UE19CS353 - OOAD LAB

Yashi Chawla

PES1UG19CS592

Code:

```java
import java.io.*;
import java.util.*;

class Card
{
    int value;
    String suit;
    public Card(int value, String suit)
    {
        this.value = value;
        this.suit = suit;
    }
}

class Pile
{
    int top;
    int max_size;
    Card[] cards;
    public Pile(int max_size)
    {
        this.top = -1;
        this.max_size = max_size;
        this.cards = new Card[max_size];
    }

    public void display()
    {
        if (top == -1)
        {
            System.out.println("Pile is empty\n");
        }
        else
        {
            for (int i = 0; i <= top; i++)
            {
```

```java
                System.out.println(cards[i].value + " " + cards[i].suit);
            }
        }
    }

    public boolean add(Card card)
    {
        if (this.top == this.max_size - 1)
        {
            System.out.println("Pile is full\n");
            return false;
        }
        else
        {
            this.top++;
            this.cards[this.top] = card;
            return true;
        }
    }

    public Card remove()
    {
        if (this.top == -1)
        {
            System.out.println("Pile is empty\n");
            return null;
        }
        else
        {
            Card card = this.cards[this.top];
            this.top--;
            return card;
        }
    }

    public Card peek()
    {
        if (this.top == -1)
        {
            System.out.println("Pile is empty\n");
            return null;
        }
        else
        {
            return this.cards[this.top];
        }
    }
}
```

```java
class CardCollection
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the number of cards in the pile: ");
        int max_size = sc.nextInt();
        System.out.println();
        Pile pile = new Pile(max_size);

        while (true){
            System.out.println("1. Add card");
            System.out.println("2. Remove card");
            System.out.println("3. Peek");
            System.out.println("4. Display");
            System.out.println("5. Exit\n");

            System.out.print("Enter your choice: ");
            int choice = sc.nextInt();
            switch (choice)
            {
                case 1:
                    System.out.print("Enter value: ");
                    int value = sc.nextInt();
                    System.out.print("Enter suit: ");
                    String suit = sc.next();
                    Card card = new Card(value, suit);
                    if (pile.add(card))
                    {
                        System.out.println("Card added!\n");
                    }
                    break;
                case 2:
                    Card card1 = pile.remove();
                    if (card1 != null)
                    {
                        System.out.println("Card removed: " + card1.suit + " "
+ card1.value + "\n");
                    }
                    break;
                case 3:
                    Card card2 = pile.peek();
                    if (card2 != null)
                    {
                        System.out.println("Card peeked: " + card2.suit + " "
+ card2.value + "\n");
                    }
```

```java
                break;
            case 4:
                pile.display();
                System.out.println();
                break;
            case 5:
                System.exit(0);
                break;
            default:
                System.out.println("Invalid choice\n");
                break;
        }
    }
}
}
```

Output:

```
Enter your choice: 1
Enter value: 5 Diamond
Enter suit: Card added!

1. Add card
2. Remove card
3. Peek
4. Display
5. Exit

Enter your choice: 1
Enter value: 6 Spade
Enter suit: Card added!

1. Add card
2. Remove card
3. Peek
4. Display
5. Exit

Enter your choice: 4
1 Heart
3 Spade
5 Diamond
6 Spade

1. Add card
2. Remove card
3. Peek
4. Display
5. Exit

Enter your choice: 2
Card removed: Spade 6

1. Add card
2. Remove card
3. Peek
4. Display
5. Exit
```

```
Enter suit: Card added!

1. Add card
2. Remove card
3. Peek
4. Display
5. Exit

Enter your choice: 4
1 Heart
3 Spade
5 Diamond
6 Spade

1. Add card
2. Remove card
3. Peek
4. Display
5. Exit

Enter your choice: 2
Card removed: Spade 6

1. Add card
2. Remove card
3. Peek
4. Display
5. Exit

Enter your choice: 3
Card peeked: Diamond 5

1. Add card
2. Remove card
3. Peek
4. Display
5. Exit

Enter your choice: 5
pes1ug19cs592@LAPTOP-3NK0JKVJ:~/OOAD-Lab/Week 1$
```