

UE19CS353 : OBJECT ORIENTED ANALYSIS AND DESIGN**Name : Priya Mohata****Section : E****SRN : PES2UG19CS301****Problem Statement :**

Write a Java program to implement a pile of cards as a stack data structure. A pile contains cards where you can place a card on the top of the pile (push) and draw a card from the top of the pile (pop). A card should be an Object with properties card suit (Club, Diamond, Spade or Heart) and a card value (A, 1, 2, 3...10, J, Q, K). You can also peek in to the pile by checking the card at the top without drawing it from the pile (display). The pile can contain a maximum of 10 cards. The pile should be an object instantiated in the main function. After that the user should be given a option to perform any of the three functions (place, draw or peek)

Program:

```
// Priya Mohata
// PES2UG19CS301
// Week-2

import java.util.Scanner;

class Card{
    String suite;
    String value;

    // Parameterized Constructor
    Card(String suite,String value){
        this.suite=suite;
        this.value=value;
    }
}

class Pile{
    // To peek the stack
    int top=0;
    // Creating a stack as array of objects
    // 10 since - pile limit is 10
    Card[] card=new Card[10];

    void insert(String suite,String value){
        // Checking for overflow
        top=top+1;
        card[top]=new Card(suite,value);
    }
}
```

```

void draw(){
    // Checking for underflow
    if(top<=0){
        System.out.println("Sorry! Drawing of Card is not possible!");
    }
    else
    {
        System.out.println("Card Drawn of suite: "+card[top].suite+" the value is :"+card[top].value+"\n");
        card[top].suite=null;
        card[top].value=null;
        top--;
    }
}

void peek(){
    if(top<=0){
        System.out.println("Sorry there is no card present");
    }
    else
    {
        System.out.println("Card of suite:"+card[top].suite+" the value is :"+card[top].value+"\n");
    }
}
}

```

```

class Main{
    Run | Debug
    public static void main(String[] args){
        Pile p=new Pile();

        int ch;

        Scanner scanner=new Scanner(System.in);

        while(true){
            System.out.println("\nEnter 1 to insert card");
            System.out.println("Enter 2 to draw card");
            System.out.println("Enter 3 to peek card");
            System.out.println("Enter 4 to quit");
            System.out.println("Enter your choice\n");

            ch=scanner.nextInt();

            switch(ch){
                case 1:
                    if(p.top>=9){
                        System.out.println("Sorry! Insertion of Card is not possible!\n");
                    }
                    else{
                        System.out.println("Enter the suite and value");
                        String suite=scanner.next();
                        System.out.println("Enter the value");
                        String value=scanner.next();
                        p.insert(suite,value);
                    }
                    break;

                case 2:
                    p.draw();
                    break;
            }
        }
    }
}

```

```

        case 3:
            p.peek();
            break;

        case 4:
            System.exit(0);
    }
}
}
}
}

```

Output :

Overflow Case :

```

apple@Apples-MacBook-Air Week2 % javac program1.java
apple@Apples-MacBook-Air Week2 % java Main

Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice

1
Enter the suite and value
Spade
Enter the value
A

Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice

1
Enter the suite and value
Diamond
Enter the value
4

Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice

1
Enter the suite and value
Diamond
Enter the value
9

Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice

1
Enter the suite and value
Hearts
Enter the value
K

```

```
Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice
```

```
1
Enter the suite and value
Clubs
Enter the value
6
```

```
Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice
```

```
1
Enter the suite and value
Hearts
Enter the value
9
```

```
Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice
```

```
1
Enter the suite and value
Hearts
Enter the value
2
```

```
Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice
```

```
1
Enter the suite and value
Diamond
Enter the value
8
```

```
1
Enter the suite and value
Clubs
Enter the value
Q
```

```
Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice
```

```
1
Sorry! Insertion of Card is not possible!
```

Drawing card :

```
Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice
```

```
2
Card Drawn of suite: Clubs the value is :Q
```

```
Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice
```

```
2
Card Drawn of suite: Diamond the value is :8
```

```
Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice
```

```
2
Card Drawn of suite: Hearts the value is :2
```

Peek :

```
Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice
```

```
3
Card of suite:Hearts the value is :9
```

```
Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice
```

```
3
Card of suite:Hearts the value is :9
```

Underflow Case :

```
Card Drawn of suite: Clubs the value is :6

Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice

2
Card Drawn of suite: Hearts the value is :K

Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice

2
Card Drawn of suite: Diamond the value is :9

Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice

2
Card Drawn of suite: Diamond the value is :4

Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice

2
Card Drawn of suite: Spade the value is :A

Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice

2
Sorry! Drawing of Card is not possible!

Enter 1 to insert card
Enter 2 to draw card
Enter 3 to peek card
Enter 4 to quit
Enter your choice
```