Memorandum

DATE: September 28th, 2020
TO: CEOs of XYZ
FROM: Andrew Nedea, Jason Kemly
SUBJECT: Fish System Architecture

Our system consists of an airtower (a socket server), a referee (a thread that runs the game logic), and a game model (the internal state of the game).

Airtower
Communication with outside clients will solely be done by way of the airtower, which will accept clients and parse their requests, while checking the validity of their packets. The airtower would fall in the logic tier of a typical system architecture, as it processes requests and hands them off to the appropriate handlers of the referee.

Referee
After ensuring the validity of the client requests, the airtower will hand off said requests to the referee, which will update the game model accordingly. If an invalid request is provided, then the referee will terminate the issuer of said request through the airtower. The referee will also feature two modes of operation, namely a "sign-up" mode wherein connecting users can register to play, and a "play" mode, during which registered players can issue and receive game commands as the game progresses.

In the "sign-up" mode, the referee will use the data provided by the client to determine whether they have paid up the "entry fee" required to play by virtue of an API to an external payment system. The payment system leverages the information provided by the player (i.e. a token) and returns a flag to indicate the player's eligibility to play.

In the "play" mode, the referee will be responsible for determining whose turn it is, the range and validity of players' moves, whether a player is to be skipped or disconnected, game end, as well as the winners and losers at the end of the game. Moreover, whenever the internal game state changes, the referee will dispatch the updates to the players by way of the airtower. Moreover, the referee will leverage the same external payment system to issue rewards to winning players. The referee would also fall in the logic tier as it makes logical decisions and evaluations.

Model
The game model, on the other hand, maintains the internal representation of the game including, but not limited to, the list of players, individual player data, board layout, and other relevant game information that would be needed to keep players up to speed on what is happening in the game. The game model would fall in the data tier of a typical system architecture as it stores data for future retrieval and processing.