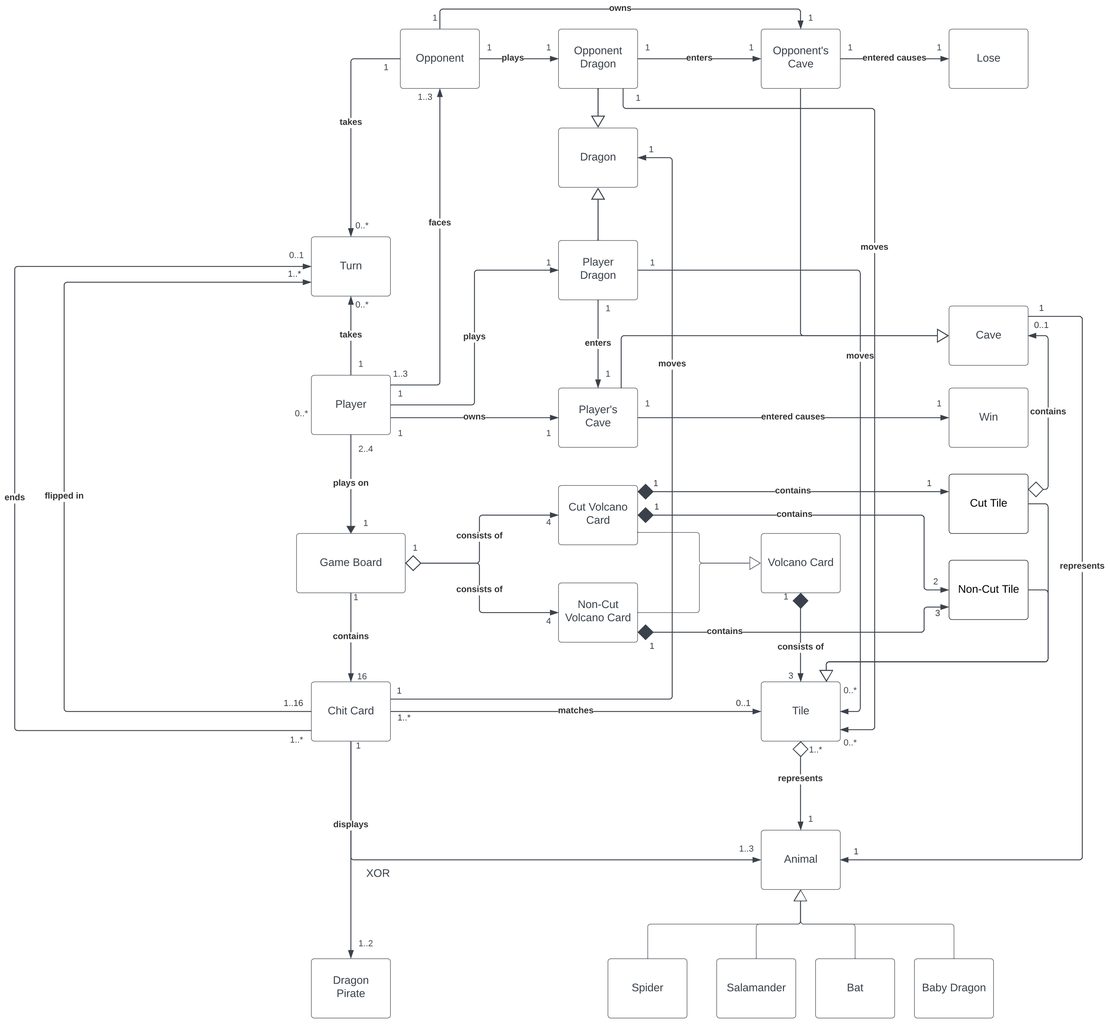

Entity Justifications

- Game Board: We needed to model the actual board that the players interact with in the game. This is represented by the Game Board entity.
- Chit Card: We needed to model the concept of chit cards that players can turn over. This entity represents those chit cards
- Volcano Card, Cut Volcano Card, Non-Cut Volcano Card: The Volcano Card entity was needed to model the concept of the available Volcano Cards in the game. Cut Volcano Card and Non-Cut Volcano Card were needed to model the differeing variants of the volcano cards, namely volvano cards with the cutout for the cave and without respectively.
- Tile, Cut Tile, Non-Cut Tile: In the game, each volcano card consists of Tiles on which the dragons can move to or stand on. The Tile entity was created to represent this concept. Each of these tiles can contain the cutout where the cave can be placed, or be regular tiles. This concept is modelled by Cut Tile and Non-Cut Tile respectively.
- Animal, Spider, Salamander, Bat, Baby Dragon. In the game, there is the concept of animals which are used in chit cards, the tiles in the volcano cards and the caves themselves. The animals that exist in the game are: Spider, Salamander, Bat and Baby Dragon. These entities serve to represent these animals, with Animal being the abstract entity as they have the same charateristics (i.e are all used in the same places.)
- Dragon Pirate: In Fiery Dragons, the Dragon Pirate is not an animal as it doesn't appear on tiles/caves, but does appear on the chit cards. Because it is not an Animal, it is standalone (i.e doesn't generalise Animal). This entity serves to represent the concept of the Dragon Pirate in the game.
- Player : We needed to model the player itself. This is represented by the player entity
- Opponents : We needed to model the opponents that each player faces. Depending on the player being referred to , the opponents are different. This entity represents each of the opponents the respective player faces
- Turn : We needed to model each turn the player or opponent may take. This is represented by the turn entity
- Dragon : We needed to dragon piece that each player uses to play the game. The general dragon piece without any specialisation is represented by this entity.
- Player/Opponent Dragon : We needed to model the dragon specialisation for the players dragon and opponents dragon separately. These two classes were needed to model the different dragons, the players dragon and the opponents dragon as they interact with the other entities differently
- Cave : We needed to model the caves that the player dragons start and end the game in. These caves are situated This is represented by the cave entity
- Player/Opponents Cave : We needed to model the player and opponents respective caves as each player starts in a different cave and ends the game by returning to their respective cave. This is represented in the player cave and opponents cave entities.
- Win/Lose : We needed to model the win/lose conditions. This is the way of determining if a player has won or lost the game. These conditions are represented by the win and lose entities

