

Concept document of Multiplayer Aeroplane Chess web application

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- What game are you going to build?

We are going to build a board game called aeroplane chess. This is a traditional board game which is popular in China. As a Chinese, this is one of the best childhood memory to me. The game is similar to the western game of Ludo but using airplane feature as pieces.

This game has a required and fixed game board with 52 spaces filling the board in a circle shape. It can be played by at least two players and at most four players. Each player chooses their own color from green, blue, red and yellow, and start the game from the corner of their chosen color with four pieces. Basic rule is that each player takes turns to roll a die and move their pieces accordingly. Whoever move all his/her four pieces to the ending point win the game. There are more detailed rules that bring the interaction between players and add fun to this game, and these rules will be illustrated below.

- Is the game well specified (e.g. Reversi) or will it require some game work (e.g. a monster battle game)?

This game has well specified rules:

Player can only “launch” their “airplanes” by rolling at 6. If you already have at least one “launched” piece but did not launch all the pieces, you can choose to launch another piece or take one additional roll if you roll a 6.

When a piece lands on the space with the same color of itself, it can jump to the next space with this color, which is 4 spaces closer to the ending point.

If one of your piece lands on the opponent’s piece, you can “shoot down” this piece which sends the opponent’s piece back to the starting camp. Like other un-launched piece, this piece will need to wait for another “6” to launch.

There are additional shortcut squares on the game board, and each color only has one of this shortcut square. If your piece lands on this square, you can jump 12 spaces.

There might be some variance regarding the specific rules, for example, some version of the game allows a launch on a roll of 5 or 6. However, these rules are based on our own childhood memory, and it’s the combination of the version we played. We set up these rules after a discussion.

- Game Functionality that may be Cut

1. Home Zone Backtrack Rule

If a player cannot move pieces into the center base by an exact roll of the die, then they must move their piece backwards according to number rolled. We will

firstly allow a piece to reach the center with any rolling number that larger than the number of remaining steps.

2. 3D Dice

Generally speaking, players will get more excitement with a 3D dice that can roll with a click. However, drawing a rolling dice may cost us much time, so we will currently use a button that gives a random number instead of the dice.

- Challenges

1. Remembering Previous Moves

In this game, players should move their previous 2 pieces that moved by their 6s back with a third 6 coming out. Therefore, keeping record of a user's previous moves is an issue.

2. Representing Chessboard

Aeroplane does not have a regular chessboard shape. It looks like grid chessboard, but is more complex than traditional chessboard. For example, the hangar and the center should hold four pieces, while others should hold one. Moreover, there are spaces that not hold pieces. This makes it difficult to choose a data structure to represent the game states in the chessboard.