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\* This program simulates the one-card game of war

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\* **@since** 2016-01-24

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\* Input: N/A

\* Output: N/A

\*/

**import** java.util.\*;

**public** **class** WarGame

{

**public** **static** ArrayList<Card> *deck\_one*;

**public** **static** ArrayList<Card> *deck\_two*;

**public** **static** ArrayList<Card> *hidden\_war\_deck*;

**public** **static** Card *played1*;

**public** **static** Card *played2*;

**public** **static** Card *faceDown1*;

**public** **static** Card *faceDown2*;

**public** **static** Card *faceDown3*;

**public** **static** Card *faceDown4*;

**public** **static** Card *faceDown5*;

**public** **static** Card *faceDown6*;

**public** **static** **void** main(String[] args)

{

**boolean** game\_complete = **false**; //a boolean to determine how the game should end

*played1* = **new** Card(); //a card played by player 1

*played2* = **new** Card(); //a card played by player 2

ArrayList<Card> deck; //creates and array list of Card objects

Card card;

String[] suits = {"Diamonds", "Hearts", "Clubs", "Spades"};

ArrayList<Integer> rank = **new** ArrayList<Integer>(); // creates an array list of numbers to be used in the loops below

deck = **new** ArrayList<Card>();

**for** (**int** i = 1; i <= 52; i++)

{

rank.add(i); //since there are 52 cards in playing cards, it will create numbers from 1-52

}

**for** (**int** i = 1; i <= 52; i++)

{

**int** index = rank.get( i - 1 );

String suit = suits[index%4] ; // since there are 52 cards in total, modulating by 4 would give results that would act as suits

card = **new** Card (index%13 + 1, suit); // 52 cards modulating by 13 would give the results as the ranks of the cards

deck.add(card); //adds the creation of the cards to the deck

}

Collections.*shuffle*(deck); // shuffles the deck before the game starts

*deck\_one* = **new** ArrayList<Card>(); //sets up player 1's deck

*deck\_two* = **new** ArrayList<Card>(); //sets up player 2's deck

*hidden\_war\_deck* = **new** ArrayList<Card>(); //sets up a deck of cards in which it is placed in during the war round

**for** (**int** i = 0; i < 26; i++)

{

*deck\_one*.add(deck.get(i)); //takes the first half of the deck and places it in player 1's deck

}

**for** (**int** i = 26; i < 52; i++)

{

*deck\_two*.add(deck.get(i)); //takes the other half of the deck and places it in player 2's deck

}

**while** (!game\_complete)

{

*played1* = *deck\_one*.get(0); //Player 1 plays the top card of his deck

System.***out***.println("Player one plays " + *played1*.to\_string());//displays what player 1 has played

*played2* = *deck\_two*.get(0); //Player 2 plays the top card of his deck

System.***out***.println("Player two plays " + *played2*.to\_string());//displays what player 2 has played

**if** (*played1*.get\_rank() > *played2*.get\_rank()) //if the rank of of player 1's card is higher than player 2's card

{

System.***out***.println("Player one wins the round");

*deck\_one*.add(*deck\_one*.size() - 1 ,*played1*); //adds the reference of player 1's played card to the end of the player 1's deck

*deck\_one*.add(*played2*);//adds the reference of player 2's played card to the end of player 1's deck

*deck\_one*.remove(0);//removes the reference of player 1's top card since it was played during the round

*deck\_two*.remove(0);//removes the reference of player 2's top card since it was played during the round

System.***out***.println("Remaining deck one: " + *deck\_one*.size()); //prints how many cards remain in player 1's deck after the round is finished

System.***out***.println("Remaining deck two: " + *deck\_two*.size());

}

**else** **if** (*played1*.get\_rank() < *played2*.get\_rank())

{

System.***out***.println("Player two wins the round");

*deck\_two*.add(*deck\_two*.size() - 1, *played2*);//adds the reference of player 2's played card to the end of the player 2's deck

*deck\_two*.add(*played1*);//adds the reference of player 1's played card to the end of player 2's deck

*deck\_two*.remove(0);//removes the reference of player 2's top card since it was played during the round

*deck\_one*.remove(0);//removes the reference of player 1's top card since it was played during the round

System.***out***.println("Remaining deck one: " + *deck\_one*.size()); //prints how many cards remain in player 1's deck after the round is finished

System.***out***.println("Remaining deck two: " + *deck\_two*.size()); //prints how many cards remain in player 1's deck after the round is finished

}

**else** **if** (*played1*.get\_rank() == *played2*.get\_rank())

{

*war\_status*(); //enters the war round if the ranks of both cards are equal in value

}

**if** (*deck\_two*.size() == 0 || *deck\_one*.size() == 52) //if player 2 has either all the cards or no cards left, he wins the game

{

game\_complete = **true**;

System.***out***.println("Player one wins the game!");

}

**if** (*deck\_one*.size() == 0 || *deck\_two*.size() == 52) //if player 1 has either all the cards or no cards left, he wins the game

{

game\_complete = **true**;

System.***out***.println("Player two wins the game!");

}

}

}

**public** **static** **void** war\_status() // the process of the war sequence

{

**if** (*deck\_one*.size() > 3 && *deck\_two*.size() > 3) //checks to see if both players has at least 3 cards before starting the war round

{

System.***out***.println("war");

*faceDown1* = *deck\_one*.get(0);//gets the card reference of the first card

System.***out***.println("xx");//types xx to mask the drawn card

*faceDown2* = *deck\_one*.get(1);//gets the card reference of the second card

System.***out***.println("xx");

*faceDown3* = *deck\_one*.get(2);//gets the card reference of the third card

System.***out***.println("xx");

