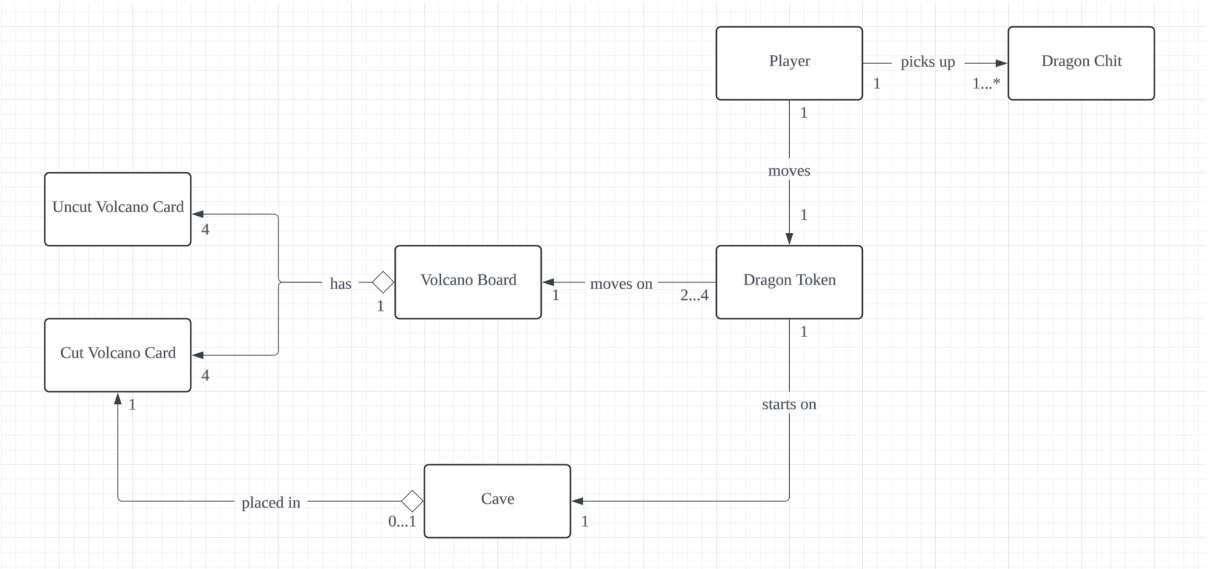
Domain Model for Fiery Dragons



Rationale for the Chosen Domain Model

The chosen domain model has been created in such a way where each entity serves a distinct purpose and is associated with others in a manner that reflects the game's mechanics and rules.

Player

This entity represents an individual player in the game. The player has a one to one association with dragon token since each player uses and moves only one token. The player also has a one to many association with dragon chit since the player needs to pick up at least one chit for every move.

Dragon Token

This entity represents the token that is moved by the player around the volcano board. The dragon token has a many to one association with the volcano board since there should be a minimum of 2 players in the game. Hence, at least two tokens move around on the volcano board, which only has one instance because there is only one board in the game. Moreover, the dragon token has to start at the cave at the start of the game before it can move onto the board. Hence, it has a one to one association with the cave.

Dragon Chit

The entity represents the dragon chits that are to be picked up by a player. The player has an association with it for 1…16 objects. While there are 16 instances of the chit, according to the game rules, it is impossible for a player to pick up all 16 cards in one turn. However, we assume a player can pick up to 16 while the condition for a player's turn to end is

implemented correctly according to the requirements (ie. if a player picks up a different animal to their token). This allows for simplicity in the code.

Volcano Board

This entity represents the round volcano board that the tokens move on. The volcano board consists of uncut and cut volcano cards so it has a one to many aggregation with both of those entities.

Cut / Uncut Volcano Card

These two entities represent the cut and uncut volcano cards that make up the whole volcano board. The board has a one to many aggregation to both cut and uncut cards with exactly 4 objects This is because, regardless of the number of the players, the board always consists of 4 cut and 4 uncut cards. The cut volcano card also has an aggregation with the cave since each cut card has one cave placed in it.

Cave

This entity represents the cave where the token starts at the beginning of the game. As mentioned before, it has an aggregation with a cut volcano card. We chose to use a 0..1 to 1 relation instead of 1 to 1, because we assume that caves are only placed in the card if there is a player. For example, if there are 2 players, there will be 2 caves and 2 cut volcano cards will not have a cave placed in it.

Discarded Alternative

Our team initially considered implementing a “GameController” entity to manage the overall flow and logic of the game. However, upon further consideration, it was decided to remove this entity from the domain model. The rationale behind this was to simplify the design and streamline the interactions between the existing entities. We were told having a GameController entity may be implemented but at a later stage. The need for an intermediary controller entity to associate player actions and the game components was not really needed at this point. This adjustment enhances clarity and reduces complexity within the domain model.