

Department of Computer Science & Engineering



UNIVERSITY INSTITUTE OF ENGINEERING

Department of Computer Science & Engineering

Subject Name: Project Based Learning in Java Lab

Subject Code: 20CSP321

Submitted to: Er.Parveen Tanwar Sir

Faculty name: Er. Parveen Tanwar Sir

Submitted by: Priya Bharti

Name: Priya Bharti

UID: 20BCS3524

Section: 607

Group: B

Department of Computer Science & Engineering

Department of Computer Science & Engineering

INDEX

Ex. No	List of Experiments	Conduct (MM: 12)	Viva (MM: 10)	Record (MM: 8)	Total (MM: 30)	Date	Remarks/Signature
1.1	Create an application to save the employee information using arrays.					03/09/22	
1.2	Design and implement a simple inventory control system for a small video rental store.					05/09/22	
1.3	Create a application to calculate interest for FDs, RDs based on certain conditions using inheritance.					10/09/22	
2.1	Create a program to set view of Keys from Java Hashtable.					29/09/22	
2.2	Create a program to show the usage of Sets of Collection interface.					07/10/22	
2.3	Write a Program to perform them basic operations like insert, delete, display, and search in list. List contains String object items where these operations are to be performed.					12/10/22	
2.4	Create a menu-based Java application with the following options. 1.Add an Employee 2.Display All 3.Exit If option 1 is selected, the application should gather details of the employee like employee name, employee id, designation and salary and store it in a file. If option 2 is selected, the application should display all the employee details. If option 3 is selected the application should exit.					13/10/22	
3.1	Create a palindrome creator application for making a longest possible palindrome out of given input string.						
3.2	Create a Servlet/ application with a facility to print any message on web browser.						
3.3	Create JSP application for addition, multiplication and division.						

Experiment 2.2

Student Name: Priya Bharti

UID: 20BS3524

Branch: CSE

Section/Group: 607-B

Semester: 5th

Date of Performance: 07/10/22

Subject Name: PBLJ Lab

Subject Code: 20CSP-321

AIM:

Playing cards during travel is a fun filled experience. For this game they wanted to collect all four unique symbols. Can you help these guys to collect unique symbols from a set of cards.

OBJECTIVE:

Playing cards during travel is a fun filled experience. For this game they wanted to collect all four unique symbols. Can you help these guys to collect unique symbols from a set of cards?

Create Card class with attributes symbol and number. From our main method collect each card details (symbol and number) from the user.

Collect all these cards in a set, since set is used to store unique values or objects. Once we collect all four different symbols display the first occurrence of card details in alphabetical order.

Sample input output :

Enter card :

a

1

Enter card :

a

2

Enter card :

a

7

Enter card :

d

6

Enter card :

c

Department of Computer Science & Engineering

2

Enter card :

d

1

Enter card :

c

1

Enter card :

b

2

Four symbols gathered in 8 cards.

Cards in Set are :

a 1

b 2

c 2

d 6

JAVA CODE/INPUT:

Testmain.java

```
package com.w4epic.service;
```

```
import java.util.HashSet;
```

```
import java.util.Scanner;
```

```
import java.util.Set;
```

```
import java.util.TreeSet;
```

```
import com.w4epic.bean.Card;
```

```
public class Testmain {
```

```
    public static void main(String[] args) {  
        Scanner sc = new Scanner(System.in);  
        Set<Card> set = new HashSet<>();
```

```
        for (int i = 0; i < 8; i++) {  
            System.out.println("Enter a card:");  
            Card card = new Card();
```

Department of Computer Science & Engineering

```
card.setSymbol(sc.nextLine().charAt(0));
card.setNumber(sc.nextInt());
sc.nextLine();

    set.add(card);
}
System.out.println("Four symbols gathered in eight cards.");
System.out.println("Cards in Set are:");

for (Card card : set)
    System.out.println(card.getSymbol() + " " + card.getNumber());

sc.close();
}

}
```

Card.java

```
package com.w4epic.bean;

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;
    }
}
```

