THE BLACK JACK GAME

**DOMAIN MODEL**

Blackjack is a game of cards using a standard deck of cards of 4 suits (**Hearts**, **Diamonds**, **Clubs** and **Spades**), each of which has the following cards (**2**, **3**, **4**, **5**, **6**, **7**, **8**, **9**, **10**, **Jack**, **Queen**, **King**, **Ace**), and a **Deck** of cards consists of one of each combination (2 of Hearts, 2 of Diamonds, 2 of Clubs, etc).

In the game Blackjack, the cards have the following values:

* 2-10: The value of the card number
* Jack, Queen and King: 10
* Ace: 11

**GAME RULES**

Assume there are 3 players. The aim of the game is to collect cards so that the total of an individual player’s cards does not exceed 21. At the end of the game the player with the total closest to 21 wins.

At the start of the game, the deck is shuffled (i.e. the order of the cards is randomized) and each player is immediately dealt a “hand” of two cards from the top of the deck.

Each player then takes turns to play. In a turn, the following rules apply:

* If the player's total is less than 17, they **"hit"** (i.e. get dealt another card from the top of the deck).
* If the player's total is 17 or greater, they **"stick"** (i.e. don't get dealt another card).
* If the player's total is greater than 21, they **"go bust"** (i.e. are ejected from the game).

The game finishes if:

* All players "stick" in a round.
* Any player hits 21 exactly.
* There is only one player is left in the game because all others have "gone bust".

At the end of the game, if the game has not finished due to a player hitting 21, the player with the total closest (but still under) 21 wins.

**TASKS**

Flesh out the skeleton application so that it plays a game of blackjack using the domain developed in stage 1, and in accordance with the game rules stated above.

This should be runnable as a simple command line application.

The application should log the steps taken in the game by each player, as well as the results of their actions, to the console.

The application should finally state which player in the game is considered to have won to the console.

Alter the application so that the number of players can be adjusted from a command line parameter. The number of players should be checked to make sure it is greater than 1, and less than or equal to 6. An error should be reported if this is not the case. The default for the application, if this parameter is not specified, should be considered to be 3.

Add extra capability to the application so that a selection of different “shuffling” mechanisms can be chosen from a list of real-world algorithms (Riffle shuffle, Pharoah/Faro Shuffle, etc). The applicant is not requested to implement the detail of these different mechanisms, just adjust the application to allow the shuffling mechanism to be chosen at run-time.