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| **Class Name:** Game | **ID:** 1 | | | **Type:** |
| **Description:** Representation of the game itself. It keeps track of the players and keeps the game running. | | | | **Associated Use Cases:**  Player joins game session.  Player/AI assigned to team.  Team wins game.  Team loses game. |
| **Responsibilities** | | **Collaborators** | | |
| Keeps track of the players in the game | | Player | | |
| Keeps the game running | | Server | | |
| Initialises the round | |  | | |
| Initialises the cards | | Card | | |
| Initialises the table | | Table | | |
| Displays player menu | |  | | |
| Updates the score | |  | | |
| Starts game | | Server | | |
| Ends game | | Server | | |
| Displays trick | | Trick | | |
| Displays trump | | Card | | |
| **Attributes** | | |  | |
| Players | | |  | |
| NumPlayers | | |  | |
| GameInProgress | | |  | |
| Dealer | | |  | |
| Scores | | |  | |
| CurrTrick | | |  | |
| CurrTrump | | |  | |
| Deck | | |  | |
| **Relationships** | | |  | |
| **Generalisation (a-kind-of)** | | |  | |
|  | | |  | |
|  | | |  | |
| **Aggregation (has-parts)** | | |  | |
| Player | | |  | |
| Table | | |  | |
| Deck | | |  | |
| **Other Associations** | | | **Collaborators** | |
| “Initialises” | | | Card | |
| “Contains” | | | Trick | |

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| **Class Name:** Player | **ID:** 2 | | | **Type:** |
| **Description:** Represents a user playing the game. | | | | **Associated Use Cases:**  Player joins game.  Player shares link.  Player assigned to team.  Player deals cards.  Player plays card.  Player leaves game. |
| **Responsibilities** | | **Collaborators** | | |
| Tracks if player is dealer | |  | | |
| Player can join game | | Game, Server | | |
| Player can quit game | | Game, Server | | |
| Player can get cards | | Deck, Card | | |
| Player makes a move | |  | | |
| Tracks players cards | | Deck, Card | | |
| **Attributes** | | |  | |
| Name | | |  | |
| ID | | |  | |
| IsDealer | | |  | |
| Hand | | |  | |
| **Relationships** | | |  | |
| **Generalisation (a-kind-of)** | | |  | |
|  | | |  | |
|  | | |  | |
| **Aggregation (has-parts)** | | |  | |
| Card | | |  | |
|  | | |  | |
| **Other Associations** | | |  | |
| “deals”, “shuffles” | | | Deck | |
| “takes” | | | Trick | |
| “is on” | | | Table | |

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| **Class Name:** Server | **ID:** 3 | | | **Type:** |
| **Description:** Keeps the game running and allows players to join game. | | | | **Associated Use Cases:**  Server starts game session.  Server generates share link.  Player shares link.  Server starts game.  Server updates game session.  Server ends game session. |
| **Responsibilities** | | **Collaborators** | | |
| Starts game connection | | Game | | |
| Ends game connection | | Game | | |
| Allows players to join | | Player | | |
| Allows players to leave | | Player | | |
| Generate share link | |  | | |
| **Attributes** | | |  | |
| ListUsers | | |  | |
| WaitingList | | |  | |
| **Relationships** | | |  | |
| **Generalisation (a-kind-of)** | | |  | |
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| **Aggregation (has-parts)** | | |  | |
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| **Other Associations** | | |  | |
| “connects” | | | Player | |

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| **Class Name:** Table | **ID:** 4 | | | **Type:** |
| **Description:** Displays information about the game. | | | | **Associated Use Cases:**  Player displayed on table.  Player places card on table.  Card displayed on table. |
| **Responsibilities** | | **Collaborators** | | |
| Maintains information about Cards on table | | Card | | |
| Maintains information about table dimensions | |  | | |
| **Attributes** | | |  | |
| Size | | |  | |
| Colour | | |  | |
| Cards | | |  | |
| **Relationships** | | |  | |
| **Generalisation (a-kind-of)** | | |  | |
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|  | | |  | |
| **Aggregation (has-parts)** | | |  | |
| Trick | | |  | |
| Card | | |  | |
| **Other Associations** | | |  | |
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| **Class Name:** Trick | **ID:** 5 | | | **Type:** |
| **Description:** Contains information about the cards in trick. | | | | **Associated Use Cases:**  Card added to trick.  Player wins trick.  Player takes trick. |
| **Responsibilities** | | **Collaborators** | | |
| Stores information of each card | | Card | | |
| Compares each card | | Card | | |
| Winning player takes trick | | Player | | |
| Contains winning card in trick | | Card | | |
| **Attributes** | | |  | |
| CardCount | | |  | |
| WinningCard | | |  | |
| Trick | | |  | |
| **Relationships** | | |  | |
| **Generalisation (a-kind-of)** | | |  | |
|  | | |  | |
|  | | |  | |
| **Aggregation (has-parts)** | | |  | |
| Card | | |  | |
|  | | |  | |
| **Other Associations** | | |  | |
| “won by” | | | Player | |

