



The Player entity contains information about players, including ID (primary key), username, email, password, session-key, and reset-key. Both username and email are unique attributes. The session-key is set when a player logs in, and the reset-key is set when a player wants to change their password.

The Score entity stores information such as ID (primary key), score point, creation date, and owner. This establishes a many-to-one relationship from Score to Player, meaning a score can have only one owner, while a player can have multiple scores.

The Tile entity stores these information: tileID (primary key), tileIndex: Placement of the tile on the gameboard, tileType: which type of resource it holds, tileNumber: used in dice rolling, if the dice is equal to this, then harvest resource of this tile for the neighbouring settlements, owner: establishes many to one relationship from tile to gameboard

The Settlement entity stores these information: settlementID (primary key), nodeIndex: Placement of the settlement on the gameboard, playerNo: holds to which player this settlement belongs, settlementLevel: whether the settlement is level 1 or 2, owner: establishes many to one relationship from settlement to gameboard

The Road entity stores these information: roadID (primary key), edgeIndex: Placement of the road on the gameboard, playerNo: holds to which player this road belongs, owner: establishes many to one relationship from road to gameboard

The Gameboard entity stores these information: gameboardID (primary key), settlements: list of all settlements in the game, roads: list of all roads in the game, tiles: list of all tiles in the game, player1Roads: list of roads that belong to the player-1, player1Settlements: list of settlements that belong to the player-1, note that these data is also kept for player-2, player-3, player-4 too. For simplicity they are omitted in the diagram. gameBoardEvents: log to show what changed on gameboard

The Card entity stores these information: cardID (primary key), cardType: type of the card, cardCount: number of the cards for this cardType that player have

The PlayerCardDeck entity stores these information: deckID (primary key), cards: list of cards in the deck

The Game entity stores these information: gameID (primary key), gameboard: gameboard of the game (has a one to one relationship with it), player1: reference to player (there are also player2, player3, player4 too), player1Score: score of the player1 (there are also player2Score, player3Score, player4Score), turn: current turn of the game, gameType: whether this game is single player or multi player, currentDice1: one of the values of the rolled dice, currentDice2 : one of the values of the rolled dice, playerCardDeckList: referencing to PlayerCard and contains 4 of them, currentLongestRoadLength: length of the longest road in the game, currentLongestRoadOwnerPlayerNo: stores who owns to longest road, longestRoadBonusActive: wheetheer any user passed the threshold of 5, diceRolled: whether the dice are rolled for this turn, tradeOffers: list of trade offers