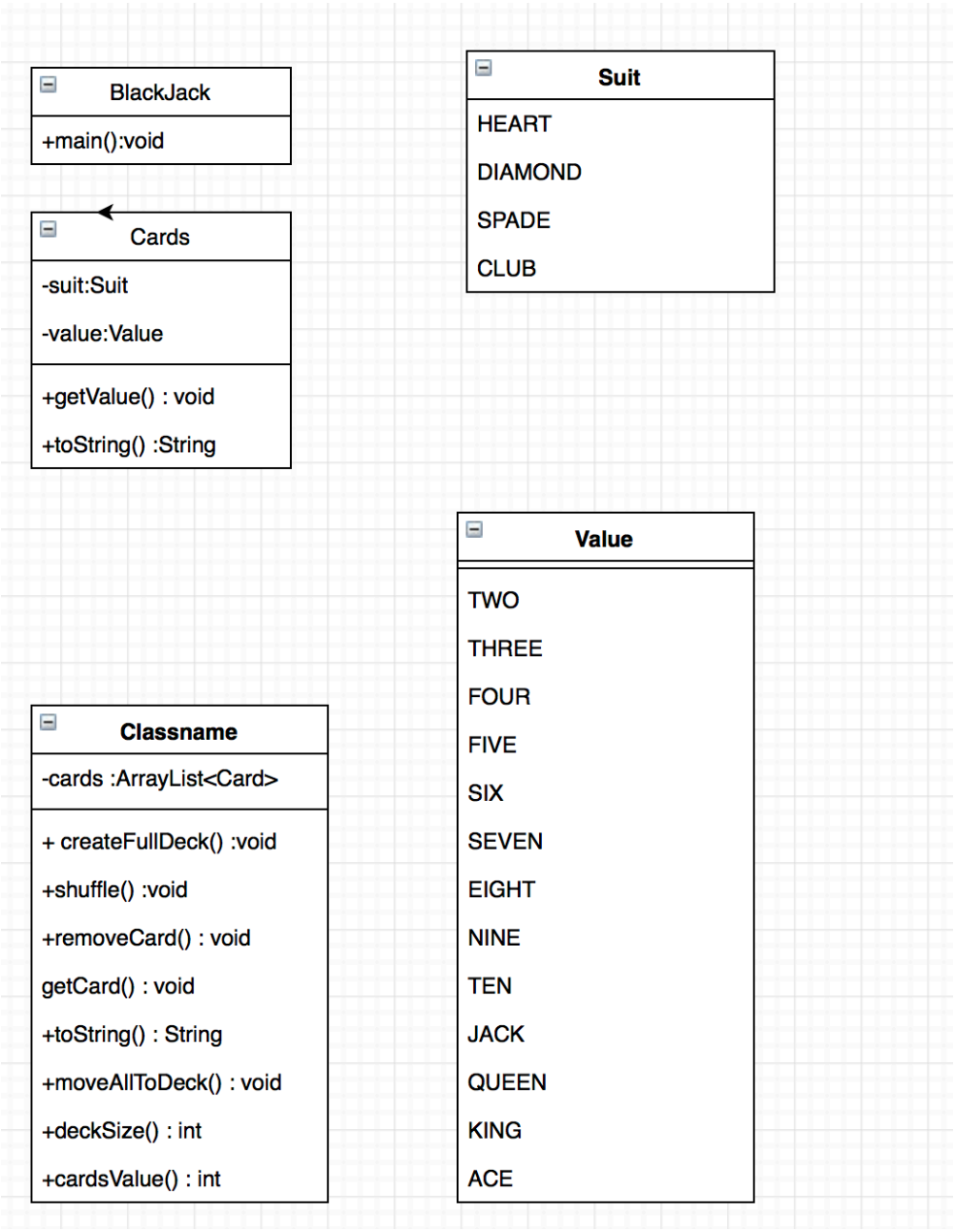
Welcome to the BlackJack

As part of this assignment I've created a simple but fun Blackjack game using array-list as the preferred choice from the list of available data structures.

BlackJack Classes and Methods



- BlackJack class - contains all the main game Logic

- Card class - Contains an arrayList of card , a total of 52 Cards. Each card has a suite and a value, suits are values are going to be stored as enumerations. getValue() method will get the *value* of the cards from **Value**

- Deck Class has following methods:-

+createFullDeck() - will create a full deck of 52 cards
+shuffle() - will randomly redistribute the cards
+removeCard() -removes card from the deck
+draw() -draw a card from the deck
+toString() -will print out the entire deck
+moveIAllToDeck() -moves cards from one deck to another
+deckSize() -gets size of the deck
+cardsValue() -gets the total value of cards in the deck, in order to calculate the value of -the cards in player and dealers hands.

Used data structure to store and perform operation to the deck of cards

ArrayList has been used to create and store the deck of 52 cards and in the shuffle method to temporarily store the shuffled cards. Arraylist was chosen to store cards because cards are added and removed during the run of the program and arraylist being dynamic in size was an obvious choice over fixed size Arrays data type.

Time complexity of ArrayList:-

Ordered Collection	ADD	Remove	Deck	Contain
ArrayList	O(1)	O(n)	O(1)	O(n)

*where n = numbers of elements

BlackJack game rules and Logic

Objective or winning condition

The objective of the game is simple, the hand with the greater total value while not exceeding the value of 21 wins the game .

Cards and their Values

- All cards have a value equal to their face value except JACK, QUEEN AND KING cards, these have a value equal to 10.
- ACES have a value of 11 or 1 , if the player or the dealer hand has more than one ACES the value of the ACES after the first one will be equal to 1, only first ace value is set to 11. Also, if the total value of cards in a hand is greater than or equal to 11, the value is an ACE is equal to 1.

Game Logic

I. Player starts from an initial amount of £100 and if player tries to bet more than 100 the game will end. One the Player bets any amount between £0 and £100 , two random cards are drawn from the card deck and moved to player's deck. The dealer also gets two random cards drawn from the playing deck and adds it to the dealers deck.
II. After player and dealer's cards are dealt the value of both cards in players hand is displayed but dealer only shows one card, the other one is HIDDEN.
III. Program will then ask the player if he wants to **STAND** or **HIT**

IV. If players **HITS** then player gets another card from the deck and its value gets added to the value of cards in the player's hand in previous step.
V. If player deck value exceeds 21 players goes bust and the value of players deck is displaced and the lose whatever money they'd bet.
VI. If the player choses to stand, dealer will reveal the value or his hidden 2nd card and if the dealers deck value is more than player's deck value but less than 21 , dealer wins.
VII. If the value of player deck and dealers deck is same, it's a draw and player doesn't loose any money and game restarts **anew** , also called a **PUSH** in the Blackjack.

Game screenShots