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@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;  
}
```

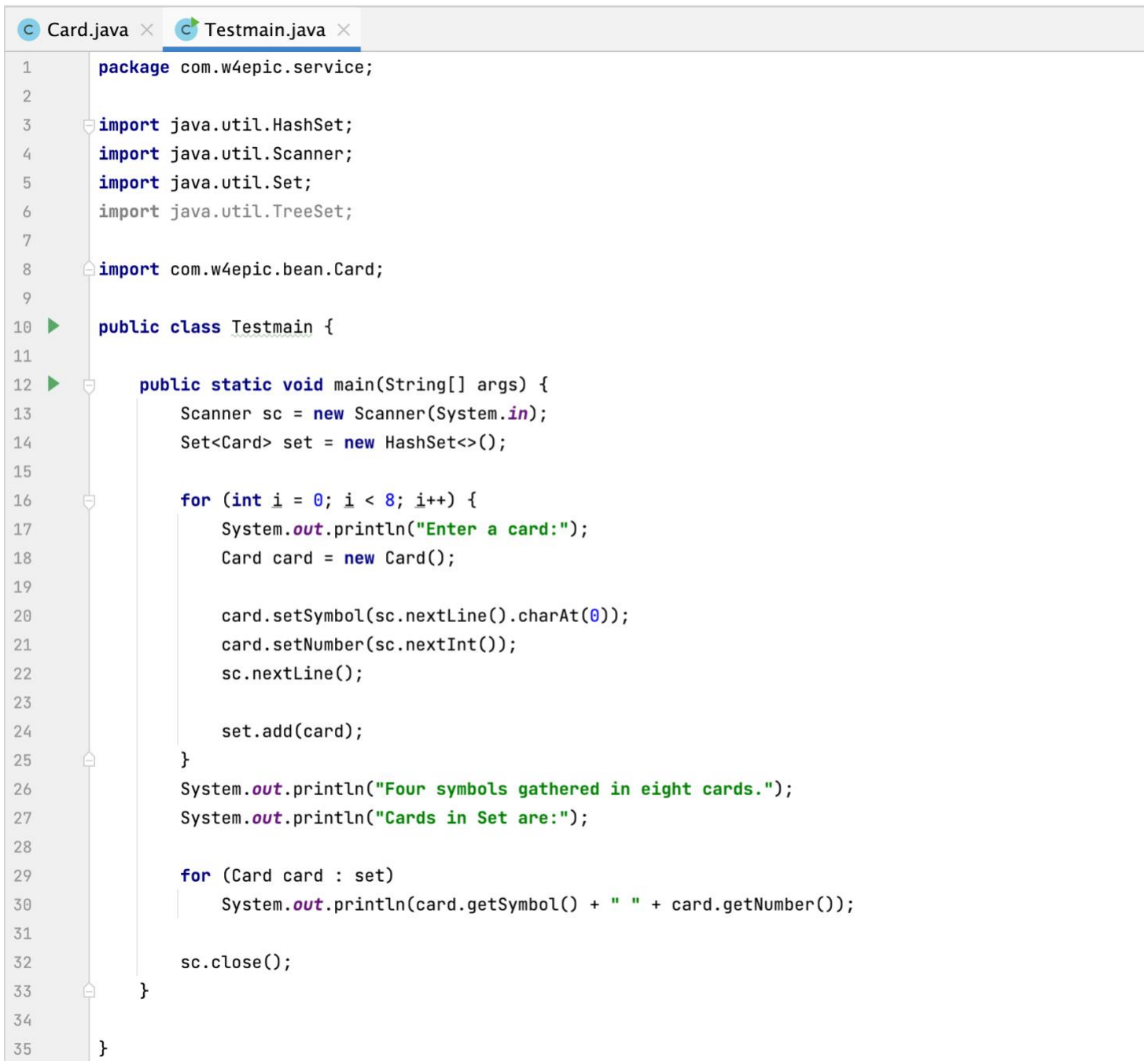
@Override

