

Object design specification:

Input Demo:

The red part is input!

Blackjack !

Dealer is an unstoppable AI.

How many decks do you want? [1-4]: 4

How many players do you have? [1-3]: 1

Shuffling...

Player0 Please input chips: 5, 10, 50, 100, 300, 500. [5/10/50/100/300/500]:

100

Dealer's hand: [club 7 , ?]

Player0's hand: [diamond 8 club 3][11, 11]

Player0's turn: hand0: 1: hit, 2: stand, 3: double up.

[1/2/3]:1

Player0's hand0: [diamond 8 club 3 spade K][21, 21]

hand0: Blackjack!

Stand! Dealer's hand: [club 7 heart J][17, 17]

Dealer's hand: [club 7 heart J][17, 17]

BLACKJACK

Player0 wins!

Player0's cash: 5100

Dealer's cash: 4900

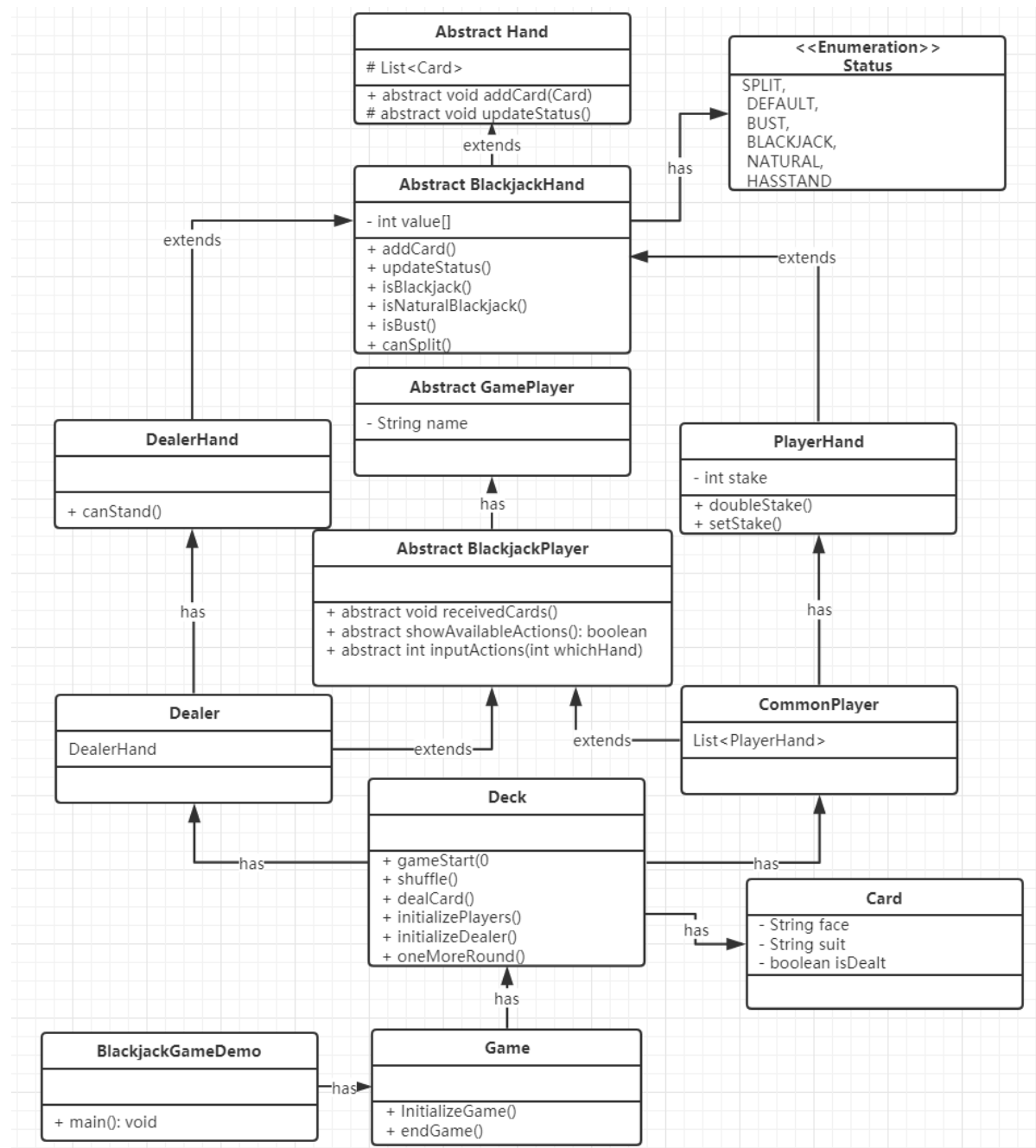
Do you want one more round? [y/n]:

y

// You can try input 2 players!

