Java Collection: ArrayList

1. Write a Java program to create a new array list, add some colors (string) and print out the collection

---

```
import java.util.*;


class ques1
{
	public static void main(String args[])
	{
		ArrayList<String> color = new ArrayList<>();
		color.add("Red");
		color.add("Yellow");
		color.add("Pink");

		System.out.println(color);
	}
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques1.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques1
[Red, Yellow, Pink]
```

2. Write a Java program to iterate through all elements in an array list.

```
import java.util.*;


class ques2
{
	public static void main(String args[])
	{
		ArrayList<String> color = new ArrayList<>();
		color.add("Red");
```

```
		color.add("Yellow");
		color.add("Pink");

		Iterator i  = color.iterator();

		while(i.hasNext())
		{
			System.out.println(i.next());
		}
	}
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques2.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques2
Red
Yellow
Pink
```

3. Write a Java program to insert an element into the array list at the first position.

```
import java.util.*;

class ques3
{
	public static void main(String args[])
	{
		ArrayList<String> weeks = new ArrayList<>();
		weeks.add("Monday");
		weeks.add("Tuesday");
		weeks.add("Wednesday");
		weeks.add("Thursday");
		weeks.add("Friday");
		weeks.add("Saturday");

		weeks.add(0,"Sunday");

		System.out.println(weeks);
	}
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques3.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques3
[Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday]
```

4. Write a Java program to retrieve an element (at a specified index) from a given array list.

```
import java.util.*;

class ques4
{
	public static void main(String args[])
	{
		ArrayList<String> weeks = new ArrayList<>();
		weeks.add("Monday");
		weeks.add("Tuesday");
		weeks.add("Wednesday");
		weeks.add("Thursday");
		weeks.add("Friday");
		weeks.add("Saturday");
		weeks.add("Sunday");

		System.out.println(weeks.get(1));
	}
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques4.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques4
Tuesday
```

5. Write a Java program to update specific array elements by a given element.

```
import java.util.*;

class ques5
{
	public static void main(String args[])
	{
```

```
        ArrayList<String> ebike = new ArrayList<>();
        ebike.add("Tesla");
        ebike.add("Ather");
        ebike.add("Ola");
        ebike.add("TVS");

        System.out.println("Before Update : " + ebike);

        ebike.set(0,"Suzuki");
        System.out.println("After Update : " + ebike);

    }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques5.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques5
Before Update : [Tesla, Ather, Ola, TVS]
After Update : [Suzuki, Ather, Ola, TVS]
```

6. Write a Java program to remove the third element from an array list.

```
import java.util.ArrayList;

class ques6
{
    public static void main(String args[])
    {
        ArrayList color = new ArrayList<>();
        color.add("Red");
        color.add("Blue");
        color.add("Pink");
        color.add("Yellow");

        System.out.println("Before Update" + color);

        //color.remove(color.get(2));
        color.remove(2);

        System.out.println("After Update :" + color);
```

```
        }
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques6
Before Update[Red, Blue, Pink, Yellow]
After Update :[Red, Blue, Yellow]
```

7. Write a Java program to search an element in an array list.

```
import java.util.*;


class ques7
{
        public static void main(String args[])
                {
                        ArrayList<String> color = new ArrayList<>();
                        color.add("Red");
                        color.add("Yellow");
                        color.add("Pink");
                        color.add("Blue");

                        Scanner sc = new Scanner(System.in);
                        System.out.println("Enter your value to check its existense");
                        String content = sc.nextLine();

                        System.out.println(color.contains(content));
                }
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques7
Enter your value to check its existense
Re
false

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques7
Enter your value to check its existense
Red
true
```

8. Write a Java program to sort a given array list.

```
import java.util.*;


class ques8
{
	public static void main(String args[])
		{
			ArrayList<String> color = new ArrayList<>();
			color.add("Red");
			color.add("Yellow");
			color.add("Pink");
			color.add("Blue");

			System.out.println("Before" + color);


			Collections.sort(color);

			System.out.println("After" + color);
		}
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques8.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques8
Before[Red, Yellow, Pink, Blue]
After[Blue, Pink, Red, Yellow]
```