Relationship Justifications

- Game Board consists of Cut Volcano Card, Game Board consists of Non-Cut Volvano Card: The game board consists of 8 volcano cards, of which 4 are volcano cards containing a slot for a cave (i.e a Cut Volcano Card) and 4 which don't contain a slot (i.e Non-Cut Volcano Card). The game board is composed of Cut & Non-cut Volcano cards, but the cards can exist independently if the game board doesn't exist, hence the aggregation relationship.
- Game Board contains Chit Card. In the game, the chit cards are part of the game board interface, as the players & opponents interact with them to move their dragons. This interaction makes it part of the game board.
- Chit Card matches Tile, Chit Card moves Dragon, Chit Card ends Turn, Chit Card displays Dragon Pirate, Chit Card displays Animal: In Fiery Dragons, chit cards can be flipped over and if the animal displayed on them match a tile (i.e match the animal on the tile) or a dragon pirate is flipped over, then the dragon moves forward/backward. Therefore chit cards moves dragons and can match tiles. Chit cards also end player's turns when a chit card that doesn't match the tile the player's dragon is on. Hence Chit Card ends Turn. Lastly, chit cards display on them either a dragon pirate or animal exclusively. Hence, Chit Card displays Dragon Pirate XOR (exclusive OR) Chit Card displays animal.
- Chit Card flipped in Turn. In the game, chit cards are flipped in a Player / Opponent's turn. This relationship represents that.
- Cut Volcano Card and Non-Cut Volcano card generalises Volcano Card: Cut and non-cit volcano cards are variants (i.e specialisations) of the available volcano cards in the game, hence the generalisation relationship.
- Cut Volcano Card contains Cut Tile and Non-Cut Tile. Non-Cut Volcano Card contains Non-Cut Tile. A Volcano Card in the game consists of three tiles. A Cut Volcano Card will contain two normal tiles (i.e Non-Cut Tile) and one cut tile (i.e Cut Tile), where the cut tile has a slot where the cave can be fitted. A Non-Cut Volcano card only consists of normal tiles (i.e Non-Cut Tile). These relationships are compositions, because the tiles cannot exist independently of the Volcano Cards. They are innately part of them.
- Volcano Card consists of Tile. In the game, each Volcano Card is composed of 3 Tiles. Hence this relationship. This relationship is a composition relationship as tiles only exist in Volcano Cards, they cannot exist anywhere else.
- Tile represents Animal. Each tile in Fiery Dragons contains one animal that is compared with the animals on the chit cards to move a dragon forward. That's the reason Tile represents Animal. It is the tiles themselves which contain the animal; animal can exist without the tiles. Hence this relationsghip is an Aggregation.
- Cut Tile and Non-Cut Tile generalises Tile. Cut tiles and Non-Cut tiles are variants of the available Tiles in the game. They are both tiles, but the cut tile has a slot where the cave can go, whilst the non-cut tile contains no such slot.
- Cut Tile contains Cave. In the game, cut tiles have slots where caves can be slotted. This is represented by this relationship. Caves are always part of cut tiles if put into play, but can exist out of play without cut tiles, hence the aggregation relationship.
- Spider, Salamander, Bat and Baby Dragon generalises Animal. Spider, Salamander, Bat and Baby Dragon are all specialisations of animals and have common charateristics.(i.e all used in chit cards, tiles, caves). Therefore they generalise the abstract concept Animal.
- Player plays on game board and player faces opponent: A minimum of 2 players and a maximum of 4 players play on the game board. Each player will have between 1 and 3 opponents based on how many players are playing the game. This is represented by the relationship between player and game board and the player and opponent entities.
- Player/Opponent takes a turn: As the game progresses, each player takes a turn. However, based on the order of players, the game can be over before a player takes a turn if another player flips over matching chit cards multiple times in a row which is why there is a zero to many relationship as players can take no turns before the game ends or the game can run forever without ending if players keep drawing non matching cards.
- Player plays players dragon and opponent plays opponents dragon: Each player will have their own respective dragon which acts as their game piece. The players will move these dragons along the game board and use it to return to their respective caves. As the opponent is playing the game via the dragon, hence the relationship player plays dragon/ opponent plays their dragon.
- Player Dragon and Opponent Dragon Generalises Dragon: Player Dragon and Opponent Dragon are specialisations of the dragons available in the game, hence the generalisation relationship
- Player dragon enters players cave or opponents dragon enters opponents cave: Each player will have their own respective dragon that can only enter their own caves. Hence player dragon can only enter player cave and opponent dragon can only enter their own opponent cave. This is represented by the one to one relationship.
- Player cave and opponent cave generalises cave: Player cave and opponent cave are specialisations of the caves that each player starts the game of at hence the generalisation relationship
- Player owns player cave and opponent owns opponent cave : Each player owns their own cave which they place their dragon piece that they are going play at the start of the game. Each player may only own one cave and has to own one cave so that their dragon can start from and return to that cave to complete the game, This is represented by the 1 to 1 relationship
- Player cave or opponent cave entered causes win or lose: As each cave can only be entered by the player who owns that cave. Therefore if the player enters their own cave they win but if an opponents cave is entered, it means that opponent has won which means the player has lost

Specific choices made for domain model and WHY

- Dragon is a generalisation of opponent dragon and player dragon, because the player dragon and opponent dragons interact with the other classers and game board differently. As we needed to show how different dragon interacted with different caves, we added the two separate dragon classes. The same applies for the player and opponent caves.

Discarded Alternatives

- Instead of having Player Dragon and Opponent Dragon as specialisations, an alternative was just having Dragon itself. However, when we attempted to figure out the relationships, it was unclear how the win/losing condition was linked to whose caves, and to which dragon (i.e Player's or Opponent's?). Specifically, whose cave it was that was entered, and by who it was entered by to cause a Win/Lose condition was unclear in our alternative.
- A discarded alternative was the association that Opponent and Player turn over chit cards. This was valid, but it indroduced unnecessary repetition and was a bit unclear in that it did not connect Turns with turning over chit cards. Having the association between chit card and turn makes it explicit chit cards are turned over in any turn of the game.