Name: Harsh Gandhi
PRN: 21070126031

Date: 3rd March,2023.

ASSIGNMENT 4: Deck Of Cards

CODE:

```
import java.util.Random;
import java.util.Vector;
import java.util.Scanner;

class Card {
   private int rank;
   private int suit;

   public Card() {
       this.rank = 0;
       this.suit = 0;
   }

   public Card(int rank, int suit) {
       this.rank = rank;
       this.suit = suit;
   }

   public int getRank() {
       return this.rank;
   }

   public int getSuit() {
       return this.suit;
   }

   public void printCard() {
```

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```
        String[] ranks = {"Ace", "2", "3", "4", "5", "6", "7",
"8", "9", "10", "Jack", "Queen", "King"};
        String[] suits = {"Clubs", "Diamonds", "Hearts",
"Spades"};
        System.out.println(ranks[this.rank] + " of " +
suits[this.suit]);
    }

    public static Vector<Card> createDeck() {
        Vector<Card> deck = new Vector<Card>();
        for (int suit = 0; suit < 4; suit++) {
            for (int rank = 0; rank < 13; rank++) {
                deck.add(new Card(rank, suit));
            }
        }
        return deck;
    }

    public static boolean sameCard(Card card1, Card card2) {
        return (card1.rank == card2.rank && card1.suit ==
card2.suit);
    }

    public static int compareCard(Card card1, Card card2) {
        if (card1.rank > card2.rank) {
            return 1;
        } else if (card1.rank < card2.rank) {
            return -1;
        } else {
            if (card1.suit > card2.suit) {
```

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```
                return 1;
            } else if (card1.suit < card2.suit) {
                return -1;
            } else {
                return 0;
            }
        }
    }

    public static void sortCard(Vector<Card> deck) {
        deck.sort((card1, card2) -> compareCard(card1, card2));
    }

    public static int findCard(Vector<Card> deck, Card card) {
        for (int i = 0; i < deck.size(); i++) {
            if (sameCard(deck.get(i), card)) {
                return i;
            }
        }
        return -1;
    }

    public static void printDeck(Vector<Card> deck) {
        for (Card card : deck) {
            card.printCard();
        }
    }

    public static void dealCards(Vector<Card> deck) {
        Random rand = new Random();
```

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```
        System.out.println("Here are your 5 cards:");
        for (int i = 0; i < 5; i++) {
            int index = rand.nextInt(deck.size());
            deck.get(index).printCard();
            deck.remove(index);
        }
    }
}

public class Java_Lab_Deck
{
   public static void main(String[] args)
    {
        Scanner scanner = new Scanner(System.in);
        Vector<Card> deck = Card.createDeck();
        while (true) {
            System.out.println("\nMenu:");
            System.out.println("1. Print the deck");
            System.out.println("2. Print a card");
            System.out.println("3. Sort the deck");
            System.out.println("4. Find a card");
            System.out.println("5. Deal 5 cards");
            System.out.println("6. Exit");
            System.out.print("Enter your choice: ");
            int choice = scanner.nextInt();
            switch (choice) {
                case 1:
                System.out.println("Printing the deck...");
                Card.printDeck(deck);
                break;
```

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```
            case 2:
                System.out.print("Enter the rank of the card
(0-12): ");
                int rank = scanner.nextInt();
                System.out.print("Enter the suit of the card
(0-3): ");
                int suit = scanner.nextInt();
                Card card = new Card(rank, suit);
                System.out.print("The card is: ");
                card.printCard();
                break;

            case 3:
                System.out.println("Sorting the deck...");
                Card.sortCard(deck);
                break;

            case 4:
                System.out.print("Enter the rank of the card to
find (0-12): ");
                rank = scanner.nextInt();
                System.out.print("Enter the suit of the card to
find (0-3): ");
                suit = scanner.nextInt();
                card = new Card(rank, suit);
                int index = Card.findCard(deck, card);
                if (index == -1) {
                    System.out.println("Card not found.");
                } else {
```

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```
                    System.out.println("Card found at index " +
index + ".");
                }
                break;

            case 5:
                Card.dealCards(deck);
                break;

            case 6:
                System.out.println("Exiting...");
                System.exit(0);
                break;

            default:
                System.out.println("Invalid choice. Please enter
a number between 1 and 6.");
        }
    }
}
}
```

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OUTPUT:

```
Menu:
1. Print the deck
2. Print a card
3. Sort the deck
4. Find a card
5. Deal 5 cards
6. Exit
Enter your choice: 1
Printing the deck...
Ace of Clubs
2 of Clubs
3 of Clubs
4 of Clubs
5 of Clubs
6 of Clubs
7 of Clubs
8 of Clubs
9 of Clubs
10 of Clubs
Jack of Clubs
Queen of Clubs
King of Clubs
Ace of Diamonds
2 of Diamonds
3 of Diamonds
4 of Diamonds
5 of Diamonds
6 of Diamonds
7 of Diamonds
8 of Diamonds
9 of Diamonds
10 of Diamonds
Jack of Diamonds
Queen of Diamonds
King of Diamonds
Ace of Hearts
2 of Hearts
3 of Hearts
4 of Hearts
5 of Hearts
6 of Hearts
7 of Hearts
8 of Hearts
9 of Hearts
10 of Hearts
Jack of Hearts
```

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```
Jack of Hearts
Queen of Hearts
King of Hearts
Ace of Spades
2 of Spades
3 of Spades
4 of Spades
5 of Spades
6 of Spades
7 of Spades
8 of Spades
9 of Spades
10 of Spades
Jack of Spades
Queen of Spades
King of Spades

Menu:
1. Print the deck
2. Print a card
3. Sort the deck
4. Find a card
5. Deal 5 cards
6. Exit
Enter your choice: 2
Enter the rank of the card (0-12): 12
Enter the suit of the card (0-3): 3
The card is: King of Spades

Menu:
1. Print the deck
2. Print a card
3. Sort the deck
4. Find a card
5. Deal 5 cards
6. Exit
Enter your choice: 3
Sorting the deck...

Menu:
1. Print the deck
2. Print a card
3. Sort the deck
4. Find a card
5. Deal 5 cards
6. Exit
Enter your choice: 4
Enter the rank of the card to find (0-12): 1
Enter the suit of the card to find (0-3): 1
Card found at index 5.
```

```
Menu:
1. Print the deck
2. Print a card
3. Sort the deck
4. Find a card
5. Deal 5 cards
6. Exit
Enter your choice: 5
Here are your 5 cards:
9 of Diamonds
6 of Hearts
7 of Hearts
10 of Clubs
5 of Clubs

Menu:
1. Print the deck
2. Print a card
3. Sort the deck
4. Find a card
5. Deal 5 cards
6. Exit
Enter your choice: 6
Exiting...
```