

“Experiment 2.2”

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Branch: **CSE**

Semester: **5**

Subject Name: **PBLJ Lab**

UID: **20BCS8226**

Section/Group: **808-A**

Date of Submission: **28-10-22**

Subject Code: **20CSP-321**

Aim:

Write a Program to collect and groups the card.

Minimum Hardware Requirements:

- 2 GHz CPU or 1 virtual CPU in virtualized environments.
- 1 GB of RAM.
- 4 GB of storage.

Minimum Software Requirements:

Software	Version
<ul style="list-style-type: none">• OS	<ul style="list-style-type: none">• Mac OS 10.15, HP-UX 11i V3, AIX 7.2, Windows Server 2019, Windows 10, Solaris 11.3, Red Hat Enterprise Linux 8.1, Ubuntu Server 20.04
<ul style="list-style-type: none">• JDK	<ul style="list-style-type: none">• JDK 1.8.0, JDK 11, Eclipse IDE, Net, NetBeans 8.2

Source Code:

// Save: GroupCards.java

```
// SUMIT KUMAR
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package practice2;

import java.util.ArrayList;
import java.util.Iterator;
import java.util.Map;
import java.util.Map.Entry;
import java.util.Scanner;
import java.util.Set;
import java.util.TreeMap;

public class GroupCards {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        Map<Character, ArrayList<Card>> map = new TreeMap<>();
        System.out.println("Enter Number of Cards :");
        int n = sc.nextInt();
        sc.nextLine();
        for (int i = 1; i <= n; i++) {
            System.out.println("Enter card " + n);
            char symbol = sc.nextLine().charAt(0);
            int number = sc.nextInt();
            Card card = new Card();
            card.setSymbol(symbol);
            card.setNumber(number);
            sc.nextLine();
            if (!map.containsKey(symbol)) {
                ArrayList<Card> list = new ArrayList<>();
                list.add(card);
                map.put(symbol, list);
            } else {
                ArrayList<Card> list = map.get(symbol);
                list.add(card);
            }
        }
        System.out.println("Distinct Symbols are :");
        Set<Entry<Character, ArrayList<Card>>> set = map.entrySet();
        Iterator<Entry<Character, ArrayList<Card>>> it = set.iterator();
        while (it.hasNext()) {
            System.out.print(it.next().getKey() + " ");
        }
        System.out.println();
        set = map.entrySet();
        it = set.iterator();

        while (it.hasNext()) {
            int sum = 0;
            Map.Entry<Character, ArrayList<Card>> me = it.next();
            ArrayList<Card> list = me.getValue();
            System.out.println("Cards in " + me.getKey() + " Symbol");
            for (Card card : list) {
                System.out.println(card.getSymbol() + " " + card.getNumber());
            }
        }
    }
}
```

```

        sum += card.getNumber();
    }
    System.out.println("Number of cards : " + list.size());
    System.out.println("Sum of Numbers : " + sum);
}
sc.close();
}
}

```

// Save: Card.java

```

package practice2;

public class Card implements Comparable<Card>
{
    private char symbol;
    private int number;
    public Card() {}
    public Card(char symbol, int number) {
        super();
        this.symbol = symbol;
        this.number = number;
    }
    public char getSymbol() {
        return symbol;
    }
    public void setSymbol(char symbol) {
        this.symbol = symbol;
    }
    public int getNumber() {
        return number;
    }
    public void setNumber(int number) {
        this.number = number;
    }

    @Override
    public String toString() {
        return "Card [symbol=" + symbol + ", number=" + number + "]";
    }
    @Override
    public int compareTo(Card o) {
        if (this.symbol < o.symbol) return -1;
        else if (this.symbol > o.symbol) return 1;
        else return 1;
    }
    // @Override
    // public int hashCode() {
    //     return String.valueOf(symbol).hashCode();
    // }
    // @Override
    // public boolean equals(Object obj){
    //     if (obj instanceof Card) {

```

```

//          Card card = (Card) obj;
//          return (card.symbol == this.symbol);
//      } else {
//          return false;
//      }
//  }
}

```

Output:

The screenshot shows the Eclipse IDE with the following components:

- Project Explorer:** Shows the project structure with 'Java2' as the root, containing 'src' and 'practice2' folders. 'practice2' contains 'Card.java', 'Employee.java', 'GroupCards.java', 'Keys.java', 'Main.java', 'Video.java', 'VideoLauncher.java', and 'VideoStore.java'.
- Editor:** Displays the 'GroupCards.java' file. The code includes imports for ArrayList, Iterator, Map, Map.Entry, Scanner, Set, and TreeMap. The main method uses a Scanner to take input for the number of cards and then iterates to collect card symbols and numbers, storing them in a TreeMap.
- Console:** Shows the output of the program. It prompts the user to enter the number of cards (2), then for each card, it prompts for the symbol (y, z) and the number (2, 11). The final output displays the distinct symbols (y, z), the count of cards for each symbol (y: 2, z: 1), and the sum of numbers for each symbol (y: 12, z: 11).

Learning outcomes:

1. We have implemented the hash map using the java collection framework.
2. I've performed the insertion of data into hashmap using the scanner class of java.
3. I have gone through the uses of for loop for taking the input from user in iterative way.
4. Used two data types which String as key and Integer as value pair. Hashmap data structure is mainly used for insert the value in the key and value pair.