S.No: 30	Exp. Name: ***Write java program(s) that use collection framework classes.(TreeMap class)***	Date: 2023-12-03

Aim:

Write a java program(s) that use collection framework classes.(TreeMap class)

Source Code:

Treemap.java

```
import java.util.*;
public class Treemap{
        public static void main(String[] args){
                Scanner sc = new Scanner(System.in);
                System.out.print("No.Of Mapping Elements in TreeMap:");
                int cap = sc.nextInt();
                TreeMap<Integer,String> tm = new TreeMap<Integer,String>();
                for(int i=0;i<cap;i++){
                        System.out.print("Integer:");
                        int j = sc.nextInt();
                        System.out.print("String:");
                        String st = sc.next();
                        tm.put(j,st);
                }
                for(Map.Entry m : tm.entrySet()){
                        System.out.println(m.getKey()+"->"+m.getValue());
                }
        }
}
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
No.Of Mapping Elements in TreeMap:
2
Integer:
1
String:
HELLO
Integer:
2
String:
WORLD
1->HELLO
2->WORLD

Test Case - 2

ID: 224G1A0557

No.Of Mapping Elements in TreeMap:
3
Integer:
25
String:
UNIVERSITY
Integer:
26
String:
KNOWLEDGE
Integer:
27
String:
TECHNOLOGIES
25->UNIVERSITY
26->KNOWLEDGE
27->TECHNOLOGIES

S.No: 31	Exp. Name: ***Write java program(s) that use collection framework classes.(TreeSet class)***	Date: 2023-12-03

Aim:

Write java program(s) that use collection framework classes.(TreeSet class)

Source Code:

TreeSetclass.java

```
import java.util.*;
public class TreeSetclass{
        public static void main(String[] args){
                TreeSet<String> ts = new TreeSet<String>();
                Scanner sc = new Scanner(System.in);
                System.out.print("No.Of Elements in TreeSet:");
                int cap = sc.nextInt();
                for(int i=0;i<cap;i++){
                        System.out.print("String:");
                        String st = sc.next();
                        ts.add(st);
                }
                System.out.println("TreeSet Elements by Iterating:");
                for(String ts1 : ts){
                        System.out.println(ts1);
                }
        }
}
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
No.Of Elements in TreeSet:
3
String:
Never
String:
Give
String:
Up
TreeSet Elements by Iterating:
Give
Never
Up

Test Case - 2
User Output

2
String:
Hello
String:
There
TreeSet Elements by Iterating:
Hello
There

S.No: 32	Exp. Name: ***Write java program(s) that use collection framework classes.(LinkedHashMap class)***	Date: 2023-12-03

Aim:

Write a java program(s) that use collection framework classes.(LinkedHashMap class)

Source Code:

LinkedHashMapclass.java

```
import java.util.*;
public class LinkedHashMapclass{
        public static void main(String[] args){
                Scanner sc = new Scanner(System.in);
                LinkedHashMap<String,String> lhm = new LinkedHashMap<String,String>();
                System.out.print("No.Of Mapping Elements in LinkedHashMap:");
                int cap = sc.nextInt();
                for(int i=0;i<cap;i++){
                        System.out.print("String:");
                        String st1 = sc.next();
                        System.out.print("Corresponding String:");
                        String st2 = sc.next();
                        lhm.put(st1,st2);
                }
                System.out.println("LinkedHashMap entries : ");
                for(Map.Entry m : lhm.entrySet()){
                        System.out.println(m.getKey()+"="+m.getValue());
                }
        }
}
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
No.Of Mapping Elements in LinkedHashMap:
3
String:
ONE
Corresponding String:
hi
String:
TWO
Corresponding String:
hello
String:
THREE
Corresponding String:

ONE=hi
TWO=hello
THREE=everyone

Test Case - 2
User Output
No.Of Mapping Elements in LinkedHashMap:
4
String:
1x1
Corresponding String:
1
String:
1x2
Corresponding String:
2
String:
1x3
Corresponding String:
3
String:
1x4
Corresponding String:
4
LinkedHashMap entries :
1x1=1
1x2=2
1x3=3
1x4=4

S.No: 33	Exp. Name: ***Write java program(s) that use collection framework classes.(HashMap class)***	Date: 2023-12-03

Aim:

Write a java program(s) that use collection framework classes.(HashMap class)

Source Code:

HashMapclass.java