*hidden\_war\_deck*.add(*faceDown1*); //the war deck adds these 3 hidden card references of player 1's deck

*hidden\_war\_deck*.add(*faceDown2*);

*hidden\_war\_deck*.add(*faceDown3*);

*deck\_one*.remove(0);//the same 3 cards are removed from player 1's deck

*deck\_one*.remove(0);

*deck\_one*.remove(0);

*played1* = *deck\_one*.get(0);//player 1's played card is the recent top card

System.***out***.println("Player one plays " + *played1*.to\_string());//displays what player 1 has played

*faceDown4* = *deck\_two*.get(0);//gets the card reference of the first card

System.***out***.println("xx");

*faceDown5* = *deck\_two*.get(1);//gets the card reference of the second card

System.***out***.println("xx");

*faceDown6* = *deck\_two*.get(2);//gets the card reference of the third card

System.***out***.println("xx");

*hidden\_war\_deck*.add(*faceDown4*);//the war deck adds these 3 hidden card references of player 2's deck

*hidden\_war\_deck*.add(*faceDown5*);

*hidden\_war\_deck*.add(*faceDown6*);

*deck\_two*.remove(0);//the same 3 cards are removed from player 2's deck

*deck\_two*.remove(0);

*deck\_two*.remove(0);

*played2* = *deck\_two*.get(0);//player 2's played card is the recent top card

System.***out***.println("Player two plays " + *played2*.to\_string());//displays what player 2 has played

**if** (*played1*.get\_rank() > *played2*.get\_rank())

{

System.***out***.println("Player one wins the war round");

*deck\_one*.add(*deck\_one*.size() - 1 ,*played1*);//adds the reference of player 1's played card to the end of the player 1's deck

*deck\_one*.add(*played2*);//adds the reference of player 2's played card to the end of player 1's deck

*deck\_one*.remove(0);//removes the reference of player 1's top card since it was played during the round

*deck\_two*.remove(0);//removes the reference of player 2's top card since it was played during the round

*deck\_one*.addAll(*hidden\_war\_deck*);

*hidden\_war\_deck*.clear();//clears war deck after the round is decided

System.***out***.println("Remaining deck one: " + *deck\_one*.size());//prints how many cards remain in player 1's deck after the round is finished

System.***out***.println("Remaining deck two: " + *deck\_two*.size());//prints how many cards remain in player 1's deck after the round is finished

}

**else** **if** (*played1*.get\_rank() < *played2*.get\_rank())

{

System.***out***.println("Player two wins the war round");

*deck\_two*.add(*deck\_two*.size() - 1, *played2*);//adds the reference of player 2's played card to the end of the player 2's deck

*deck\_two*.add(*played1*);//adds the reference of player 1's played card to the end of player 2's deck

*deck\_two*.remove(0);//removes the reference of player 2's top card since it was played during the round

*deck\_one*.remove(0);//removes the reference of player 1's top card since it was played during the round

*deck\_two*.addAll(*hidden\_war\_deck*);

*hidden\_war\_deck*.clear();//clears war deck after the round is decided

System.***out***.println("Remaining deck one: " + *deck\_one*.size());//prints how many cards remain in player 1's deck after the round is finished

System.***out***.println("Remaining deck two: " + *deck\_two*.size());//prints how many cards remain in player 1's deck after the round is finished

}

**else** **if**(*played1*.get\_rank() == *played2*.get\_rank())

{

*hidden\_war\_deck*.add(*played1*);//adds player 1's played card to this deck if the result is a tie

*hidden\_war\_deck*.add(*played2*);//adds player 2's played card to this deck if the result is a tie

*war\_status*(); //enters another war round if the both the resulting ranks are equal during the war round

}

}

}

}

/\*\*

\* This class contains the Card constructor and its methods

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\* **@author** Phillips Huynh

\* **@since** 2016-01-24

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\* Input: N/A

\* Output: N/A

\*/

**public** **class** Card

{

**private** **int** rank;

**private** String suit;

//a default constructor

**public** Card()

{

}

//a constructor with parameters

**public** Card(**int** r, String s)

{

rank = r;

suit = s;

}

/\*\*

\* returns the rank of the card

\* **@return** rank - the value of the card

\*/

**public** **int** get\_rank()

{

**return** rank;

}

/\*\*

\* returns the suit of the card

\* **@return** suit - the classification of the card

\*/

**public** String get\_suit()

{

**return** suit;

}

/\*\*

\* returns a modified string for the card

\* in order of value from lowest to highest,

\* rank 1 is considered to be the "2" rank of the card while

\* rank 13 is considered to be the "Ace" of the card

\* **@return** a modified string that would be shown in the output

\*/

**public** String to\_string()

{

**if** (rank == 1)

{

**return** "2 of " + suit;

}

**else** **if** (rank == 2)

{

**return** "3 of " + suit;

}

**else** **if** (rank == 3)

{

**return** "4 of" + suit;

}

**else** **if** (rank == 4)

{

**return** "5 of" + suit;

}

**else** **if** (rank == 5)

{

**return** "6 of " + suit;

}

**else** **if** (rank == 6)

{

**return** "7 of " + suit;

}

**else** **if** (rank == 7)

{

**return** "8 of " + suit;

}

**else** **if** (rank == 8)

{

**return** "9 of " + suit;

}

**else** **if** (rank == 9)

{

**return** "10 of " + suit;

}

**else** **if** (rank == 10)

{

**return** "Jack of " + suit;

}

**else** **if** (rank == 11)

{

**return** "Queen of " + suit;

}

**else** **if** (rank == 12)

{

**return** "King of " + suit;

}

**else**

{

**return** "Ace of " + suit;

}

}

}

Sample Output

