**Deck of Cards Assignment**

**Due: Wednesday, April 24, 2019.**

Answer the following questions. Type your answers in this document in MS Word and hand in

**A client Code**

***1. What is the identifier for the new instance of the DeckofCards class?***

The identifier for the new instance of the DeckOfCards class is deck1.

***a) Is any data being passed to the constructor?***

There is no data being passed to the constructor.

***2. Explain what happens when deck1.deal() is placed in a print statement. Mention a few things that happen (not just one). Refer to the code for the other classes.***

deck1.deal() will create an array of cards. It will then assign a random instance of the Card class to each index of the array that was just created. The deck1.deal () will pick a random Card from its array and then print the face and suit of that Card when it is placed into a print statement.

**B Card class**

***1. What is being assigned in the constructor?***

The constructor assigns the face value and suit to each card.

***2. Explain what the toString() method does.***

The toString() method will save the Card as it is, but will put the word ‘of’ in between the face and the suit.

**C DeckofCards class**

***1. Explain the line of code: myDeck[n] = new Card( )***

myDeck[n] = new Card() will assign a new instance of Card to the n index of the array.

***a) What do you think is being stored in myDeck[ ]?***

myDeck[] is storing specific and unique instances of Card.

***b) What two features does each element in myDeck[ ] have?***

The two features are that each element has a specific face and suit.

***c) How does use of array improve the functionality of the program?***

It improves the functionality of the program because you only need one variable instead of 52, so it is more efficient.

***2. Why does the constructor have a for loop? Explain.***

In order to assign a new Card to each element of the array.

***a) the purpose of [n % 13] in the faces[ ] array***

This loops through 4 times, ensuring that each element with the same face has a different suit.

***b) the purpose of [n / 13] in the suits array.***

This loops through 13 times, ensuring that each element with the same suit has a different face.

***3. What is the return type for the deal() method?***

Card object

***a) What is the purpose of the if statement?***

The if statement makes sure that the program only deals out 52 cards.

***4. Usually before playing a card game the deck must be shuffled. Describe in words a process that could be used to create a “shuffle method”.***

A shuffle method will generate a random number of the amount of cards in the deck - between 0-51. It can then take the Card that is at the index of whatever number was generated and switch it with the first card in the deck. It will go through this 100 times to ensure that the deck is completely shuffled.

***5 Write your own “shuffle code”.***

public void shuffle()

{

String faceTemp, suitTemp;

int randomNum;

for (int i = 0; i<52;i++)

{

randomNum = (int) (Math.random() \* ((51 - 0) + 1)) + 0;

faceTemp = myDeck [i].myFace;

suitTemp = myDeck [i].mySuit;

myDeck [i] = new Card (myDeck [randomNum].myFace, myDeck [randomNum].mySuit);

myDeck [randomNum] = new Card (faceTemp, suitTemp);

}

}