9. Write a Java program to copy one array list into another.

```
import java.util.*;

class ques9
{
		public static void main(String args[])
		{
			ArrayList<String> color = new ArrayList<>();
			color.add("Red");
			color.add("Yellow");
```

```
                color.add("Pink");
                color.add("Blue");

                ArrayList<String> color2 = new ArrayList<>(color);

                System.out.println(color2);

        }
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques9.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques9
[Red, Yellow, Pink, Blue]
```

10. Write a Java program to shuffle elements in an array list.

```
import java.util.*;

class ques10
{
        public static void main(String args[])
        {
                ArrayList<String> color = new ArrayList<>();
                color.add("Red");
                color.add("Yellow");
                color.add("Pink");
                color.add("Blue");
                color.add("Violet");
                color.add("Purple");

                Collections.sort(color);

                System.out.println("Sorted : " +color);

                Collections.shuffle(color);

                System.out.println("Shuffled : " +color);

        }
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques10.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques10
Sorted : [Blue, Pink, Purple, Red, Violet, Yellow]
Shuffled : [Red, Purple, Violet, Yellow, Pink, Blue]
```

11. Write a Java program to reverse elements in an array list.

```
import java.util.*;

class ques11
{
		public static void main(String args[])
		{
			ArrayList<String> color = new ArrayList<>();
			color.add("Red");
			color.add("Yellow");
			color.add("Pink");
			color.add("Blue");
			color.add("Violet");
			color.add("Purple");

			System.out.println("Original : " +color);
			Collections.reverse(color);

			System.out.println("Reversed : " +color);

		}
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques11.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques11
Original : [Red, Yellow, Pink, Blue, Violet, Purple]
Reversed : [Purple, Violet, Blue, Pink, Yellow, Red]
```

12. Write a Java program to extract a portion of an array list.

```
import java.util.*;


class ques12
{
		public static void main(String args[])
		{
			ArrayList<String> color = new ArrayList<>();


			color.add("Red");
			color.add("Yellow");
			color.add("Pink");
			color.add("Blue");
			color.add("Violet");
			color.add("Purple");


			List<String> sub_color = color.subList(0,3);


			System.out.println("Original : " +color);
```

```
                System.out.println("Sub Color : " +sub_color);


        }
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques12.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques12
Original : [Red, Yellow, Pink, Blue, Violet, Purple]
Sub Color : [Red, Yellow, Pink]
```

13. Write a Java program to compare two array lists.

```
import java.util.*;


class ques13
{
        public static void main(String args[])
        {
                ArrayList<String> color = new ArrayList<>();


                color.add("Red");
                color.add("Yellow");
```

```
                ArrayList<String> color2 = new ArrayList<>();

                color2.add("Red");

                color2.add("Yellow");

                System.out.println("Color and Color2 are same :" +color.equals(color2));

        }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques13.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques13
Color and Color2 are same :true
```

14. Write a Java program of swap two elements in an array list.

```
import java.util.*;



class ques14

{

        public static void main(String args[])

        {

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



                color.add("Red");

                color.add("Yellow");
```

```
                color.add("Pink");

                color.add("Blue");

                color.add("Violet");

                color.add("Purple");


                System.out.println(color);


                Collections.swap(color,0,5);


                System.out.println(color);


        }
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques14.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques14
[Red, Yellow, Pink, Blue, Violet, Purple]
[Purple, Yellow, Pink, Blue, Violet, Red]
```

15. Write a Java program to join two array lists.

```
import java.util.*;
```

```
class ques15
{
	public static void main(String args[])
	{
		ArrayList<String> color = new ArrayList<>();
		color.add("Red");
		color.add("Yellow");
		color.add("Pink");
		ArrayList<String> color2 = new ArrayList<>();
		color2.add("Blue");
		color2.add("Violet");
		color2.add("Purple");
		System.out.println(color);
		color.addAll(color2);
		System.out.println(color);
	}
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques15.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques15
[Red, Yellow, Pink]
[Red, Yellow, Pink, Blue, Violet, Purple]
```

