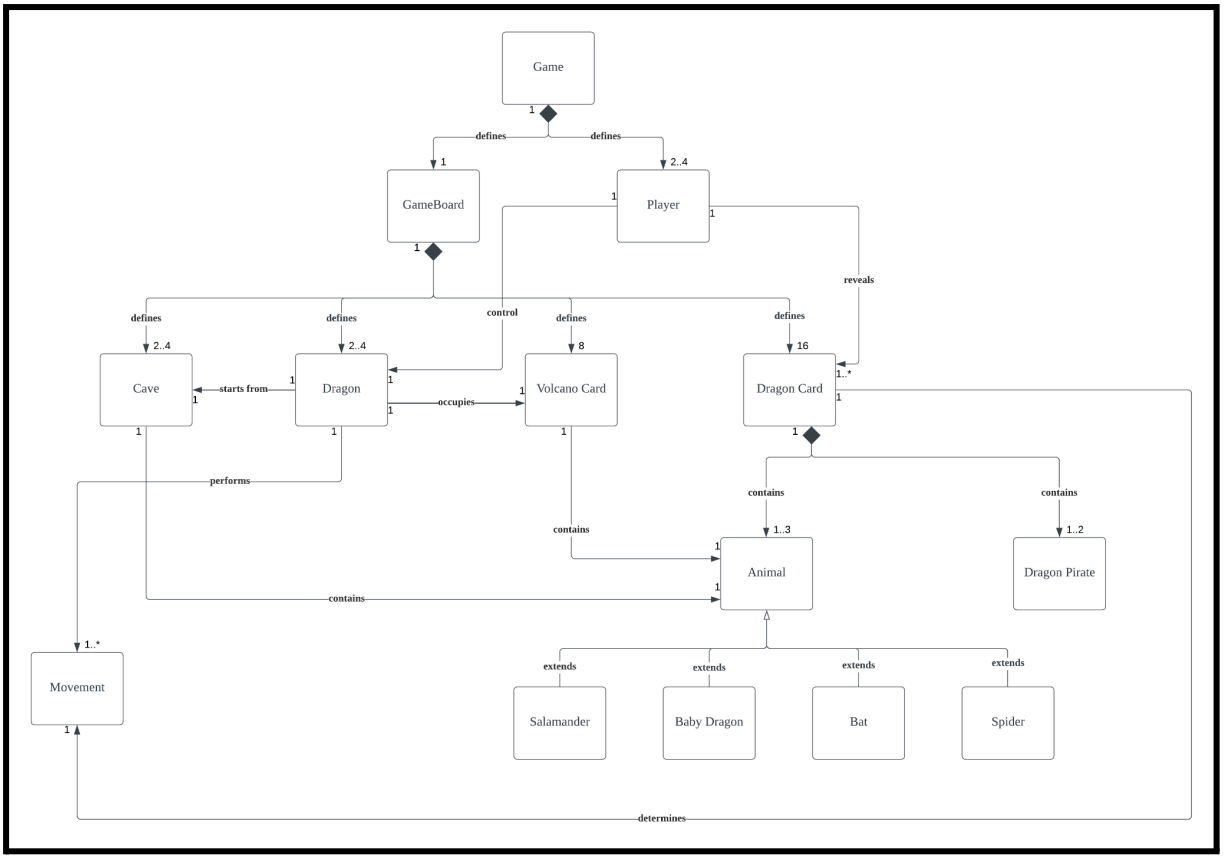

Domain Entity Design Rationale

1) Game
    - Justification: Represents the overall state and progress of a game session, including the player's position and the state of the game board. It acts as the central orchestrator of the game's flow.
2) Game Board
    - Justification: Represents the physical layout of the game, including volcano cards for dragons to move, positions of caves, and locations for dragon cards. It encapsulates the environment within which the game takes place.
3) Player
    - Justification: Represents a participant in the game, controlling a dragon and making decisions on revealing dragon cards. This entity is crucial for implementing player-specific actions and decisions.
4) Dragon
    - Justification: Represents the player-controlled characters moving around the game board. Their position and movement are central to the game's objective.
5) Volcano Card
    - Justification: These represent the game's chance elements, influencing dragon movement and introducing variability and strategy. The volcano card layout is essential for the game as it influences the duration and outcome of the game.
6) Dragon Card (Chit Card)

- Justification: These represent the game's chance elements, influencing dragon movement and introducing variability and strategy. It restricts the player movement, introduces randomness to the game and controls the game progression in order to maintain the game integrity and fairness.

