To: Investors

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Date: 09/28/2020

Subject: Software Components Necessary for Fish Game

Sign Up Service:

The sign up service processes requests from clients to handle player signup. This service should maintain an active record of which players are looking for a game. The signup service should have a public endpoint to handle new user registration, and some number of private endpoints to allow the Tournament service to see which users are looking for a game. The sign up service is in the domain layer of the three tier software design architecture.

Tournament Service:

The tournament service processes requests from users' clients and handles bracket creation, game creation, and player input. The tournament service should have a public endpoint to allow players to input moves in their current game, another public endpoint to allow player clients to view the game state, and some number of private endpoints to allow game service to conclude games. The tournament service is within the domain layer of the three-tier software design architecture as it processes input from the clients to handle the underlying logic behind the tournament, such as bracket creation.

Game Service:

The game service runs the actual fish games, and will include a model for representing the hexagonal grid board, player position/age/score. The game service will also keep enforce valid/invalid moves and calculate when there are no valid moves left for any player. When there are no valid moves left, it will send a response to the Tournament Service with the winner/s of the now concluded game. The game is located within the domain level of the three-tier structure, handling business logic which is eventually passed back to the tournament. Separating the game service (model) from the tournament service (registration) is important because we don't want the model to be exposed to the public.

Visual Interface (Client):

The game should have a client where the hackers are able to sign up for games and see how their AI is doing compared to the other people within the tournament. The Visual Interface is within the Presentation tier of the three-tier structure and includes at least two views:

- Sign Up Interface - allows users to sign up for a tournament. It presents the cost, estimated prize pool and number of players of each tournament and provides space for a user to pay and sign up
- Game Interface - hows users the current status of the game. It allows them to view their AI work in real time by displaying the game state in a visual way. Also provides a visual way to manually input moves

This client could be either web based or based on a GUI library in the language of our choice (Python)