

  Randomly rotate through these messages to keep the experience fresh.

- **Smooth Transitions:** Use animations or subtle transitions when switching between messages to make the wait time feel shorter.
- **Optional Interaction During Wait:** Add fun or interactive elements while waiting, such as showing tips for the game or small trivia about the gameplay.