Ejercicios ArrayList

1.Escriba un programa Java para crear un nuevo ArrayList, añada algunos colores (string) e imprima la colección.

2.Escriba un programa Java para iterar a través de todos los elementos de un ArrayList.

3.Escriba un programa Java para insertar un elemento en el ArrayList en la primera posición.

4.Escriba un programa Java para recuperar un elemento (en un índice especificado) de un ArrayList dada.

5.Escriba un programa Java para actualizar un elemento específico de la matriz por un elemento dado.

6.Escriba un programa Java para eliminar el tercer elemento de un ArrayList.

7.Escriba un programa Java para buscar un elemento en un ArrayList.

8.Escriba un programa Java para ordenar un ArrayList.

9.Escriba un programa Java para copiar un ArrayList en otro.

10.Escriba un programa Java para mezclar elementos en un ArrayList.

11.Escriba un programa Java para invertir los elementos de un ArrayList.

12.Escriba un programa Java para extraer una porción de un ArrayList.

13.Escriba un programa Java para comparar dos ArrayList.

14.Escriba un programa Java de intercambio de dos elementos en un ArrayList.

15.Escriba un programa Java para unir dos ArrayList.

16.Escriba un programa Java para clonar un ArrayList a otro ArrayList.

17.Escriba un programa Java para vaciar un ArrayList.

18.Escriba un programa Java para probar si un ArrayList está vacío o no.

19.Escriba un programa Java para recortar la capacidad de un ArrayList al tamaño actual de la lista.

20.Escriba un programa Java para aumentar el tamaño de un ArrayList.

21.Escriba un programa Java para reemplazar el segundo elemento de una ArrayList con el elemento especificado.

22.Escriba un programa Java para imprimir todos los elementos de una ArrayList utilizando la posición de los elementos.

1.

```java
import java.util.*;
public class Exercise1 {
  public static void main(String[] args) {
  List<String> list_Strings = new ArrayList<String>();
  list_Strings.add("Red");
  list_Strings.add("Green");
  list_Strings.add("Orange");
  list_Strings.add("White");
  list_Strings.add("Black");
  System.out.println(list_Strings);
 }
}
```

2.

```java
import java.util.*;
  public class Exercise2 {
  public static void main(String[] args) {
  // Creae a list and add some colors to the list
  List<String> list_Strings = new ArrayList<String>()
  list_Strings.add("Red");
  list_Strings.add("Green");
  list_Strings.add("Orange");
  list_Strings.add("White");
  list_Strings.add("Black");
  // Print the list
  for (String element : list_Strings) {
    System.out.println(element);
    }
 }
}
```

3.

```
import java.util.*;
  public class Exercise3 {
  public static void main(String[] args) {
  // Creae a list and add some colors to the list
  List<String> list_Strings = new ArrayList<String>();
  list_Strings.add("Red");
  list_Strings.add("Green");
  list_Strings.add("Orange");
  list_Strings.add("White");
  list_Strings.add("Black");
  // Print the list
  System.out.println(list_Strings);
  // Now insert a color at the first and last position of the list
  list_Strings.add(0, "Pink");
  list_Strings.add(5, "Yellow");
  // Print the list
  System.out.println(list_Strings);
 }
}
```

4.

```java
import java.util.*;
  public class Exercise4 {
  public static void main(String[] args) {
  // Creae a list and add some colors to the list
  List<String> list_Strings = new ArrayList<String>();
  list_Strings.add("Red");
  list_Strings.add("Green");
  list_Strings.add("Orange");
  list_Strings.add("White");
  list_Strings.add("Black");
  // Print the list
  System.out.println(list_Strings);
  // Retrive the first and third element
  String element = list_Strings.get(0);
  System.out.println("First element: "+element);
  element = list_Strings.get(2);
  System.out.println("Third element: "+element);
 }
}
```

5.

```java
import java.util.*;
  public class Exercise6 {
  public static void main(String[] args) {
  // Creae a list and add some colors to the list
  List<String> list_Strings = new ArrayList<String>();
  list_Strings.add("Red");
  list_Strings.add("Green");
  list_Strings.add("Orange");
  list_Strings.add("White");
  list_Strings.add("Black");
  // Print the list
  System.out.println(list_Strings);
  // Remove the third element from the list.
  list_Strings.remove(2);
  // Print the list again
  System.out.println("After removing third element from the list:\n"+list_Strings);
 }
}
```

