

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment 4.2

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Semester: 6th
Subject Name: JAVA
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Date of Performance: 19/2/25

1.Aim: Medium Level: Card Collection System Problem Statement

Create a program to collect and store all the cards (e.g., playing cards) and assist users in finding all the cards of a given symbol using the Collection interface.

Key Concepts Used HashMap: To store cards with their symbols as keys.

Collection Interface: To manage and manipulate the card data.

User Interaction: Allow users to search for cards by symbol.

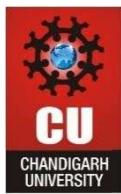
2. Code

```
import java.util.ArrayList;
import java.util.HashMap;
import java.util.List;
import java.util.Map;
import java.util.Scanner;

class Card {
    private String symbol;
    private String value;

    public Card(String symbol, String value) {
        this.symbol = symbol;
        this.value = value;
    }

    public String getSymbol() {
```



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```
        return symbol;
    }

    public String getValue() {
        return value;
    }

    @Override
    public String toString() {
        return value + " of " + symbol;
    }
}

public class CardCollection {
    private static Map<String, List<Card>> cardMap = new HashMap<>();
    private static Scanner scanner = new Scanner(System.in);

    public static void main(String[] args) {
        boolean exit = false;
        while (!exit) {
            System.out.println("\nCard Collection System");
            System.out.println("1. Add Card");
            System.out.println("2. Find Cards by Symbol");
            System.out.println("3. Exit");
            System.out.print("Choose an option: ");
            int choice = scanner.nextInt();
            scanner.nextLine(); // Consume newline

            switch (choice) {
                case 1:
                    addCard();
                    break;
                case 2:
                    findCardsBySymbol();
            }
        }
    }

    private void addCard() {
        System.out.print("Enter symbol: ");
        String symbol = scanner.nextLine();
        System.out.print("Enter value: ");
        String value = scanner.nextLine();
        Card card = new Card(symbol, value);
        cardMap.putIfAbsent(card.getSymbol(), new ArrayList<>());
        cardMap.get(card.getSymbol()).add(card);
    }

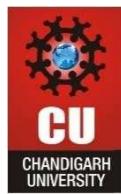
    private void findCardsBySymbol() {
        System.out.print("Enter symbol: ");
        String symbol = scanner.nextLine();
        if (cardMap.containsKey(symbol)) {
            List<Card> cards = cardMap.get(symbol);
            for (Card card : cards) {
                System.out.println(card);
            }
        } else {
            System.out.println("No cards found for symbol: " + symbol);
        }
    }
}
```



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```
        break;  
    case 3:  
        exit = true;  
        break;  
    default:  
        System.out.println("Invalid choice. Please try again.");  
    }  
}  
}  
  
private static void addCard() {  
    System.out.print("Enter Card Symbol (e.g., Hearts, Spades): ");  
    String symbol = scanner.nextLine();  
    System.out.print("Enter Card Value (e.g., Ace, 2, King): ");  
    String value = scanner.nextLine();  
  
    Card card = new Card(symbol, value);  
    cardMap.computeIfAbsent(symbol, k -> new ArrayList<>()).add(card);  
    System.out.println("Card added successfully.");  
}  
  
private static void findCardsBySymbol() {  
    System.out.print("Enter Card Symbol to search: ");  
    String symbol = scanner.nextLine();  
  
    List<Card> cards = cardMap.get(symbol);  
    if (cards != null && !cards.isEmpty()) {  
        System.out.println("Cards with symbol " + symbol + ":");  
        for (Card card : cards) {  
            System.out.println(card);  
        }  
    } else {  
        System.out.println("No cards found with symbol " + symbol + ".");  
    }  
}
```



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}

}

4.Output:

```
Card Collection System
1. Add Card
2. Find Cards by Symbol
3. Exit
Choose an option: 1
Enter Card Symbol (e.g., Hearts, Spades): Hearts
Enter Card Value (e.g., Ace, 2, King): King
Card added successfully.

Card Collection System
1. Add Card
2. Find Cards by Symbol
3. Exit
Choose an option: 1
Enter Card Symbol (e.g., Hearts, Spades): Spades
Enter Card Value (e.g., Ace, 2, King): Ace
Card added successfully.

Card Collection System
1. Add Card
2. Find Cards by Symbol
3. Exit
Choose an option: 2
Enter Card Symbol to search: Hearts
Cards with symbol Hearts:
King of Hearts

Card Collection System
1. Add Card
2. Find Cards by Symbol
3. Exit
Choose an option: 3

...Program finished with exit code 0
Press ENTER to exit console.■
```