Experiment 2.1

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Subject Name: Problem Based Learning in Java   **Subject Code:** 20CSP_321

Aim:
Collect and Group Cards.

Apparatus used:
Online java compiler

Algorithm/pseudo:
Step 1 - Create a hash set.
Step 2 - Create a map class.
Step 3 - Use for loop to get no.of cards to print.
Step 4 - Provide user input and enter card symbols and numbers.
Step 5 - Enter the symbol and card number and the output is set.
Step 6- Get the sum of numbers.

Code:

```java
import java.util.*;
public class card
{
 public static void main (String[]args)
  {
    Scanner input = new Scanner (System.in);
```

```java
List < Integer > valueList = new ArrayList < Integer > ();
TreeMap < String, List < Integer >> mapObj =
 new TreeMap < String, List < Integer >> ();
 int total, index, value, sum = 0, count = 0;
 System.out.println ("Enter Number of Cards");
 total = input.nextInt ();
 String symbol;
 for (index = 1; index <= total; index++)
      {
System.out.println ("Enter Card" + " " + index);
symbol = input.next ();
value = input.nextInt ();
if (mapObj.containsKey (symbol))
        {
valueList = mapObj.get (symbol);
valueList.add (value);
        }
     else
        {
valueList = new ArrayList < Integer > ();
valueList.add (value);
 mapObj.put (symbol, valueList);
        }
   }
System.out.println ("Distinct Symbols are:");
for (Map.Entry getData:mapObj.entrySet ())
    {
System.out.println (getData.getKey () + " ");
    }
System.out.println ();
  for (Map.Entry getData:mapObj.entrySet ())
    {
System.out.println ("Cards In " + getData.getKey () + " Symbol :");

ArrayList < Integer > temp =
      (ArrayList < Integer >) getData.getValue ();
```

```
Iterator itr = temp.iterator ();
while (itr.hasNext ())
{
count++;
int val = (int) itr.next ();
System.out.print (getData.getKey ());
System.out.println (" " + val);
sum += val;
}
System.out.println ("Number Of Cards : " + count);
System.out.println ("Sum Of Numbers : " + sum);
sum = 0;
}
input.close ();
}
}
```

4. Result:

```
java -cp /tmp/49RyUHF7Qc card
Enter Number of Cards13
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 :
c5
c 3
c 2
Number Of Cards : 3
Sum Of Numbers : 10
Cards In d  Symbol :
d4
d 4
d 3Number Of Cards : 6
Sum Of Numbers : 11
Cards In h  Symbol :
h 5
h 7
h9
Number Of Cards : 9
Sum Of Numbers : 21
Cards In s  Symbol :s 1
s 12
s 13
s 7
Number Of Cards : 13Sum Of Numbers : 33
|
```

Learning outcomes:

    a. Learned about maps.

    b. To get an overview of the maps and hashing.

    c. Understand important test cases.

    d. Better understanding of map references.