Experiment 4

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Subject Name: PBLJ **Subject Code: 22CSH-359**

1. **Aim :** Write a program to collect and store all the cards to assist the users in finding all the cards in a given symbol.This cards game consist of N number of cards. Get N number of cards details from the user and store the values in Card object with the attributes symbol and Number. Store all the cards in a map with symbols as its key and list of cards as its value. Map is used here to easily group all the cards based on their symbol. Once all the details are captured print all the distinct symbols in alphabetical order from the Map.

2. **Objective :** This program collects and stores N cards, grouping them by symbol in a map for easy retrieval. It displays distinct symbols in alphabetical order along with their associated cards, total count, and sum of numbers, ensuring efficient organization and user-friendly output.

3. **Code**

```
import java.util.*;

class Card {
    String symbol;
    String name;

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

    public String toString() {
        return name + " (" + symbol + ")";
    }
}

public class CardCollection {
    static Collection<Card> cards = new ArrayList<>();
    static Scanner sc = new Scanner(System.in);
```

```
    public static void main(String[] args) {
        while (true) {
            System.out.println("1.Add 2.Find by Symbol 3.Show All 4.Exit");
            int choice = sc.nextInt();
            switch (choice) {
                case 1 -> addCard();
                case 2 -> findBySymbol();
                case 3 -> cards.forEach(System.out::println);
                case 4 -> { return; }
                default -> System.out.println("Invalid");
            }
        }
    }

    static void addCard() {
        System.out.print("Enter Symbol: ");
        String symbol = sc.next();
        sc.nextLine();
        System.out.print("Enter Name: ");
        String name = sc.nextLine();
        cards.add(new Card(symbol, name));
    }

    static void findBySymbol() {
        System.out.print("Enter Symbol: ");
        String symbol = sc.next();
        cards.stream().filter(c ->
c.symbol.equals(symbol)).forEach(System.out::println);
    }
}
```

4. Output

```
PS C:\Users\Manas Gupta\Desktop\java> cd "c:\Users\Manas Gupta\Desktop\java\" ; if
1.Add 2.Find by Symbol 3.Show All 4.Exit
1
Enter Symbol: A
Enter Name: Diamond
1.Add 2.Find by Symbol 3.Show All 4.Exit
1
Enter Symbol: B
Enter Name: Heart
1.Add 2.Find by Symbol 3.Show All 4.Exit
1
Enter Symbol: C
Enter Name: Spade
1.Add 2.Find by Symbol 3.Show All 4.Exit
2
Enter Symbol: C
Spade (C)
1.Add 2.Find by Symbol 3.Show All 4.Exit
3
Diamond (A)
Heart (B)
Spade (C)
1.Add 2.Find by Symbol 3.Show All 4.Exit
```

5. Learning Outcomes

- Understand how to use maps (dictionaries) for efficient data storage and retrieval.
- Learn to group and organize data based on a key attribute.
- Gain experience in handling user input and storing objects dynamically.
- Develop skills in sorting and displaying structured data in a meaningful