

Course Name: A Level (2nd Sem)

Subject: JAVA

Topic :util package(part2)

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3)LinkedList:

Java LinkedList class uses doubly linked list to store the elements. It provides a linked-list data structure. It inherits the AbstractList class and implements List and Deque interfaces. Java LinkedList class can contain duplicate elements.

Java LinkedList class maintains insertion order. Java LinkedList class is **non synchronized, can be used as list, stack or queue.**

```
import java.util.*;
public class LL{
    public static void main(String args[]){

        LinkedList<String> al=new LinkedList<String>();
        al.add("Richard");
        al.add("Nolan");
        al.add("Burton");
        al.add("Michael");

        Iterator<String> itr=al.iterator();
        while(itr.hasNext()){
            System.out.println(itr.next());
        }
    }
}
```

The Set Interface:

A Set is a Collection that cannot contain duplicate elements. Set is implemented by HashSet, LinkedHashSet or TreeSet.

4)HashSet:

Java HashSet class is used to create a collection that uses a hash table for storage. It inherits the AbstractSet class and implements Set interface. HashSet contains unique elements only. HashSet class is non synchronized. HashSet allows null value. HashSet doesn't maintain the insertion order.

```
import java.util.*;
class HS {
    public static void main(String args[]) {

        HashSet<String> set=new HashSet<String>();
        set.add("Richard");
        set.add("Nolan");
        set.add("Richard");
        set.add("Michael");

        Iterator<String> itr=set.iterator();
        while(itr.hasNext()){
            System.out.println(itr.next());
        }
    }
}
```

5)LinkedHashSet:

Java LinkedHashSet class is a Hash table and Linked list implementation of the set interface. It inherits HashSet class and implements Set interface. Contains unique elements only like HashSet. LinkedHashSet maintains the insertion order. Elements get sorted in the same sequence in which they have been added to the Set. It allows all optional set operations, and permits null elements and maintains insertion order.

```
import java.util.*;
class LH {
    public static void main(String args[]) {
        LinkedHashSet<String> al=new LinkedHashSet<String>();
        al.add("Richard");
        al.add("Nolan");
        al.add("Burton");
        al.add("Michael");
        Iterator<String> itr=al.iterator();
        while(itr.hasNext()){
            System.out.println(itr.next());
        }
    }
}
```

6)TreeSet:

Java TreeSet class implements the Set interface that uses a tree for storage. It inherits AbstractSet class and implements NavigableSet interface. The objects of TreeSet class are stored in ascending order. Contains unique elements only like HashSet. Access and retrieval times are quite fast and **maintains ascending order**.

```
import java.util.*;
class TS{
    public static void main(String args[]){
        TreeSet<String> al=new TreeSet<String>();
        al.add("Richard");
        al.add("Burton");
        al.add("Richard");
        al.add("Nolan");

        Iterator<String> itr=al.iterator();
        while(itr.hasNext()){
            System.out.println(itr.next());
        }
    }
}
```

Exercise:

Write the difference between list and set interface.