Cards

Nico

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Programming is definitely important. Hundreds of universities, thousands of professors, and scores and scores of students and practitioners teaching, learning and practicing the discipline are enough testimony to the fact. Examples of why programming is important are:

- To interact with machines and computers.
- To harness the power of computing in all human endeavor.
- To automate tasks.
- To create intelligent machines,etc.

BLACKJACK

Blackjack is a popular American casino game, now found throughout the world. It is a banking game in which the aim of the player is to achieve a hand whose points total nearer to 21 than the banker's hand, but without exceeding 21.

In Nevada casinos the game is generally known 21 rather than Blackjack, and the holding of an ace with a 10-point card is called a "natural".

Confusingly, the name Black Jack is used in Britain for an entirely different card game which is essentially the same as Crazy Eights.

The following outline explains the basic rules of standard blackjack (21), along with the house rules most commonly featured in casinos. Players should bear in mind, though, that blackjack rules vary from casino to casino, and check for local variations before playing.

THE CODE

```
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
```

This whole code is being run in a Blackjack way. The user will be given a random pair of cards. "ACE" can be equal to 1 or 11, whereas Jack, Queen, and King is equal to 10.

The objective is to get,or as close as possible, to 21 as the sum of all the cards that the user have.

Users are given 2 random cards to start with. The users are allowed to look at the cards, and choose to ask for another random card or to fold if they are close enough to 21 and do not want to go over 21.

If the sum of the cards of one os the users is 21 or closest to to 21, the user wins.

```
  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;
    }
  }

  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 11;}
    else{
      return Character.getNumericValue(first);
    }
  }

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;
}



 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];
      }
    }
  /*
    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;}
  }

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



  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 !!!!");}




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

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


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

The user with the closest sum to 21 wins the game.