TEST (22-7-2024)

1.

```java
import java.util.ArrayList;
public class AnimalList {
    public static void main(String[] args) {
        ArrayList<String> animals = new ArrayList<>();
        animals.add(0, "lion");
        animals.add(1, "tiger");
        animals.add("cats");
        animals.add(2, "dog");
        for (String animal : animals) {
            System.out.println(animal);
        }
    }
}
```

Output:
```
java -cp /tmp/g4DjeI5AFC/AnimalList
lion
tiger
dog
cats

=== Code Execution Successful ===
```

2.

```java
import java.util.ArrayList;
public class Main {
    public static void main(String[] args) {
        ArrayList<Integer> numbers = new ArrayList<>();
        numbers.add(2);
        numbers.add(4);
        numbers.add(5);
        numbers.add(6);
        numbers.add(8);
        numbers.add(9);
        System.out.println("Size of the ArrayList: " + numbers.size());
        int elementAtIndex2 = numbers.get(2);
        System.out.println("Element at index 2: " + elementAtIndex2);
        numbers.set(3, 10);
        System.out.println("Updated element at index 3: " + numbers.get(3));
        System.out.println("All elements in the ArrayList:");
        for (int number : numbers) {
            System.out.println(number);
        }
    }
}
```

Output:
```
java -cp /tmp/6Tsdsayif9/Main
Size of the ArrayList: 6
Element at index 2: 5
Updated element at index 3: 10
All elements in the ArrayList:
2
4
5
10
8
9

=== Code Execution Successful ===
```

3.

```java
import java.util.ArrayList;
public class main {
    public static void main(String[] args) {
        ArrayList<String> languages = new ArrayList<>();
        languages.add("C");
        languages.add("C++");
        languages.add("Java");
        languages.add("Python");
        languages.add("Ruby");
        languages.add("JavaScript");
        System.out.println("Original List: " + languages);
        languages.remove("C");
        System.out.println("After removing 'C': " + languages);
        languages.clear();
        System.out.println("After clear(): " + languages);
        languages.add("Java");
        languages.add("Python");
        languages.add("Ruby");
        System.out.println("After adding elements back: " + languages);
        languages.remove(1);
        System.out.println("After remove(1): " + languages);
    }
}
```

Output:
```
java -cp /tmp/phzCSet58O/main
Original List: [C, C++, Java, Python, Ruby, JavaScript]
After removing 'C': [C++, Java, Python, Ruby, JavaScript]
After clear(): []
After adding elements back: [Java, Python, Ruby]
After remove(1): [Java, Ruby]

=== Code Execution Successful ===
```

4.

```java
import java.util.ArrayList;
import java.util.Iterator;
import java.util.ListIterator;
public class NameList {
    public static void main(String[] args) {
        ArrayList<String> names = new ArrayList<>();
        names.add("raja");
        names.add("ravi");
        names.add("ramu");
        names.add("vimal");
        names.add("roja");
        System.out.println("Using for-each loop:");
        for (String name : names) {
            System.out.println(name);
        }
        System.out.println("\nUsing Iterator:");
        Iterator<String> iterator = names.iterator();
        while (iterator.hasNext()) {
            String name = iterator.next();
            System.out.println(name);
        }
        System.out.println("\nUsing ListIterator (forward):");
        ListIterator<String> listIterator = names.listIterator();
        while (listIterator.hasNext()) {
            System.out.println(listIterator.next());
        }

        System.out.println("\nUsing ListIterator (backward):");
        while (listIterator.hasPrevious()) {
            System.out.println(listIterator.previous());
        }
    }
}
```

Output

```
java -cp /tmp/JGeZx2sjPI/NameList
Using for-each loop:
raja
ravi
ramu
vimal
roja

Using Iterator:
raja
ravi
ramu
vimal
roja

Using ListIterator (forward):
raja
ravi
ramu
vimal
roja

Using ListIterator (backward):
roja
vimal
ramu
=== Code Exited With Errors ===
```