```
public int hashCode() {  
    return String.valueOf(symbol).hashCode();  
}
```

@Override

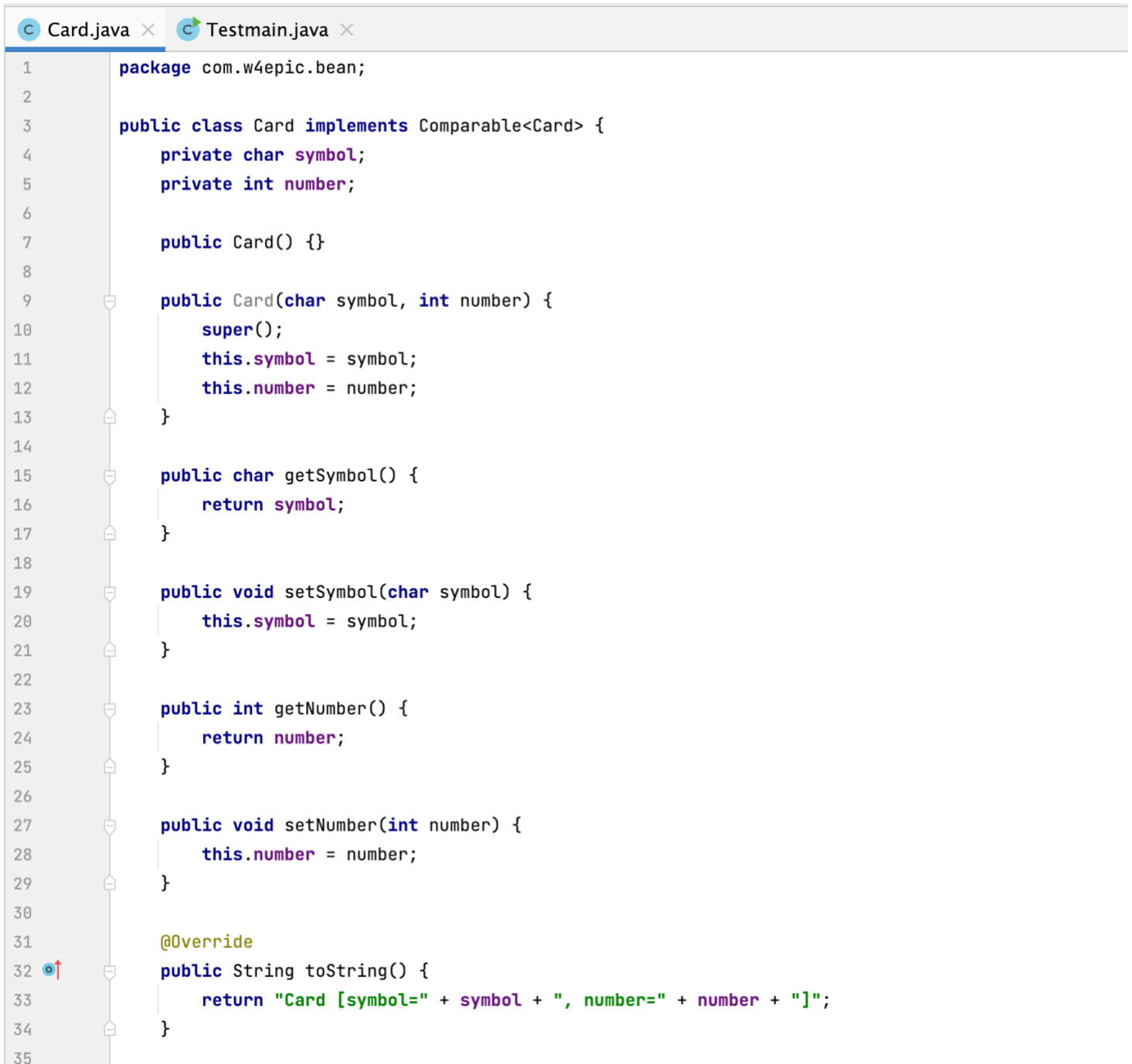
```
public boolean equals(Object obj){  
    if (obj instanceof Card) {  
        Card card = (Card) obj;  
        return (card.symbol == this.symbol);  
    } else {  
        return false;  
    }  
}
```

Department of Computer Science & Engineering



```
1  package com.w4epic.service;
2
3  import java.util.HashSet;
4  import java.util.Scanner;
5  import java.util.Set;
6  import java.util.TreeSet;
7
8  import com.w4epic.bean.Card;
9
10 public class Testmain {
11
12     public static void main(String[] args) {
13         Scanner sc = new Scanner(System.in);
14         Set<Card> set = new HashSet<>();
15
16         for (int i = 0; i < 8; i++) {
17             System.out.println("Enter a card:");
18             Card card = new Card();
19
20             card.setSymbol(sc.nextLine().charAt(0));
21             card.setNumber(sc.nextInt());
22             sc.nextLine();
23
24             set.add(card);
25         }
26         System.out.println("Four symbols gathered in eight cards.");
27         System.out.println("Cards in Set are:");
28
29         for (Card card : set)
30             System.out.println(card.getSymbol() + " " + card.getNumber());
31
32         sc.close();
33     }
34
35 }
```

Department of Computer Science & Engineering



```
1 package com.w4epic.bean;
2
3 public class Card implements Comparable<Card> {
4     private char symbol;
5     private int number;
6
7     public Card() {}
8
9     public Card(char symbol, int number) {
10         super();
11         this.symbol = symbol;
12         this.number = number;
13     }
14
15     public char getSymbol() {
16         return symbol;
17     }
18
19     public void setSymbol(char symbol) {
20         this.symbol = symbol;
21     }
22
23     public int getNumber() {
24         return number;
25     }
26
27     public void setNumber(int number) {
28         this.number = number;
29     }
30
31     @Override
32     public String toString() {
33         return "Card [symbol=" + symbol + ", number=" + number + "]";
34     }
35 }
```


Department of Computer Science & Engineering

```
36
37 ① ↑ @
38
39
40
41
42
43
44 ② ↑
45
46
47
48
49 ③ ↑
50
51
52
53
54
55
56
57
```

```
@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:

Department of Computer Science & Engineering

```
untitled > src > com > w4epic > service > Testmain
Card.java x Testmain.java x
Run: Testmain x
/Library/Java/JavaVirtualMachines/jdk1.8.0_301.jdk/Contents/Home/bin/java ...
Enter a card:
a
1
Enter a card:
a
2
Enter a card:
a
7
Enter a card:
d
6
Enter a card:
c
2
Enter a card:
d
1
Enter a card:
c
1
Enter a card:
b
2
Four symbols gathered in eight cards.
Cards in Set are:
a 1
b 2
c 2
d 6
Process finished with exit code 0
Version Control Run TODO Problems Terminal Build
Build completed successfully in 3 sec, 765 ms (a minute ago) 34:1 LF UTF-8 4 spaces
```

Learning outcomes (What I have learnt):

1. To write a program in java to Collect Unique Symbols From Set of Cards.
2. Concept of HashSet and Tree.
3. Loops concept.