

# 1 Placing a Card

During a normal turn, the player performs two main actions: placing a card and drawing a card. This section details the card placement action, which is handled by the ‘PlaceCardState’ class through the ‘placedCard’ method.

## 1.1 Method: placedCard

The ‘placedCard’ method in the ‘PlaceCardState’ class is responsible for handling the placement of a card by a player. This method ensures that the card is placed correctly and updates the game state accordingly. To handle cases where the player disconnects during the placement, the game maintains backup structures and elements.

### 1.1.1 Backup Structures and Elements

When a player starts placing a card, the game creates backups of the player’s structure and hand. These backups are used to restore the game state if the player disconnects before completing their turn. If a disconnection occurs during the card placement, the placement is invalidated, and the game state is reverted to the backup.

### 1.1.2 Method Calls in placedCard

1. **placedCard(clientId, player, father, placeThis, position, frontUp)**
  - (a) Validate that the player is the current player.
  - (b) Identify and validate the father card and the card to be placed (placeThis).
  - (c) Call **Structure.placeCard(father, placeThis, position, frontUp)** to place the card in the structure.
  - (d) Call **removeFromHand(placeThis)** to remove the placed card from the player’s hand.
  - (e) Call **Structure.getPointsFromPlayableCard(placeThis, frontUp)** to calculate points from the placed card.
  - (f) Call **updateActualPoints(points)** to update the player’s points.
  - (g) Create and send a **PlaceEvent**.
  - (h) Transition to **DrawnCardState**.

### 1.1.3 Sub-methods in placedCard

1. **removeFromHand(placeThis)**
  - (a) Iterate through the player’s hand to find and remove the placed card.

## 2. updateActualPoints(points)

- Set backup points.
- Update the player's score on the game board.

## 1.2 Sequence Diagram

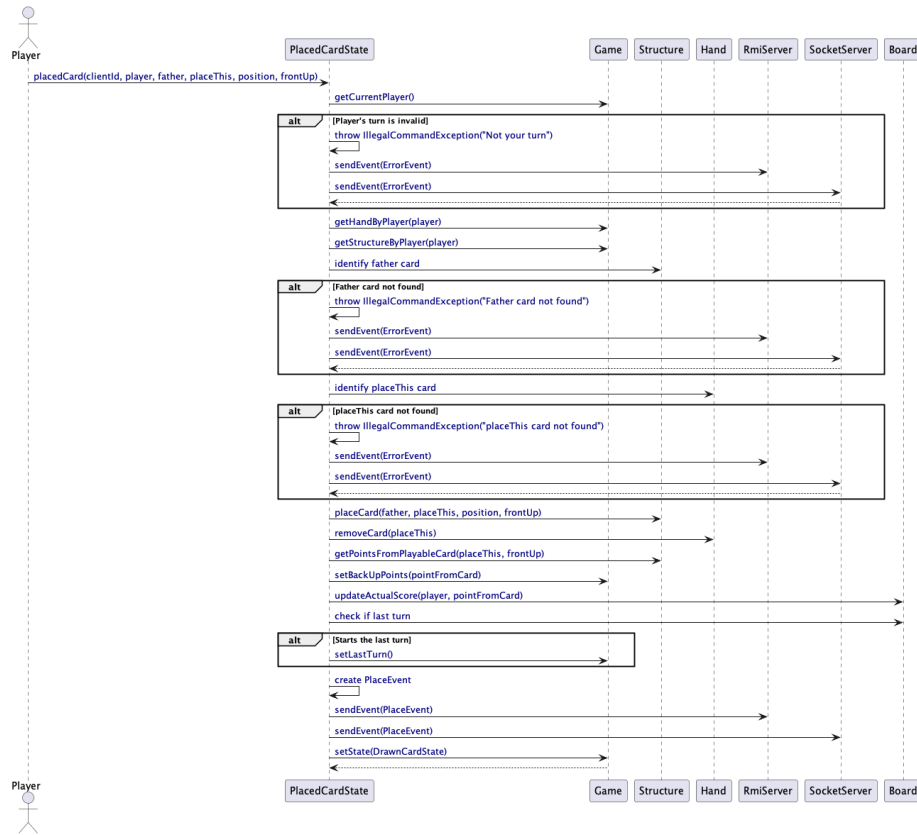


Figure 1: Sequence diagram of the placeCard method calls

## 2 Drawing a Card

### 2.1 Method: `drawnCard`

The ‘`drawnCard`’ method in the ‘`DrawnCardState`’ class is responsible for handling the drawing of a card by a player. This method ensures that the card is drawn correctly and updates the game state accordingly.

