package Collections.List;  
  
import java.util.\*;  
import java.util.List;  
import java.lang.\*;  
  
public class ArrayListTest {  
 public static void main(String args[]) {  
//collection example with iterator  
 Collection<Integer> list1 = new ArrayList<>();  
 boolean k = list1.add(1);  
 System.*out*.println(k);  
 list1.add(3);  
 list1.add(4);  
 list1.add(5);  
 list1.add(0);  
 list1.remove(3);  
 list1.add(2);  
 System.*out*.println("collection list1" + list1);  
  
  
//List example with listIterator  
 List<Integer> list121 = Arrays.*asList*(1, 2, 3);  
 System.*out*.println("ArrayAslist"+list121);  
  
  
 List<Integer> list2 = new ArrayList<>();  
 list2.add(1);  
 list2.add(3);  
 list2.add(4);  
 list2.add(8);  
 list2.add(5);  
 list2.add(90);  
 list2.remove(3);  
 System.*out*.println(list2);  
 System.*out*.println("List Interface list2 " + list2);  
  
//Array list with basic functions  
 ArrayList<Integer> list3 = new ArrayList<Integer>();  
 list3.add(1);  
 list3.add(3);  
 list3.add(4);  
 list3.add(5);  
 list3.add(2, 2);  
 list3.add(null);  
 list3.remove(3);  
 System.*out*.println(list2);  
 list3.addAll(list1);  
 list3.addAll(list2);  
  
 int listLength = list3.size();  
 boolean isEmpty = list3.isEmpty();  
 int firstIndex = list3.indexOf(4);  
 int lastIndex = list3.lastIndexOf(4);  
 System.*out*.println("list after addition of all lists" + list3 + " listLength=" + listLength + " isEmpty=" + isEmpty + " firstIndex=" + firstIndex + " lastIndex=" + lastIndex);  
  
 list3.removeAll(list1);  
 System.*out*.println("after removal of elements lists3 " + list3);  
  
 list3.retainAll(list2);  
 System.*out*.println("after retaining of elements lists3 " + list3);  
 int replacedElement = list3.set(0, 6);  
 int getValue = list3.get(0);  
 System.*out*.println("Replaced element= " + replacedElement + " list3 after setting= " + list3 + "get 0th index=" + list3.get(0));  
  
 Collections.*sort*(list3);  
 System.*out*.println(list3);  
  
 Collections.*sort*(list3, Collections.*reverseOrder*());  
 System.*out*.println(list3);  
  
 Object[] listAarray = list3.toArray();  
 int count = 0;  
 System.*out*.println("ArrayValues");  
 for (Object arrayedValues : listAarray) {  
 System.*out*.println("index " + count + "Arrayvalues " + arrayedValues);  
 count++;  
 }  
  
 Integer[] listAarray1 = list3.toArray(new Integer[0]);  
 int count1 = 0;  
 System.*out*.println("ArrayValues");  
 for (Integer arrayedValues1 : listAarray1) {  
 System.*out*.println("index " + count1 + "Arrayvalues " + arrayedValues1);  
 count1++;  
 }  
  
 list3.replaceAll(n->n\*10);  
 System.*out*.println("after replaceAll" + list3);  
 list3.clear();  
 System.*out*.println("clear" + list3);  
  
 //Please check iterated folders for iterators and listiterators  
  
 }  
}

**Output**

**C:\Users\Roystan\.jdks\openjdk-21.0.2\bin\java.exe "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2023.3.3\lib\idea\_rt.jar=59121:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2023.3.3\bin" -Dfile.encoding=UTF-8 -Dsun.stdout.encoding=UTF-8 -Dsun.stderr.encoding=UTF-8 -classpath C:\Users\Roystan\IdeaProjects\JavaWorkspace\out\production\JavaWorkspace Collections.List.ArrayListTest**

**true**

**collection list1[1, 4, 5, 0, 2]**

**ArrayAslist[1, 2, 3]**

**[1, 3, 4, 5, 90]**

**List Interface list2 [1, 3, 4, 5, 90]**

**[1, 3, 4, 5, 90]**

**list after addition of all lists[1, 3, 2, 5, null, 1, 4, 5, 0, 2, 1, 3, 4, 5, 90] listLength=15 isEmpty=false firstIndex=6 lastIndex=12**

**after removal of elements lists3 [3, null, 3, 90]**

**after retaining of elements lists3 [3, 3, 90]**

**Replaced element= 3 list3 after setting= [6, 3, 90]get 0th index=6**

**[3, 6, 90]**

**[90, 6, 3]**

**ArrayValues**

**index 0 Arrayvalues 90**

**index 1 Arrayvalues 6**

**index 2 Arrayvalues 3**

**ArrayValues**

**index 0 Arrayvalues 90**

**index 1 Arrayvalues 6**

**index 2 Arrayvalues 3**

**after replaceAll[900, 60, 30]**

**clear[]**

**Process finished with exit code 0**