```
import java.util.*;
public class HashMapclass{
        public static void main(String[] args){
                HashMap<String,Integer> hm = new HashMap<String,Integer>();
                Scanner sc = new Scanner(System.in);
                System.out.print("No.Of Mapping Elements in HashMap:");
                int cap = sc.nextInt();
                for(int i=0;i<cap;i++){
                        System.out.print("String:");
                        String st1 = sc.next();
                        System.out.print("Integer:");
                        int i1 = sc.nextInt();
                        hm.put(st1,i1);
                }
                for(Map.Entry m : hm.entrySet()){
                        System.out.println("Key = "+m.getKey()+", Value = "+m.getValue());
                }
                System.out.println(hm);
        }
}
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
No.Of Mapping Elements in HashMap:
3
String:
hi
Integer:
1
String:
hello
Integer:
2
String:
world
Integer:
3

Key = hello, Value = 2
{hi=1, world=3, hello=2}

Test Case - 2
User Output
No.Of Mapping Elements in HashMap:
3
String:
Students
Integer:
200
String:
Teachers
Integer:
5
String:
Principal
Integer:
1
Key = Teachers, Value = 5
Key = Students, Value = 200
Key = Principal, Value = 1
{Teachers=5, Students=200, Principal=1}

S.No: 34	Exp. Name: ***Write java program(s) that use collection framework classes.(LinkedList class)***	Date: 2023-12-03

Aim:

Write a java program(s) that use collection framework classes.(LinkedList class)

Source Code:

Linkedlist.java

```
import java.util.*;
public class Linkedlist{
        public static void main(String[] args){
                LinkedList<String> ll = new LinkedList<String>();
                Scanner sc = new Scanner(System.in);
                System.out.println("No.Of Strings in LinkedList:");
                int cap = sc.nextInt();
                for(int i=1;i<=cap;i++){
                        System.out.println("Enter the String:");
                        Scanner s = new Scanner(System.in);
                        String st = s.nextLine();
                        ll.add(st);
                }
                System.out.println("LinkedList:"+ll);
                System.out.println("The List is as follows:");
                for(String st1 : ll){
                        System.out.println(st1);
                }
        }
}
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
No.Of Strings in LinkedList:
3
Enter the String:
Hi
Enter the String:
Hello
Enter the String:
World
LinkedList:[Hi, Hello, World]
The List is as follows:
Hi
Hello
World

User Output
No.Of Strings in LinkedList:
2
Enter the String:
Human
Enter the String:
Being
LinkedList:[Human, Being]
The List is as follows:
Human
Being

S.No: 35	Exp. Name: ***Write java program(s) that use collection framework classes.(ArrayList class)***	Date: 2023-12-03

Aim:

Write a java program(s) that use collection framework classes.(ArrayList class)

Source Code:

ArraylistExample.java

```
import java.util.*;
public class ArraylistExample{
        public static void main(String[] args){
                ArrayList<Integer> al = new ArrayList<Integer>();
                System.out.println("Enter ArrayList length: ");
                Scanner sc = new Scanner(System.in);
                int cap = sc.nextInt();
                for(int i=1;i<=cap;i++){
                        al.add(i);
                }
                System.out.println("ArrayList printing by using Iterator: ");
                for(int i : al){
                        System.out.println(i);
                }
        }
}
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Enter ArrayList length:
5
ArrayList printing by using Iterator:
1
2
3
4
5

Test Case - 2
User Output
Enter ArrayList length:
3
ArrayList printing by using Iterator:
1
2
3

S.No: 36	Exp. Name: ***Write java program(s) that use collection framework classes.(HashTable class)***	Date: 2023-12-03

Aim:

Write a java program(s) that use collection framework classes.(HashTable class)

Source Code:

HashTableclass.java

```
import java.util.*;
public class HashTableclass{
        public static void main(String[] args){
                Scanner inp = new Scanner(System.in);
                Hashtable<Integer,String> hashTable = new Hashtable<Integer,String>();
                System.out.print("No.Of Mapping Elements in HashTable:");
                int num = inp.nextInt();
                for(int i=0;i<num;i++){
                        System.out.print("Rank:");
                        int key = inp.nextInt();
                        inp.nextLine();
                        System.out.print("Name:");
                        String value = inp.nextLine();
                        hashTable.put(key,value);
                }
                for(Map.Entry<Integer,String> m : hashTable.entrySet()){
                        System.out.println("Rank : "+m.getKey()+"\t\t Name :
"+m.getValue());
                }
        }
}
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
No.Of Mapping Elements in HashTable:
3
Rank:
4
Name:
Robert
Rank:
5
Name:
John
Rank:
6
Name:
Jennifer

Rank : 5	Name : John
Rank : 4	Name : Robert

Test Case - 2	
User Output	
No.Of Mapping Elements in HashTable:	
3	
Rank:	
1	
Name:	
Jon	
Rank:	
2	
Name:	
Robert	
Rank:	
3	
Name:	
Jennifer	
Rank : 3	Name : Jennifer
Rank : 2	Name : Robert
Rank : 1	Name : Jon