6.

```
import java.util.*;
  public class Exercise6 {
  public static void main(String[] args) {
  // Creae a list and add some colors to the list
  List<String> list_Strings = new ArrayList<String>();
  list_Strings.add("Red");
  list_Strings.add("Green");
  list_Strings.add("Orange");
  list_Strings.add("White");
  list_Strings.add("Black");
  // Print the list
  System.out.println(list_Strings);
  // Remove the third element from the list.
  list_Strings.remove(2);
  // Print the list again
  System.out.println("After removing third element from the list:\n"+list_Strings);
 }
}
```

7.

```
import java.util.*;
  public class Exercise8 {
  public static void main(String[] args) {
  // Creae a list and add some colors to the list
  List<String> list_Strings = new ArrayList<String>();
  list_Strings.add("Red");
  list_Strings.add("Green");
  list_Strings.add("Orange");
  list_Strings.add("White");
  list_Strings.add("Black");
  System.out.println("List before sort: "+list_Strings);
  Collections.sort(list_Strings);
  System.out.println("List after sort: "+list_Strings);
 }
}
```

8.

```
import java.util.*;
  public class Exercise8 {
  public static void main(String[] args) {
  // Creae a list and add some colors to the list
  List<String> list_Strings = new ArrayList<String>();
  list_Strings.add("Red");
  list_Strings.add("Green");
  list_Strings.add("Orange");
  list_Strings.add("White");
  list_Strings.add("Black");
  System.out.println("List before sort: "+list_Strings);
  Collections.sort(list_Strings);
  System.out.println("List after sort: "+list_Strings);
 }
}
```

9.

```java
import java.util.*;
  public class Exercise9 {
  public static void main(String[] args) {
  List<String> List1 = new ArrayList<String>();
  List1.add("1");
  List1.add("2");
  List1.add("3");
  List1.add("4");
  System.out.println("List1: " + List1);
  List<String> List2 = new ArrayList<String>();
  List2.add("A");
  List2.add("B");
  List2.add("C");
  List2.add("D");
  System.out.println("List2: " + List2);
  // Copy List2 to List1
  Collections.copy(List1, List2);
  System.out.println("Copy List to List2,\nAfter copy:");
  System.out.println("List1: " + List1);
  System.out.println("List2: " + List2);
 }
}
```

10.

```
import java.util.*;
  public class Exercise11 {
  public static void main(String[] args) {
  // Creae a list and add some colors to the list
  List<String> list_Strings = new ArrayList<String>();
  list_Strings.add("Red");
  list_Strings.add("Green");
  list_Strings.add("Orange");
  list_Strings.add("White");
  list_Strings.add("Black");
  System.out.println("List before reversing :\n" + list_Strings);
  Collections.reverse(list_Strings);
  System.out.println("List after reversing :\n" + list_Strings);
 }
}
```

11.

```
import java.util.*;
  public class Exercise11 {
  public static void main(String[] args) {
  // Creae a list and add some colors to the list
  List<String> list_Strings = new ArrayList<String>();
  list_Strings.add("Red");
  list_Strings.add("Green");
  list_Strings.add("Orange");
  list_Strings.add("White");
  list_Strings.add("Black");
  System.out.println("List before reversing :\n" + list_Strings);
  Collections.reverse(list_Strings);
  System.out.println("List after reversing :\n" + list_Strings);
 }
}
```

12.

```java
import java.util.*;
  public class Exercise12 {
  public static void main(String[] args) {
  // Creae a list and add some colors to the list
  List<String> list_Strings = new ArrayList<String>();
  list_Strings.add("Red");
  list_Strings.add("Green");
  list_Strings.add("Orange");
  list_Strings.add("White");
  list_Strings.add("Black");
  System.out.println("Original list: " + list_Strings);
  List<String> sub_List = list_Strings.subList(0, 3);
  System.out.println("List of first three elements: " + sub_List);
 }
}
```

13.

```
import java.util.*;
  public class Exercise13 {
  public static void main(String[] args) {
   ArrayList<String> c1= new ArrayList<String>();
          c1.add("Red");
          c1.add("Green");
          c1.add("Black");
          c1.add("White");
          c1.add("Pink");

          ArrayList<String> c2= new ArrayList<String>();
          c2.add("Red");
          c2.add("Green");
          c2.add("Black");
          c2.add("Pink");

          //Storing the comparison output in ArrayList<String>
          ArrayList<String> c3 = new ArrayList<String>();
          for (String e : c1)
             c3.add(c2.contains(e) ? "Yes" : "No");
          System.out.println(c3);

     }
}
```

14.

```java
import java.util.ArrayList;
import java.util.Collections;
  public class Exercise14 {
  public static void main(String[] args) {
   ArrayList<String> c1= new ArrayList<String>();
          c1.add("Red");
          c1.add("Green");
          c1.add("Black");
          c1.add("White");
          c1.add("Pink");

          System.out.println("Array list before Swap:");
          for(String a: c1){
          System.out.println(a);
        }
          //Swapping 1st(index 0) element with the 3rd(index 2) element
         Collections.swap(c1, 0, 2);
          System.out.println("Array list after swap:");
          for(String b: c1){
          System.out.println(b);
         }
     }
}
```