7) Cave
   - Justification: Represents the starting and ending points for dragons' movement. It is essential for setting the game's goal and providing a spatial reference for player progression.
   - Assumptions: Assumes each cave is associated with a specific type of animal, influencing the starting positions of dragons.
8) Animal
   - Justification: Represents a symbol on the volcano cards and dragon cards where the player needs to match the symbol on both of the cards to make a pair in order to move. They are fundamental to the game's mechanics, determining the conditions for dragon movement.
9) Bat
   - Justification: Child class represents one of the animals that exists on the dragon and volcano card.
10) Salamander
   - Justification: Child class represents one of the animals that exists on the dragon and volcano card.
11) Baby Dragon
   - Justification: Child class represents one of the animals that exists on the dragon and volcano card.
12) Spider
   - Justification: Child class represents one of the animals that exists on the dragon and volcano card.
13) Dragon Pirate
   - Justification: Dragon Pirate only exists in dragon cards and serves as a penalty for the player when they made a bad move. It does not belong to the element that controls the dragon’s movement, so it is not a subclass of Animal.
14) Movement
   - Justification: Represents the action of moving a dragon on the game board. Players may have multiple movements in their round if they keep on revealing the dragon cards that match the animal on their current tiles. This entity is abstracted to handle the logic of movement based on game rules.
   - Assumptions: Assume that movement in this case may represent moving forward or backwards 1-3 steps depending on the animal shown on the dragon cards revealed.

Relationship

1) Game is composed of players and a game board
   - Justification: A game session involves multiple players competing within a defined space (the game board), making this composition essential for encapsulating the entire gameplay experience.

- Assumption: The game assumes a fixed number of players and a single game board per session, reflecting a typical board game setup.

2) Game board is a composition of dragon, volcano card, dragon card and cave
    - Justification: The game board's layout and mechanics are defined by these components, with each contributing to the game's strategic and memory elements.
3) Each player owns a dragon
    - Justification: In the game, players control dragons to navigate the board, making this ownership central to player agency and game progression.
4) Player reveals dragon card
    - Justification: Assumes that card revealing is a deliberate action by the player, influencing the game based on player choice and memory skills. Revealing cards is a core game mechanic, introducing elements of chance and strategy as players attempt to advance their dragons based on the revealed outcomes.
5) Each cave contains one type of animal
    - Justification: Caves act as both start and end points for dragons, with their associated animals adding thematic depth and possibly influencing initial game strategies.
6) Each dragon starts at different cave
    - Justification: Starting dragons in different caves ensures diversity in starting positions, affecting game strategy and progression.
7) Dragon occupies volcano card
    - Justification: Dragons moving across volcano cards simulate the game's path, with each card potentially affecting the dragon's progress.
8) Dragon performs movement
    - Justification: Movement is the primary method of game progression, directly tied to the game's objective of navigating the board. One movement may consist of 1-3 steps forward or backwards depending on the dragon cards revealed.
9) Each volcano card contains one type of animal
    - The thematic consistency of animals across game components adds depth and can influence players' memory and strategy, especially if tied to gameplay mechanics.
10) Each dragon card contains one type of animal or dragon pirate
    - Justification: This variety introduces strategic depth and unpredictability into gameplay, with dragon pirates adding unique challenges.
11) Each dragon card contains different number of animals
    - Justification: One dragon card may consist of 1-3 animals (a specific type) or 1-2 dragon pirates. The number of animals affects the amount of movement, introducing a range of possible outcomes from drawing a card, thereby adding to the game's strategic complexity.
12) Four different types of animals
    - Justification: Represents a symbol where the players have to match it with their current tiles (volcano cards) in order to move.

Specific Choices and Assumptions

1) The separation of Volcano Card and Dragon Card entities was chosen to reflect the different roles these cards play in the game, despite their similar physical appearance. This distinction is important for implementing the game's logic, where volcano cards from the game board's layout, and dragon cards influence dragon movement.
2) Animal Type was modelled as a separate entity (with subclasses like Bat, Salamander, Baby Dragon, and Spider) to encapsulate the commonalities and differences in how various cards affect gameplay. This decision aids in implementing polymorphism in the game's logic, allowing for a flexible and extendable code structure.
3) Pirate dragon was modelled as a distinct entity as it does not belong under the volcano card, i.e. the volcano card contains one of the animal types (bat, salamander, baby dragon and spider) but does not consist of pirate dragon. Introduction of the pirate dragon acts as an obstacle that penalises the player to move backwards. While it may add a layer of strategy to the game, the main purpose for this feature is to add some unpredictability to the game and symbolises the consequences of a bad choice for the player.

Discarded Alternatives

1) Combining Card Entities into a Single Entity: An initial consideration was to merge Volcano Cards and Dragon Cards into a single card entity, given their similar roles in affecting gameplay. This idea was discarded to maintain a clear distinction between the game board's static elements (Volcano Cards) and the dynamic chance elements (Dragon Cards). Separating them allows for more nuanced control and reflects their different uses in the game.
2) Integrating Caves with the Game Board: Another alternative was to treat caves as mere points on the game board rather than separate entities. This approach was rejected in favour of giving caves a distinct role, reflecting their importance as both starting points and thematic elements tied to each player's dragon. Treating caves as separate entities allows for potential expansions or variations in gameplay, such as caves with special rules or effects.
3) Merging Animal Types into Card Entities: Initially, there was a consideration to encode animal types directly into the card entities without defining animals as separate entities. This approach was discarded because separating animals into their entity provides a clearer representation of the game's memory element and allows for more flexibility in game design, such as introducing cards with multiple animals or special effects based on animal types.