Experiment 4

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Branch:CSE   **Section:640`B**

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Subject:Java   **SubjectCode:22CSH-359**

Aim: Create a program to collect and store all the cards to assist the users in finding all the cards in a given symbol using Collection interface.

Objective: To create a program that collects and stores playing cards, and assists users in finding all cards with a given symbol (suit) using the `Collection` interface.

Algorithm:

- We will use a `List` to store the cards.
- Each card will have a rank (Ace, 2, 3, ..., King) and a suit (Hearts, Diamonds, Clubs, Spades).
  - The program will allow users to input a suit and return all cards that belong to that suit.

Code:

```java
import  java.util.ArrayList;
import java.util.Collection;
import java.util.Scanner;

class Card {
    String rank;
    String suit;

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

    @Override
    public String toString() {
        return rank + " of " + suit;
    }
}

public class CardCollectionSystem {
    public static void main(String[] args) {
        // Create a Collection to store all the cards
        Collection<Card> deck = new ArrayList<>();

        // Initialize a deck of 52 cards
        String[] ranks = {"Ace", "2", "3", "4", "5", "6", "7", "8", "9", "10", "Jack", "Queen", "King"};
        String[] suits = {"Hearts", "Diamonds", "Clubs", "Spades"};
```

```java
    // Populate the deck with cards
    for (String suit : suits) {
        for (String rank : ranks) {
            deck.add(new Card(rank, suit));
        }
    }

    // Display the menu and process user input
    Scanner scanner = new Scanner(System.in);
    System.out.println("Enter the suit to find all cards (Hearts, Diamonds, Clubs, Spades): ");
    String userSuit = scanner.nextLine();

    // Find and display cards matching the suit
    System.out.println("Cards of suit " + userSuit + ":");
    for (Card card : deck) {
        if (card.suit.equalsIgnoreCase(userSuit)) {
            System.out.println(card);
        }
    }

    scanner.close();
    }
}
```

OUTPUT:

```
Enter the suit to find all cards (Hearts, Diamonds, Clubs, Spades):
Hearts
Cards of suit Hearts:
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
Queen of Hearts
King of Hearts
```

Learning Outcomes:

- **Collection Interface**: We use the `Collection` interface (specifically `ArrayList` in this case) to store the cards.
- **Search by Suit**: The program allows users to search for cards by suit and returns all cards that match.