**List= ArrayList**

**package** List;

**import** java.util.ArrayList;

**import** java.util.Iterator;

**import** java.util.ListIterator;

**public** **class** ArrayList\_1 {

**public** **static** **void** main(String[] args) {

ArrayList al = **new** ArrayList();

al.add("Nikhil");

al.add(100);

al.add('A');

al.add(100);

al.add(**null**);

al.add(**null**);

System.***out***.println(al); //All Arraylist in row

System.***out***.println(al.size()); //6

System.***out***.println(al.isEmpty()); //False

System.***out***.println(al.get(3)); //100

System.***out***.println(al.contains("Nikhil")); //True

System.***out***.println(al.indexOf('A')); //2

System.***out***.println(al.lastIndexOf(100)); //3

System.***out***.println(al);

// insert info in between Arraylist--> right shift operation

al.add(3, 99.5f);

System.***out***.println(al);

// remove/delete info in between Arraylist--> left shift operation

al.remove(3);

System.***out***.println(al);

//update/modify info in Arraylis

al.set(4,"Sachin" );

System.***out***.println(al);

// System.out.println("-----print all info in arraylist using iterator cursor---------");

// Iterator itr = al.iterator();

// while (itr.hasNext());

// {

// System.out.println(itr.next());

// }

//

//

// System.out.println("-----print all info in arraylist using listIterator cursor---------");

// ListIterator litr = al.listIterator();

// while (litr.hasNext()) {

// System.out.println(litr.next());

// }

// System.out.println("-----print all info in arraylist using for loop---------");

// for (int i = 0; i <= al.size() - 1; i++)

// {

// System.out.println(al.get(i));

// }

System.***out***.println("-----print all info in arraylist using foreach loop---------");

**for**(Object s1:al){

System.***out***.println(s1);}

}

}

**===========================================**

**List= LinkedList**

**package** List;

**import** java.util.Iterator;

**import** java.util.LinkedList;

**import** java.util.ListIterator;

**public** **class** \_LinkedList {

**public** **static** **void** main(String[] args) {

LinkedList ll = **new** LinkedList();

ll.add("abc");

ll.add(100);

ll.add('A');

ll.add(100);

ll.add(**null**);

ll.add(**null**);

System.***out***.println(ll);

System.***out***.println(ll.size()); // 6

System.***out***.println(ll.isEmpty()); // false

System.***out***.println(ll.get(3)); // 100

System.***out***.println(ll.contains("abc")); // true

System.***out***.println(ll.indexOf('A')); // 2

System.***out***.println(ll.lastIndexOf(100)); // 3

System.***out***.println(ll);

// add/insert info in between linkedlist

ll.add(2, 55.5f);

System.***out***.println(ll);

// remove/delete info in between linkedlist

ll.remove(2);

System.***out***.println(ll);

// update/modify info in linkedlist

ll.set(0, "xyz");

System.***out***.println(ll);

System.***out***.println("-----print all info in linkedlist using iterator cursor---------");

Iterator itr = ll.iterator();

**while** (itr.hasNext()) {

System.***out***.println(itr.next());

}

// System.out.println("-----print all info in linkedlist using listIterator cursor---------");

// ListIterator litr = ll.listIterator();

// while (litr.hasNext()) {

// System.out.println(litr.next());

// }

// System.out.println("-----print all info in linkedlist using for loop---------");

// for (int i = 0; i <= ll.size() - 1; i++) {

// System.out.println(ll.get(i));

// }

//

// System.out.println("-----print all info in linkedlist using foreach loop---------");

// for (Object s1 : ll) {

// System.out.println(s1);

// }

}

}

**===============================================**

**List= Vector**

**package** List;

**import** java.util.Enumeration;

**import** java.util.Iterator;

**import** java.util.ListIterator;

**import** java.util.Vector;

**public** **class** \_Vector {

**public** **static** **void** main(String[] args) {

Vector V=**new** Vector();

V.add("Nikhil");

V.add(100);

V.add('A');

V.add(100);

V.add(**null**);

V.add(**null**);

// System.out.println(V.capacity()); //10

// System.out.println(V.size()); //6

// System.out.println(V.isEmpty()); //False

// System.out.println(V.get(3)); //100

// System.out.println(V.contains("Nikhil")); //true

// System.out.println(V.indexOf('A')); //2

// System.out.println(V.lastIndexOf(100)); //3

// System.out.println(V);

//insert info in between vector--> right shift operation

// V.add(2, 55.5f);