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| **Class Name:** Card | **ID:** 6 | | | **Type:** |
| **Description:** Represents a card in a game and can be Spades, Clubs, Diamonds, or Hearts. Card also has a rank. | | | | **Associated Use Cases:**  Card shuffled in deck.  Player deals cards.  Card marked as trump.  Player plays card.  Card added to trick. |
| **Responsibilities** | | **Collaborators** | | |
| Maintains information about card | |  | | |
| Ranking based on Rank and Suit | |  | | |
| Card can be a trump card | |  | | |
| **Attributes** | | |  | |
| Rank | | |  | |
| Suit | | |  | |
| Type | | |  | |
| **Relationships** | | |  | |
| **Generalisation (a-kind-of)** | | |  | |
|  | | |  | |
|  | | |  | |
| **Aggregation (has-parts)** | | |  | |
| Player | | |  | |
| Trick? | | |  | |
| **Other Associations** | | |  | |
| “dealt from” | | | Deck | |
| “displayed on” | | | Table | |

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| **Class Name:** AI | **ID:** 7 | | | **Type:** |
| **Description:** Represents a fake player if real player leaves game. AI plays based on difficulty level set. | | | | **Associated Use Cases:**  AI joins game.  Player sets AI difficulty.  AI assigned to team.  AI deals cards.  AI plays card. |
| **Responsibilities** | | **Collaborators** | | |
| Maintains information like a real Player | | Player | | |
| Plays based on difficulty level | |  | | |
| Tracks if AI is dealer | |  | | |
| AI makes a move | |  | | |
| Player can get cards | | Deck, Card | | |
| Tracks AI cards | | Deck, Card | | |
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| **Attributes** | | |  | |
| Difficulty | | |  | |
| **Relationships** | | |  | |
| **Generalisation (a-kind-of)** | | |  | |
| Player | | |  | |
|  | | |  | |
| **Aggregation (has-parts)** | | |  | |
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| **Other Associations** | | |  | |
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| **Class Name:** Deck | **ID:** 8 | | | **Type:** |
| **Description:** Maintains information about all 52 cards in the game. | | | | **Associated Use Cases:**  Deck shuffles cards.  Player deals cards.  Card marked as trump. |
| **Responsibilities** | | **Collaborators** | | |
| Stores each card | | Card | | |
| Shuffles cards | | Card | | |
| Cards dealt from deck | | Card, Player | | |
| Trump card chosen from deck | | Card | | |
| **Attributes** | | |  | |
| Cards | | |  | |
| **Relationships** | | |  | |
| **Generalisation (a-kind-of)** | | |  | |
|  | | |  | |
| **Aggregation (has-parts)** | | |  | |
| Game | | |  | |
| Card | | |  | |
| **Other Associations** | | |  | |
| “stacked on” | | | Table | |

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| **Class Name:** Team | **ID:** 9 | | | **Type:** |
| **Description:** Maintains information about a team of players. | | | | **Associated Use Cases:**  Player/AI assigned to team.  Team wins game.  Team loses game. |
| **Responsibilities** | | **Collaborators** | | |
| Stores team name | |  | | |
| Stores team ID | |  | | |
| Stores list of players in team | | Player | | |
| Maintains number of tricks won | | Trick | | |
| Maintains score of team | | Game | | |
| **Attributes** | | |  | |
| TeamName | | |  | |
| TeamID | | |  | |
| Members | | |  | |
| Tricks | | |  | |
| Score | | |  | |
| **Relationships** | | |  | |
| **Generalisation (a-kind-of)** | | |  | |
|  | | |  | |
| **Aggregation (has-parts)** | | |  | |
|  | | |  | |
| **Other Associations** | | |  | |
| “owned by” | | | Player | |