The black jack

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```
import java.util.*;
import java.util.Scanner;


public class Cards{


  static int count=52; //the count represents the number of cards remaining in the deck


  public static int rand(int high){
      return (int) (high*Math.random()+1);
    }


  public static void shuffle(String[] the_deck, int switches){
    String temp;
    int a; int b;
    for(int i=0; i<switches; i++){
      a = rand(52);
      b = rand(52);
      temp = the_deck[a-1];
      the_deck[a-1] = the_deck[b-1];
      the_deck[b-1] = temp;
    }
  }
```

This is how we shuffle the deck of card.

```
  public static String deal(String[] the_deck){
    count=count-1;
    return the_deck[count];}
```

```
 public static int aces(String the_card){
  if(the_card.charAt(0)=='A'){
      return 1;}
    else{
      return 0;}
  }

 public static int aces(String[] the_hand){
  int sum=0;
  for(int i=0; i<the_hand.length;i++){
    sum = sum + aces(the_hand[i]);
  }
  return sum;
}

 public static int aces(ArrayList the_hand){
  int sum=0;
  for(int i=0; i<the_hand.size();i++){
    sum = sum + aces(the_hand.get(i).toString());
  }
  return sum;
}

public static int value(String the_card){
  char first = the_card.charAt(0);
  if (first=='1'|first=='J'|first=='Q'|first=='K'){
    return 10;
  }
    else if(first=='A'){
```

```
      return 1;}
    else{
      return Character.getNumericValue(first);
    }
  }
```
This is the step that we give numbers to the cards.

```
 public static int value(String[] the_hand){
   int sum=0;
   for(int i=0; i<the_hand.length;i++){
     sum = sum + value(the_hand[i]);
   }
   return sum;
 }

 public static int value(ArrayList the_hand){
   int sum=0;
   int num_aces=aces(the_hand);
   for(int i=0; i<the_hand.size();i++){
     sum = sum + value(the_hand.get(i).toString());
   }
   while(num_aces>0 && sum>21){
     sum=sum-10;
     num_aces=num_aces-1;
   }
   return sum;
 }
```
This is the ace logic.

```
  public static void main(String[] args){
```

```
    Scanner scan = new Scanner(System.in);


    String[] deck = new String[52];
    String[] suit = new String[4];
    int[] card = new int[13];


    for (int i=0; i<card.length; i++){
      card[i]=i+1;}
    String cardName;
    suit[0] = "Clubs";
    suit[1] = "Diamonds";
    suit[2] = "Hearts" ;
    suit[3] = "Spades";



    for(int i=0; i<4; i++){
      for(int j=0; j<13; j++){
        if(j==0){cardName="Ace";}
        else if(j==10){cardName="Jack";}
        else if(j==11){cardName="Queen";}
        else if(j==12){cardName="King";}
        else {cardName=Integer.toString(card[j]);}
        deck[ 13*i+j ]= cardName + "_" +suit[i];
      }
    }
```

This is the deck of card.

```
 /*
    for(int i=0; i<52; i++){
        System.out.println(deck[i]);
     }
```

```
   shuffle(deck, 1000);

    System.out.println("SHUFFLED");

    for(int i=0; i<52; i++){
        System.out.println(deck[i]);
      }

    System.out.println("DEAL");
 */
    //String[] delt = new String[2];
    //delt[0]=deal(deck);
    //delt[1]=deal(deck);

   // System.out.println(delt[0] + " and " + delt[1] + " and " + count + " cards
remaining.");
  shuffle(deck, 1000);

    String say;
  boolean state=true;

    ArrayList hand = new ArrayList();
    ArrayList dealer_hand = new ArrayList();
    dealer_hand.add( deal(deck) );
    dealer_hand.add( deal(deck) );
    hand.add( deal(deck) );

    while(state){

    hand.add( deal(deck) );
```

```
    System.out.println("Dealer showing: " + dealer_hand.get(1));
    System.out.println("Contents of hand: " + hand);
    System.out.println("Your score is: " + value(hand));

    if(value(hand)>21){
      System.out.println("BUST!!!!");
      break;
    }

    System.out.println( "hit[H] or stand[S]?");
         say=scan.nextLine();
         if(say.equals("H")){state=true;}
         else{state=false;}
    }
```

This is the player's option.

```
    while( value(dealer_hand)<17 ){
      dealer_hand.add( deal(deck) );
    }
```

This is the dealer's logic.

```
    System.out.println("Dealer has: " + dealer_hand);
    System.out.println("Dealer score is: " + value(dealer_hand));

    if( (value(hand)>value(dealer_hand) && value(hand)<22) | (value(dealer_hand) >
21) ){
      System.out.println( "YOU WIN !!!!");
    }
    else{System.out.println( "YOU LOSE. BOO !!!!");}
```

This is the rule of the game.

```
   // System.out.println(hand.get(0) + " and " + hand.get(1) + " and " + count + "
cards remaining.");



   // hand.add( deal(deck) );




   // System.out.println(value(hand));

  }

}
```

Output:

```
Dealer showing: King_Clubs
Contents of hand: [9_Hearts, 2_Diamonds]
Your score is: 11
hit[H] or stand[S]?
 [DrJava Input Box] (H)
Dealer showing: King_Clubs
Contents of hand: [9_Hearts, 2_Diamonds, 8_Diamonds]
Your score is: 19
hit[H] or stand[S]?
 [DrJava Input Box] (S)
Dealer has: [Queen_Clubs, King_Clubs]
Dealer score is: 20
YOU LOSE. BOO !!!!
```