#### 2.1.1 Method Calls in `drawnCard`

1. `drawnCard(clientId, player, card, fromDeck)`
  - (a) Validate that the player is the current player.
  - (b) Identify and check that the card to be drawn is either on top of a deck or is one of the uncovered cards.
  - (c) Call `updateDeck(card, fromDeck)` to update the game deck based on the card to draw.
  - (d) Call `nextTurn()` to advance the game to the next turn.
  - (e) Create and send a `DrawEvent`.
  - (f) Transition to `EndGameState` or `PlacedCardState` based on the game state.

#### 2.1.2 Sub-methods in `drawnCard`

1. `updateDeck(card, fromDeck)`
  - (a) Draws the card from the specified deck.
  - (b) Update the uncovered cards and player’s hand.
2. `nextTurn()`
  - (a) Advance the game to the next player’s turn.
  - (b) Check if the match has ended.

## 2.2 Sequence Diagram

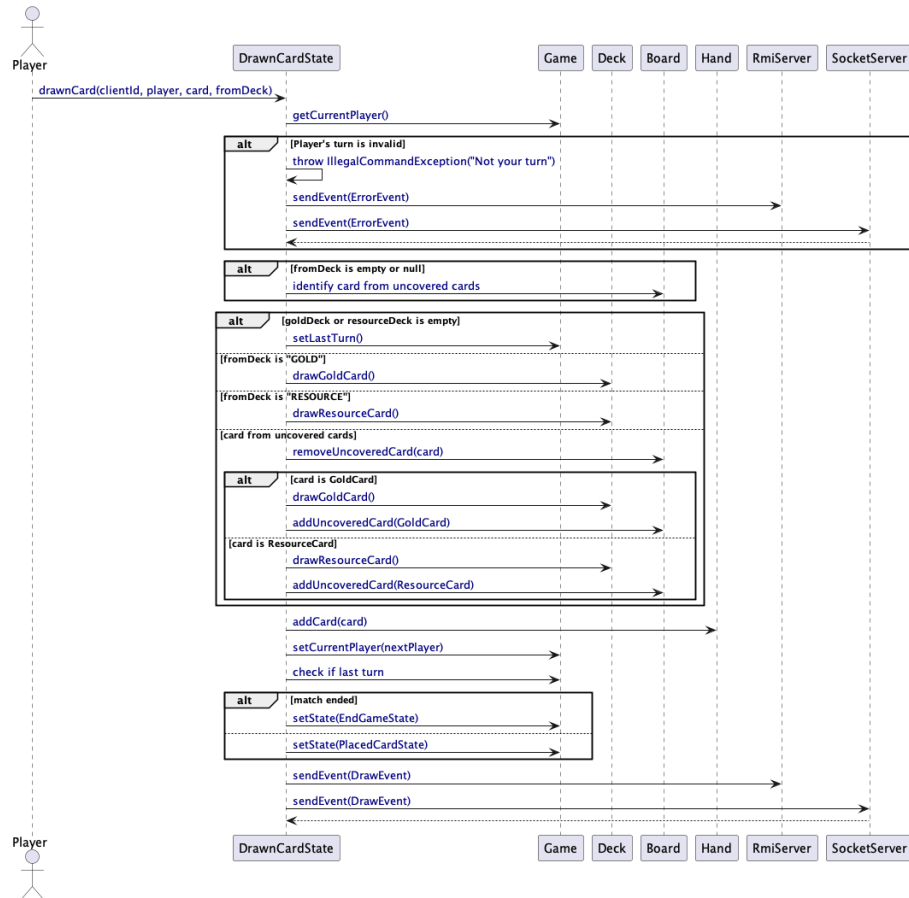


Figure 2: Sequence diagram of the drawnCard method calls