16. Write a Java program to clone an array list to another array list.

```
import java.util.*;


class ques16
{
		public static void main(String args[])
		{
			ArrayList<String> color = new ArrayList<>();


			color.add("Red");
			color.add("Yellow");
			color.add("Pink");
			color.add("Blue");
			color.add("Violet");
			color.add("Purple");


		ArrayList<String> color2 = (ArrayList)color.clone();


		System.out.println(color2);
```

```
        }
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques16.java
Note: ques16.java uses unchecked or unsafe operations.
Note: Recompile with -Xlint:unchecked for details.

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques16
[Red, Yellow, Pink, Blue, Violet, Purple]
```

17. Write a Java program to empty an array list.

```
import java.util.*;


class ques17
{
        public static void main(String args[])
        {
                ArrayList<String> color = new ArrayList<>();


                color.add("Red");
                color.add("Yellow");
                color.add("Pink");
                color.add("Blue");
                color.add("Violet");
```

```
                color.add("Purple");


                System.out.println(color);


                color.removeAll(color);


                System.out.println(color);


                }
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques17.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques17
[Red, Yellow, Pink, Blue, Violet, Purple]
[]
```

18. Write a Java program to test if an array list is empty or not.

```
import java.util.*;


class ques18
{
                public static void main(String args[])
```

```
{
        ArrayList<String> color = new ArrayList<>();


        color.add("Red");
        color.add("Yellow");
        color.add("Pink");
        color.add("Blue");
        color.add("Violet");
        color.add("Purple");


    System.out.println(color);
    System.out.println(color.isEmpty());
    color.removeAll(color);
    System.out.println(color);
    System.out.println(color.isEmpty());
    }
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques18.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques18
[Red, Yellow, Pink, Blue, Violet, Purple]
false
[]
true
```

19. Write a Java program to trim the capacity of an array list the current list size.

```
import java.util.*;



class ques19

{

		public static void main(String args[])

		{

			ArrayList<String> color = new ArrayList<>(10);



			color.add("Red");

			color.add("Yellow");

			color.add("Pink");

			color.add("Blue");

			color.add("Violet");

			color.add("Purple");

			color.trimToSize();
```

```
        System.out.println(color);

        }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques19.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques19
[Red, Yellow, Pink, Blue, Violet, Purple]
```

20. Write a Java program to increase the size of an array list.

```
import java.util.*;



class ques20

{

        public static void main(String args[])

        {

                ArrayList<String> color = new ArrayList<>(6);

                color.add("Red");

                color.add("Yellow");

                color.add("Pink");

                color.add("Blue");

                color.add("Violet");
```

```
                color.add("Purple");


                color.ensureCapacity(10);

                color.add("Pink");

        System.out.println(color);

        }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques20.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques20
[Red, Yellow, Pink, Blue, Violet, Purple, Pink]
```

21. Write a Java program to replace the second element of an ArrayList with the specified element.

```
import java.util.*;


class ques21

{

        public static void main(String args[])

        {

                ArrayList<String> color = new ArrayList<>(6);


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

```
                color.add("Yellow");

                color.add("Pink");

                color.add("Blue");

                color.add("Violet");

                color.add("Purple");

                System.out.println(color);

                color.set(1,"Blah");

        System.out.println(color);

        }

}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques21.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques21
[Red, Yellow, Pink, Blue, Violet, Purple]
[Red, Blah, Pink, Blue, Violet, Purple]
```

22. Write a Java program to print all the elements of an ArrayList using the position of the elements.

```
import java.util.*;
```

```
class ques22
{
	public static void main(String args[])
	{
		ArrayList<String> color = new ArrayList<>(6);
		color.add("Red");
		color.add("Yellow");
		color.add("Pink");
		color.add("Blue");
		color.add("Violet");
		color.add("Purple");
		for(int i=0;i<color.size();i++)
		{
			System.out.println("Indexed "+ i +" has element :"+color.get(i));
		}
	}
}
```

```
C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>javac ques22.java

C:\Users\Aakash\Desktop\4.Java\Java Assignment 5\ArrayList>java ques22
Indexed 0 has element :Red
Indexed 1 has element :Yellow
Indexed 2 has element :Pink
Indexed 3 has element :Blue
Indexed 4 has element :Violet
Indexed 5 has element :Purple
```