// Enjoy yourself!

This is a top level scope of class design.

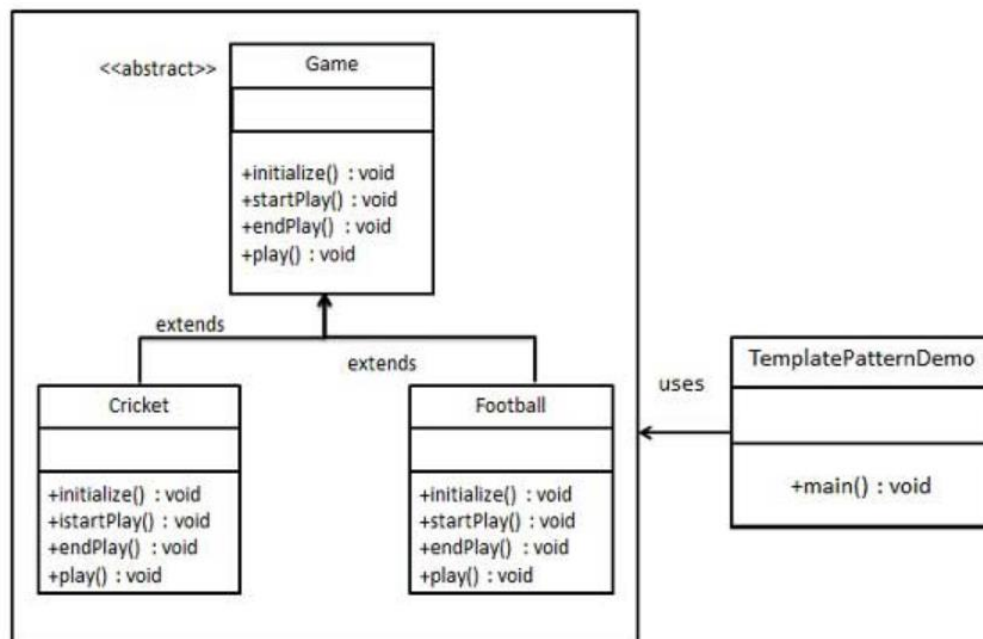


Class BlackGameDemo is the entrance of the program.

Class Game serves as a general class for any games. We initialize the number of players and the number of decks.

Class Deck serves as the Blackjack game engine, including the specific game logic in blackjack. In this class, we have attributes including common players, dealer and cards and methods including shuffling, dealing cards, initializing players and dealer.

For class Game and class Deck, we find a good design pattern called ***template pattern***, which is shown as follows.



In the future work of *Trianta Ena*, we are going to use this pattern.

Class Card

This class has attributes of card face and card suit.

This class is of great reusability.

Abstract Class GamePlayer serves as a general class for any games.

Abstract Class BlackjackPlayer serves a purpose of encapsulating the common features and methods of blackjack player and dealer. Both player and dealer can receive cards, show available actions and input actions, but they have different rules and options.

Class Dealer extends **Class BlackjackPlayer**.

Class CommonPlayer extends **Class BlackjackPlayer**.

Dealer has only one hand of cards, but players can have a list of hands of cards.

They have different operations and options on these cards.

Abstract Class Hand is a general class which is reusable.
Every card game has a hand of cards.

Class BlackjackHand extends Class Hand.

In blackjack, every hand has a value and for each value it has a corresponding status.

Class PlayerHand extends Class BlackjackHand.

Class DealerHand extends Class BlackjackHand.

Player hand has more options than dealer hand.

Enumeration Status:

A hand can have different status including BUST, BLACKJACK, NATURAL, HasStand, SPLIT and DEFAULT, which is good for further use and control.