Networking Model

We plan to expand our load/safe function to the server, which will contain a file (as simple as a txt file or a custom-encoded file). Users will have the option to engage in random matchmaking or join a game with friends using a unique code. Once the game begins, a specific file with a unique ID will be created on the server. The game will prompt all users to input their information (name, age, and color) once the lobby is full with 4 players or the host chooses to start the game. After all players have entered their information and clicked the ready button, the game will begin. The game must be synchronous, meaning one player cannot take their turn before the previous player has completed theirs. During a player's turn, the game will run as usual. After they finish their turn and click the next turn button, the app will send a pulse to the server, which will refresh all players' boards to reflect the changes made by player 1. Similarly, when player 2 finishes their turn and clicks the next turn button, the game will update all boards and pass access to player 3. To ensure smooth gameplay, there will be two timers: one for rolling the dice and another for choosing a combination. If a player fails to roll the dice within the given time, it will skip to the next player. If a player fails to choose a combination within the allotted time after rolling the dice, the AI will choose a random combination for them. If a player misses their turn twice in a row, the AI will take over their spot to ensure smooth gameplay. When a player wins, the game will end, and all boards will update to reflect the change. The game will then update individual scores and the leaderboard.

Alternative 1: Multiple players can have the same color, as they will see different colors from their perspectives since they are using different devices.

Alternative 2: All registered players will have a profile backed up on the server that will update after every game they play. If someone is not registered, they can still play the game but cannot be included in the leaderboard.

Alternative 3: Eventually, we will add real time update where all the boards will update every time a flag is posted or moved up the order or busted. That will make the game more exciting to the other players.