

# Software development CA design

## Planning

The Card Game consists of  $n$  players and  $n$  decks, which alternate to form a ring. The combined number of cards in the decks is  $8n$ . The game begins by distributing 4 cards to each player in a round-robin fashion, then distributing the rest of the cards to the decks between players in the same round-robin fashion. When the game begins each player at the same time will pick up a card from the deck to their right then discard a card to the deck to their left. To win a player must have 4 cards of the same value in their hand. Players have preferred card values which reflect their index value, they should not discard a card of this value.

## Design

Starting hands of players will be made before decks are created.

Each deck will have the same number of cards.

Each Player must have an output file for the actions they take.

Each deck must have an output file showing cards remaining at the end of the game.

We have decided to use a constructor for each part of the program so the implementation can be easier.

Constructor Game: GameID, AmountOfPlayers, PlayerConstructor, Deck constructor.

User input: Amount of players =  $n$

Primary key: GameID

PlayerConstructor: PlayerId, deckOfDrawId, deckOfDiscardId, startingHand, cardPreference.

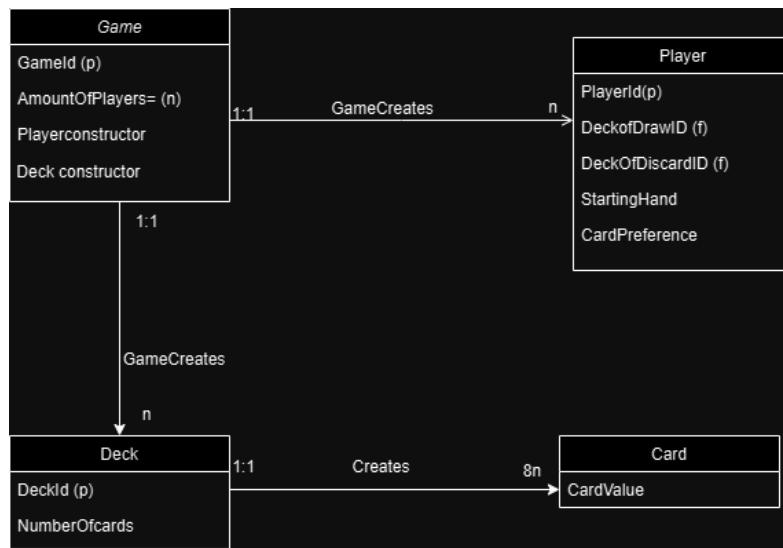
Primary key: (playerID)

Foreign key: (DeckOfDrawID, DeckOfDiscardID) each player will be assigned 2 deck id's one to draw from and one to discard to.

DeckConstructor: DeckId, NumberOfcards.

Primarykey:(deckID)

card(Cardvalue)



When the game is created. The players should be created first and assigned 4 cards. Then the decks should be created each of equal size with the remaining cards. Each player should have 2 threads. One for drawing a card and another for discarding.

## Inputs and outputs

Inputs from user: Amount of players, file which contains all the cards.

Output: Each player must have there actions they did in a specific file, Each deck must output remaining cards when the game ends, winner of game.

## Development Log

Date	Time	Duration	Roles	Signed
26/10/24	12.30		Planning	022132