



## Experiment 4

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**Subject Name:** Project Based Learning in Java with Lab

**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.
- 2. Objective:** Write a program to collect and store all the cards to assist the users in finding all the cards in a given symbol. 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 symbol as its key and list of cards as its value. Once all the details are captured print all the distinct symbols in alphabetical order from the Map. For each symbol print all the card details, number of cards and their sum respectively.

### **3. Implementation/Code:**

```
import java.util.*;
public class CardGame
{
    public static void main(String[] args)
    {
        Scanner input = new Scanner(System.in);
        Map<String, List<Integer>> map = new TreeMap<>();
        System.out.println("Enter Number of Cards:");
        int n = input.nextInt();
        for (int i = 1; i <= n; i++)
        {
            System.out.println("Enter card " + i + ":");
            String symbol = input.next();
            int number = input.nextInt();
            if (!map.containsKey(symbol))
            {
                map.put(symbol, new ArrayList<>());
            }
        }
    }
}
```

```
        map.get(symbol).add(number);
    }
    System.out.println("Distinct Symbols are:");
    for (String symbol : map.keySet()) {
        System.out.print(symbol + " ");
    }
    System.out.println();
    for (Map.Entry<String, List<Integer>> entry : map.entrySet())
    { String symbol = entry.getKey();
      List<Integer> numbers = entry.getValue();
      int sum = 0;
      for (int num : numbers)
      { sum += num;
      }
      System.out.println("Cards in " + symbol + " Symbol");
      for (int number : numbers) {
          System.out.println(symbol + " " + number);
      }
      System.out.println("Number of cards: " + numbers.size());
      System.out.println("Sum of Numbers: " + sum);
    }
}
}
```

## 4. Output

```
PS D:\22bcs13216\6\java\code> java CardGame
Enter Number of Cards:
13
Enter card 1:
s 1
Enter card 2:
s 12
Enter card 3:
s 13
Enter card 4:
d 4
Enter card 5:
c 5
Enter card 6:
h 5
```

```
Enter card 7:
h 7
Enter card 8:
c 3
Enter card 9:
c 2
Enter card 10:
h 9
Enter card 11:
s 7
Enter card 12:
d 4
Enter card 13:
d 3
Distinct Symbols are:
c d h s
Cards in 'c' Symbol
c 5
c 3
c 2
Number of cards: 3
Sum of Numbers: 10
Cards in 'd' Symbol
d 4
d 4
d 3
Number of cards: 3
Sum of Numbers: 11
Cards in 'h' Symbol
h 5
h 7
h 9
Number of cards: 3
Sum of Numbers: 21
Cards in 's' Symbol
s 1
s 12
s 13
s 7
Number of cards: 4
Sum of Numbers: 33
```

## 5. Learning Outcome:

- Object-Oriented Programming concepts
- Using TreeMaps to store and sort cards alphabetically by symbol
- Collections in Java