

#### Assignment-4

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

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 rank;
    }

    public int getSuit() {
        return suit;
    }

    public void printCard() {
        String[] suits = {"Spades", "Hearts", "Diamonds", "Clubs"};
        String[] ranks = {"Ace", "2", "3", "4", "5", "6", "7", "8", "9",
"10", "Jack", "Queen", "King"};
        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 void printDeck(Vector<Card> deck) {
        for (Card card : deck) {
            card.printCard();
        }
    }

    public boolean sameCard(Card other) {
        return (this.rank == other.rank && this.suit == other.suit);
    }
}
```

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    }

    public int compareCard(Card other) {
        if (this.rank < other.rank) {
            return -1;
        } else if (this.rank > other.rank) {
            return 1;
        } else {
            if (this.suit < other.suit) {
                return -1;
            } else if (this.suit > other.suit) {
                return 1;
            } else {
                return 0;
            }
        }
    }
}

public static void sortDeck(Vector<Card> deck) {
    deck.sort((c1, c2) -> c1.compareCard(c2));
}

public static void findCard(Vector<Card> deck, Card card) {
    for (int i = 0; i < deck.size(); i++) {
        if (deck.get(i).sameCard(card)) {
            System.out.println("Card found at index " + i);
            return;
        }
    }
    System.out.println("Card not found");
}

public static void dealCards(Vector<Card> deck, int numCards) {
    Random rand = new Random();
    for (int i = 0; i < numCards; i++) {
        int index = rand.nextInt(deck.size());
        Card card = deck.get(index);
        card.printCard();
        deck.remove(index);
    }
}
}

public class CardDeckGame {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        Vector<Card> deck = Card.createDeck();

        while (true) {
            System.out.println("\n--- Menu ---");
            System.out.println("1. Print the deck");
            System.out.println("2. Sort the deck");
            System.out.println("3. Check if two cards are the same");
            System.out.println("4. Find a card");
            System.out.println("5. Deal cards");
            System.out.println("6. Exit");
            System.out.print("Enter your choice (1-6): ");
            int choice = input.nextInt();

            if (choice == 1) {
                System.out.println("\n--- Deck ---");
            }
        }
    }
}

```

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        Card.printDeck(deck);

    } else if (choice == 2) {
        Card.sortDeck(deck);
        System.out.println("\n--- Sorted deck ---");
        Card.printDeck(deck);

    } else if (choice == 3) {
        System.out.println("\nEnter the first card:");
        Card card1 = readCard(input);
        System.out.println("Enter the second card:");
        Card card2 = readCard(input);
        if (card1.sameCard(card2)) {
            System.out.println("The two cards are the same");
        } else {
            System.out.println("The two cards are different");
        }
    }

    } else if (choice == 4) {
        System.out.println("\nEnter a card to search for:");
        Card card = readCard(input);
        Card.findCard(deck, card);

    } else if (choice == 5) {
        System.out.println("\nDealing cards...");
        Card.dealCards(deck, 5);

    } else if (choice == 6) {
        System.out.println("Thank You!");
        break;

    } else {
        System.out.println("Invalid choice, please try again");
    }
}

}

public static Card readCard (Scanner input){
    System.out.print("Enter rank (0-12): ");
    int rank = input.nextInt();
    System.out.print("Enter suit (0-3): ");
    int suit = input.nextInt();
    return new Card(rank, suit);
}
}

```

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File Edit View Navigate Code Refactor Build Run Tools VCS Window Help vvv - CardDeckGame.java
src CardDeckGame.java CardDeckGame main
CardDeckGame.java
Run: CardDeckGame
"C:\Program Files\Java\jdk-19\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2022.3.2\lib\idea_rt.jar=56734:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2022.3.2\bin" -Dfile.encoding=UTF-8
--- Menu ---
1. Print the deck
2. Sort the deck
3. Check if two cards are the same
4. Find a card
5. Deal cards
6. Exit
Enter your choice (1-6): 1
--- Deck ---
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
Ace of Hearts
2 of Hearts
3 of Hearts
4 of Hearts
5 of Hearts
```

Github link: [https://github.com/Boomsnipa/Java\\_assignments](https://github.com/Boomsnipa/Java_assignments)