// System.out.println(V);

// remove/delete info in between vector--> left shift operation

// V.remove(2);

// System.out.println(V);

// update/modify info in vector

// V.set(0, "xyz");

// System.out.println(V);

// System.out.println("-----print all info in vector using iterator cursor---------");

// Iterator itr = V.iterator();

// while (itr.hasNext()) {

// System.out.println(itr.next());

// }

// System.out.println("-----print all info in vector using listIterator cursor---------");

// ListIterator litr = V.listIterator();

// while (litr.hasNext()) {

// System.out.println(litr.next());

// }

// System.out.println("-----print all info in vector using for loop---------");

// for (int i = 0; i <= V.size() - 1; i++) {

// System.out.println(V.get(i));

// }

// System.out.println("-----print all info in vector using foreach loop---------");

// for (Object s1 : V) {

// System.out.println(s1);

// }

System.***out***.println("-----print all info in vector using enumeration cursor---------");

Enumeration enu = V.elements();

**while** (enu.hasMoreElements()) {

System.***out***.println(enu.nextElement());

}

}

}

**========== SET =========**

**SET = Hashset**

**package** Set;

**import** java.util.HashSet;

**import** java.util.Iterator;

**public** **class** \_Hashset {

**public** **static** **void** main(String[] args) {

HashSet hs = **new** HashSet();

hs.add("abc");

hs.add(100);

hs.add('A');

hs.add(100);

hs.add(**null**);

hs.add(**null**);

System.***out***.println(hs);

System.***out***.println(hs.contains(100)); // true

System.***out***.println(hs.size()); // 4

System.***out***.println(hs.isEmpty()); // false

hs.remove(**null**);

System.***out***.println(hs);

System.***out***.println("--print all info in hashset using iterator--");

// Iterator itr = hs.iterator();

// while (itr.hasNext()) {

// System.out.println(itr.next());

// }

//

// System.out.println("--print all info in hashset using foreach loop--");

//

// for (Object s1 : hs) {

// System.out.println(s1);

// }

hs.clear();

System.***out***.println(hs.size()); //0

}

}

**===========================================================**

**SET = LinkedHashSet**

**package** Set;

**import** java.util.Iterator;

**import** java.util.LinkedHashSet;

**public** **class** \_LinkedHashSet {

**public** **static** **void** main(String[] args) {

LinkedHashSet lhs = **new** LinkedHashSet();

lhs.add("abc");

lhs.add(100);

lhs.add('A');

lhs.add(100);

lhs.add(**null**);

lhs.add(**null**);

System.***out***.println(lhs);

System.***out***.println(lhs.contains(100)); // true

System.***out***.println(lhs.size()); // 4

System.***out***.println(lhs.isEmpty()); // false

lhs.remove(**null**);

System.***out***.println(lhs);

System.***out***.println("--print all info in hashset using iterator--");

Iterator itr = lhs.iterator();

**while** (itr.hasNext()) {

System.***out***.println(itr.next());

}

System.***out***.println("--print all info in hashset using foreach loop--");

**for** (Object s1 : lhs) {

System.***out***.println(s1);

}

lhs.clear();

System.***out***.println(lhs.size());

}

}

**=================================================================**

**SET = TreeSet**

**package** Set;

**import** java.util.Iterator;

**import** java.util.TreeSet;

**public** **class** \_TreeSet {

**public** **static** **void** main(String[] args) {

TreeSet tr=**new** TreeSet();

tr.add(100);

tr.add(200);

tr.add(500);

tr.add(50);

tr.add(100);

tr.add(200);

tr.add(100);

tr.add(200);

//tr.add(null);

System.***out***.println(tr); //[50, 100, 200, 500]

System.***out***.println(tr.contains(400)); // false

System.***out***.println(tr.size()); // 4

System.***out***.println(tr.first()); // 50

System.***out***.println(tr.last()); // 500

tr.pollFirst(); //[100, 200, 500]

System.***out***.println(tr);

tr.pollLast(); //[100, 200]

System.***out***.println(tr);

tr.add(600);

tr.add(25);

System.***out***.println(tr);

System.***out***.println("---print info using iterator--Asending order-");

Iterator itr = tr.iterator();

**while** (itr.hasNext()) {

System.***out***.println(itr.next());

}

System.***out***.println("---print info using iterator-> descending order---");

Iterator itr1 = tr.descendingIterator();

**while** (itr1.hasNext()) {

System.***out***.println(itr1.next());

}

}}