# **Experiment 11**

**1.** **CollectionExample**

# **Program:**

//CollectionExample

import java.util.ArrayList;

import java.util.Iterator;

public class Exp11\_1 {

    public static void main(String[] args) {

        // Create an ArrayList to store strings

        ArrayList<String> list = new ArrayList<>();

        // Adding elements to the ArrayList

        list.add("Apple");

        list.add("Banana");

        list.add("Orange");

        list.add("Mango");

        // Displaying the elements of the ArrayList using iterator

        System.out.println("Elements of the ArrayList:");

        Iterator<String> iterator = list.iterator();

        while (iterator.hasNext()) {

            System.out.println(iterator.next());

        }

        // Adding an element at a specific index

        list.add(2, "Grapes");

        // Displaying the modified ArrayList

        System.out.println("\nModified ArrayList after adding 'Grapes' at index 2:");

        for (String fruit : list) {

            System.out.println(fruit);

        }

        // Removing an element

        list.remove("Banana");

        // Displaying the ArrayList after removing an element

        System.out.println("\nArrayList after removing 'Banana':");

        for (String fruit : list) {

            System.out.println(fruit);

        }

        // Checking if an element exists in the ArrayList

        if (list.contains("Orange")) {

            System.out.println("\n'Orange' exists in the ArrayList.");

        } else {

            System.out.println("\n'Orange' does not exist in the ArrayList.");

        }

        // Getting the size of the ArrayList

        System.out.println("\nSize of the ArrayList: " + list.size());

        // Clearing the ArrayList

        list.clear();

        // Displaying the ArrayList after clearing it

        System.out.println("\nArrayList after clearing:");

        if (list.isEmpty()) {

            System.out.println("ArrayList is empty.");

        } else {

            System.out.println("ArrayList is not empty.");

        }

    }

}

# **Output:**

Elements of the ArrayList:

Apple

Banana

Orange

Mango

Modified ArrayList after adding 'Grapes' at index 2:

Apple

Banana

Grapes

Orange

Mango

ArrayList after removing 'Banana':

Apple

Grapes

Orange

Mango

'Orange' exists in the ArrayList.

Size of the ArrayList: 4

ArrayList after clearing:

ArrayList is empty.

**2. LinkedListExample**

# **Program:**

// LinkedListExample

import java.util.LinkedList;

import java.util.Iterator;

public class Exp11\_2 {

    public static void main(String[] args) {

        // Create a LinkedList to store integers

        LinkedList<Integer> linkedList = new LinkedList<>();

        // Adding elements to the LinkedList

        linkedList.add(10);

        linkedList.add(20);

        linkedList.add(30);

        linkedList.add(40);

        // Displaying the elements of the LinkedList using iterator

        System.out.println("Elements of the LinkedList:");

        Iterator<Integer> iterator = linkedList.iterator();

        while (iterator.hasNext()) {

            System.out.println(iterator.next());

        }

        // Adding an element at the beginning of the LinkedList

        linkedList.addFirst(5);

        // Adding an element at the end of the LinkedList

        linkedList.addLast(50);

        // Displaying the modified LinkedList

        System.out.println("\nModified LinkedList after adding elements at the beginning and end:");

        for (Integer num : linkedList) {

            System.out.println(num);

        }

        // Removing an element from the LinkedList

        linkedList.remove(2);

        // Displaying the LinkedList after removing an element

        System.out.println("\nLinkedList after removing element at index 2:");

        for (Integer num : linkedList) {

            System.out.println(num);

        }

        // Checking if an element exists in the LinkedList

        if (linkedList.contains(30)) {

            System.out.println("\n'30' exists in the LinkedList.");

        } else {

            System.out.println("\n'30' does not exist in the LinkedList.");

        }

        // Getting the size of the LinkedList

        System.out.println("\nSize of the LinkedList: " + linkedList.size());

        // Clearing the LinkedList

        linkedList.clear();

        // Displaying the LinkedList after clearing it

        System.out.println("\nLinkedList after clearing:");

        if (linkedList.isEmpty()) {

            System.out.println("LinkedList is empty.");

        } else {

            System.out.println("LinkedList is not empty.");

        }

    }

}

# **Output:**

Elements of the LinkedList:

10

20

30

40

Modified LinkedList after adding elements at the beginning and end:

5

10

20

30

40

50

LinkedList after removing element at index 2:

5

10

30

40

50

'30' exists in the LinkedList.

Size of the LinkedList: 5

LinkedList after clearing:

LinkedList is empty.