

Code-

```
import java.util.*;

public class CardCollection {
    private final Map<String, Set<String>> cards = new TreeMap<>();

    public CardCollection() {
        populateCards();
    }

    private void populateCards() {
        String[] suits = {"Hearts", "Diamonds", "Clubs", "Spades"};
        String[] ranks = {"Ace", "2", "3", "4", "5", "6", "7", "8", "9", "10", "Jack", "Queen", "King"};

        for (String suit : suits) {
            for (String rank : ranks) {
                addCard(suit, rank);
            }
        }
    }

    public void addCard(String symbol, String card) {
        cards.computeIfAbsent(symbol, k -> new TreeSet<>()).add(card);
    }

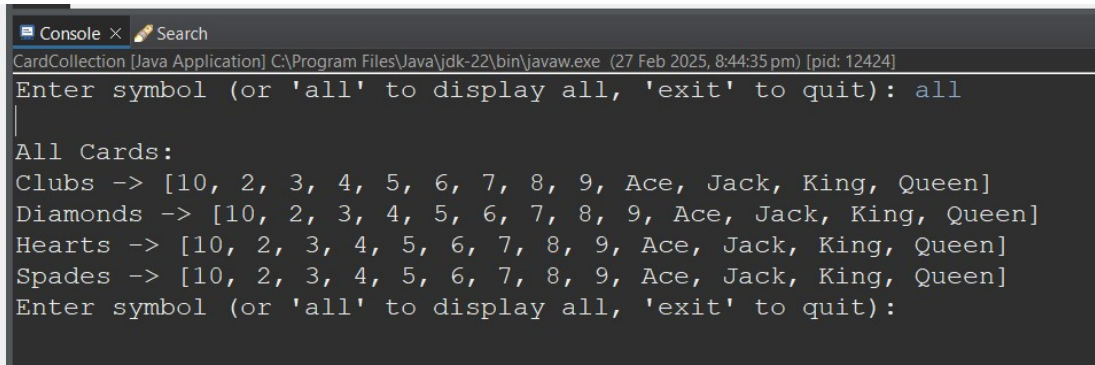
    public void displayCardsBySymbol(String symbol) {
        if (cards.containsKey(symbol)) {
            System.out.println("Cards of " + symbol + ": " + cards.get(symbol));
        } else {
            System.out.println("No cards found for " + symbol);
        }
    }

    public void displayAllCards() {
        if (cards.isEmpty()) {
            System.out.println("No cards in the collection.");
            return;
        }
        System.out.println("\nAll Cards:");
        cards.forEach((symbol, cardSet) -> System.out.println(symbol + " -> " + cardSet));
    }

    public static void main(String[] args) {
        CardCollection collection = new CardCollection();
        Scanner sc = new Scanner(System.in);
        while (true) {
```

```
System.out.print("Enter symbol (or 'all' to display all, 'exit' to quit): ");
String input = sc.nextLine().trim();
if (input.equalsIgnoreCase("exit")) break;
if (input.equalsIgnoreCase("all")) {
    collection.displayAllCards();
} else {
    collection.displayCardsBySymbol(input);
}
}
}
sc.close();
}
```

Input/ Output



```
Console x Search
CardCollection [Java Application] C:\Program Files\Java\jdk-22\bin\javaw.exe (27 Feb 2025, 8:44:35 pm) [pid: 12424]
Enter symbol (or 'all' to display all, 'exit' to quit): all
All Cards:
Clubs -> [10, 2, 3, 4, 5, 6, 7, 8, 9, Ace, Jack, King, Queen]
Diamonds -> [10, 2, 3, 4, 5, 6, 7, 8, 9, Ace, Jack, King, Queen]
Hearts -> [10, 2, 3, 4, 5, 6, 7, 8, 9, Ace, Jack, King, Queen]
Spades -> [10, 2, 3, 4, 5, 6, 7, 8, 9, Ace, Jack, King, Queen]
Enter symbol (or 'all' to display all, 'exit' to quit):
```