15.

```
import java.util.ArrayList;
import java.util.Collections;
  public class Exercise15 {
  public static void main(String[] args) {
   ArrayList<String> c1= new ArrayList<String>();
          c1.add("Red");
          c1.add("Green");
          c1.add("Black");
          c1.add("White");
          c1.add("Pink");
          System.out.println("List of first array: " + c1);
          ArrayList<String> c2= new ArrayList<String>();
          c2.add("Red");
          c2.add("Green");
          c2.add("Black");
          c2.add("Pink");
          System.out.println("List of second array: " + c2);

      // Let join above two list
        ArrayList<String> a = new ArrayList<String>();
        a.addAll(c1);
        a.addAll(c2);
        System.out.println("New array: " + a);


    }
}
```

16.

```java
import java.util.ArrayList;
import java.util.Collections;
  public class Exercise16 {
  public static void main(String[] args) {
          ArrayList<String> c1= new ArrayList<String>();
          c1.add("Red");
          c1.add("Green");
          c1.add("Black");
          c1.add("White");
          c1.add("Pink");
          System.out.println("Original array list: " + c1);
          ArrayList<String> newc1 = (ArrayList<String>)c1.clone();
          System.out.println("Cloned array list: " + newc1);
}
}
```

17.

```java
import java.util.ArrayList;
import java.util.Collections;
  public class Exercise17 {
  public static void main(String[] args) {
          ArrayList<String> c1= new ArrayList<String>();
          c1.add("Red");
          c1.add("Green");
          c1.add("Black");
          c1.add("White");
          c1.add("Pink");
          System.out.println("Original array list: " + c1);
          c1.removeAll(c1);
          System.out.println("Array list after remove all elements "+c1);
   }
}
```

18.

```
import java.util.ArrayList;
import java.util.Collections;
  public class Exercise18 {
  public static void main(String[] args) {
          ArrayList<String> c1= new ArrayList<String>();
          c1.add("Red");
          c1.add("Green");
          c1.add("Black");
          c1.add("White");
          c1.add("Pink");
          System.out.println("Original array list: " + c1);
          System.out.println("Checking the above array list is empty or not! "+c1.isEmpty());
          c1.removeAll(c1);
          System.out.println("Array list after remove all elements "+c1);
          System.out.println("Checking the above array list is empty or not! "+c1.isEmpty());
   }
}
```

19.

```
import java.util.ArrayList;
import java.util.Collections;
  public class Exercise19 {
  public static void main(String[] args) {
          ArrayList<String> c1= new ArrayList<String>();
          c1.add("Red");
          c1.add("Green");
          c1.add("Black");
          c1.add("White");
          c1.add("Pink");
          System.out.println("Original array list: " + c1);
          System.out.println("Let trim to size the above array: ");
          c1.trimToSize();
          System.out.println(c1);
   }
}
```

20.

```
import java.util.ArrayList;
import java.util.Collections;
  public class Exercise20 {
  public static void main(String[] args) {
          ArrayList<String> c1= new ArrayList<String>(3);
          c1.add("Red");
          c1.add("Green");
          c1.add("Black");
          System.out.println("Original array list: " + c1);
          //Increase capacity to 6
          c1.ensureCapacity(6);
          c1.add("White");
          c1.add("Pink");
          c1.add("Yellow");
          System.out.println("New array list: " + c1);
   }
}
```

21.

```
import java.util.ArrayList;
  public class Exercise21 {
    public static void main(String[] args){
  ArrayList<String>  color = new ArrayList<String>();

  color.add("Red");
  color.add("Green");

  System.out.println("Original array list: " + color);
  String new_color = "White";
  color.set(1,new_color);

  int num=color.size();
  System.out.println("Replace second element with 'White'.");
  for(int i=0;i<num;i++)
  System.out.println(color.get(i));
  }
}
```

22.

```
import java.util.ArrayList;
  public class Exercise22 {
    public static void main(String[] args) {
  ArrayList <String> c1 = new ArrayList <String> ();
  c1.add("Red");
  c1.add("Green");
  c1.add("Black");
  c1.add("White");
  c1.add("Pink");
  System.out.println("\nOriginal array list: " + c1);
  System.out.println("\nPrint using index of an element: ");
  int no_of_elements = c1.size();
  for (int index = 0; index < no_of_elements; index++)
   System.out.println(c1.get(index));
 }
}
```