

To: Dot Game CEOs  
From: Joseph Mullally and Mark Preschern  
Subject: System Description  
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Attached is our team's system description of the Fish game for Dot Games. We separated each paragraph by application layer: The model, view, and controller. The model will be composed of a Tile, GameModel, Player and Penguin, the Controller will dictate when player's can act, and the View will represent the components of our model in a GUI.

We plan to have a GameModel that contains a board of Tiles. The GameModel can keep track of the dimensions of the board, the position of all of the Tiles, and a list of Players in the game. The GameModel can also move a player's penguin from one tile to another by getting a list of possible positions a penguin can move to. A Tile represents a single hexagon on the game board. A Tile knows where it is in relation to the GameModel, the number of fish it has on it, and if the tile can be moved to. A Player is one of the AI players in the game and contains some personal information about the AI player as well as the number of fish it has collected. A Player is also able to observe the board and the number of fish on the tiles. Depending on the state of the game, the Player can also request to place or move penguins. If a player can't do anything, they will pass their turn. A Player has a number of Penguins that are able to move around the board. A Penguin knows where it is in relation to the GameModel and what team it's on.

We also plan to have a Controller that manages the game and acts as a referee. It can remove Tiles from the GameModel's board at the start of the game and assign Penguin and Player colors. It also allows Players to place Penguins on the GameModel's board until all Penguins have been placed. The Controller also keeps track of the order Players can perform their actions. In the event that all Players are unable to do anything aside from pass their turn, the Controller will determine the winner and end the game. Additionally, the Controller passes information between the GameModel and GameGui components.

Our View will be represented by our GameGui component. The GameGui draws the board Tiles from the GameModel, the Penguins on their respective Tiles, and lines to determine the path a Penguin can move. The GameGui also updates how the board looks when a player makes a move.