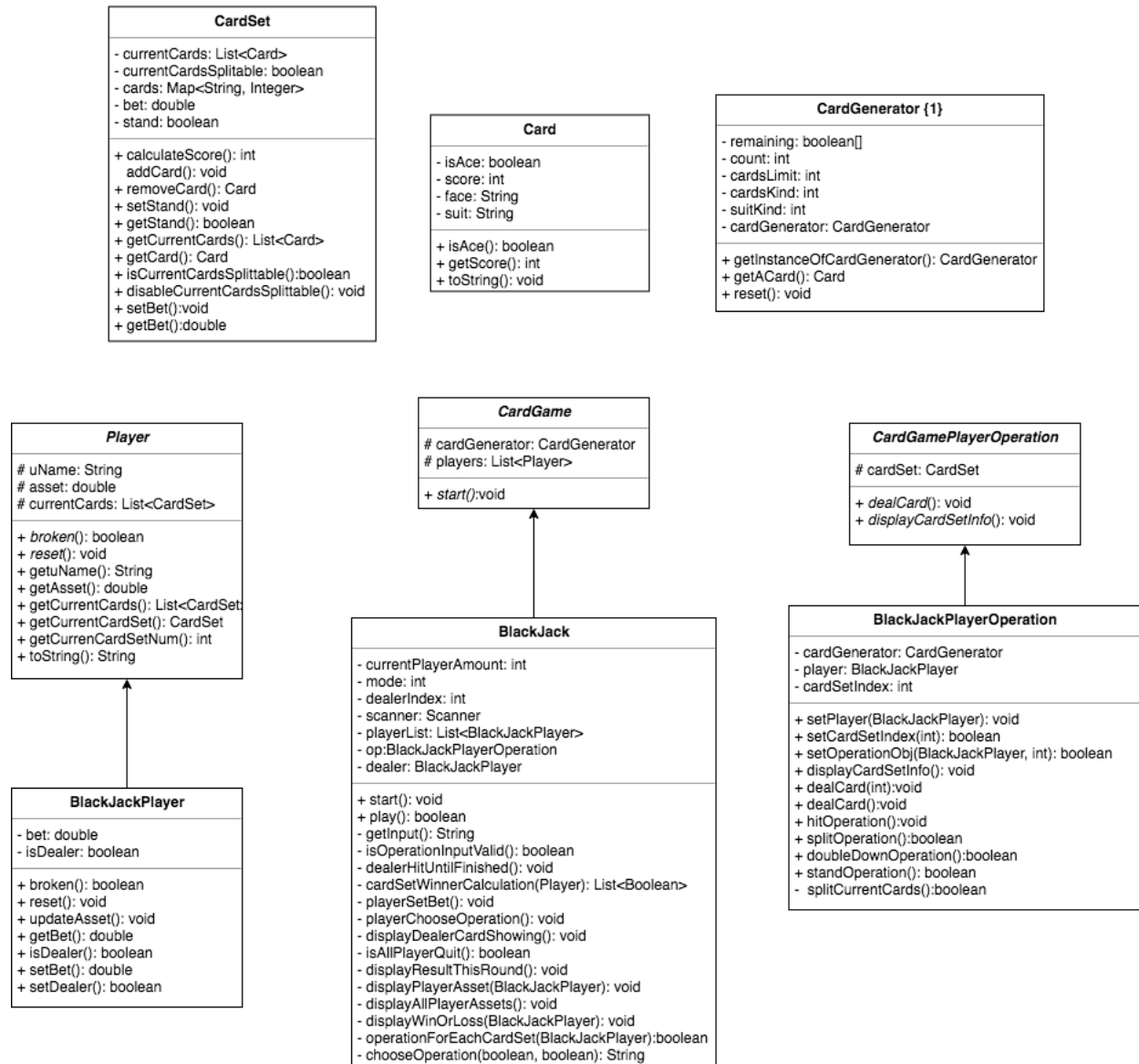


BlackJack Design Specification

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Class design



Main classes design

BlackJack

The game class **BlackJack** extends from abstract class **CardGame**. It has a `playerList` to support multiple players mode and a **BlackJackOperation** object `op` to conduct black jack operations, including deal cards, display **CardSet** info, hit, stand, double down and split operations. The

main game logic embedded in play() function is mainly conducted through a series of private functions defined within this class.

BlackJackPlayer

This class extends abstract class Player, where reset() and broken() functions are required to be implemented. This class contains all attributes and functions a player in BlackJack game should have, like bet and isDealer. In other games, a Player should also have a name, asset and a list of CardSet.

BlackJackOperation

This class focuses on operations in BlackJack game. While in other card games, deal cards and display card set info operations are also necessary, I define abstract method in CardGameOperation class to make them compulsory. To perform an operation, a binding with BlackJackOperation object, player and CardSet should be conducted first.

CardGenerator

This is a singleton class. We can use static method getInstanceOfCardGenerator() to get current cardGenerator. This ensures no matter where we need a card, we can get from the same cardGenerator. In this class, I use Random to generate a card from given kinds limit (in blackjack it is 13), suit limits (4) and a Boolean array (remaining) to keep track of current available cards.

CardSet

This class contains a Card list and a Card map to keep track of current cards and their attributes. The map ensures if there is a card with duplicate value, player can choose to split. Split operation is only available when the player has two cards. And the player can split infinite times.

Summary

This design uses extended class to support multiple players and infinite split operations. This makes adding/modifying new operations, managing player info, card set info more convenient.