



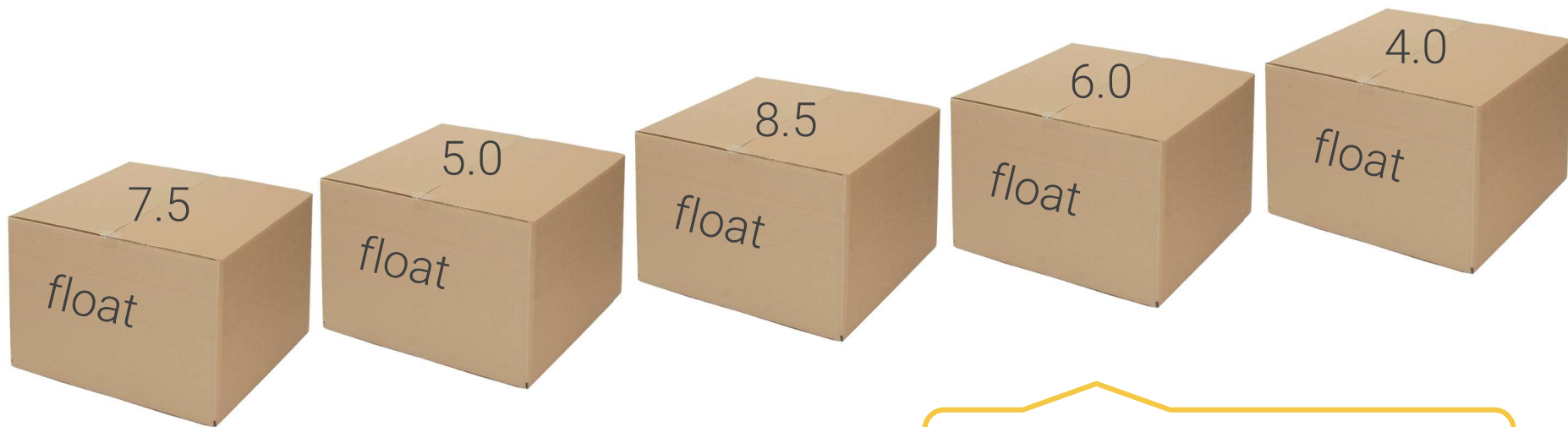
1. ArrayList

ArrayList

ArrayList

1. ArrayList

```
float[] scores={7.5,5.0,8.5,6.0,4.0};
```



Array of floats

1. ArrayList

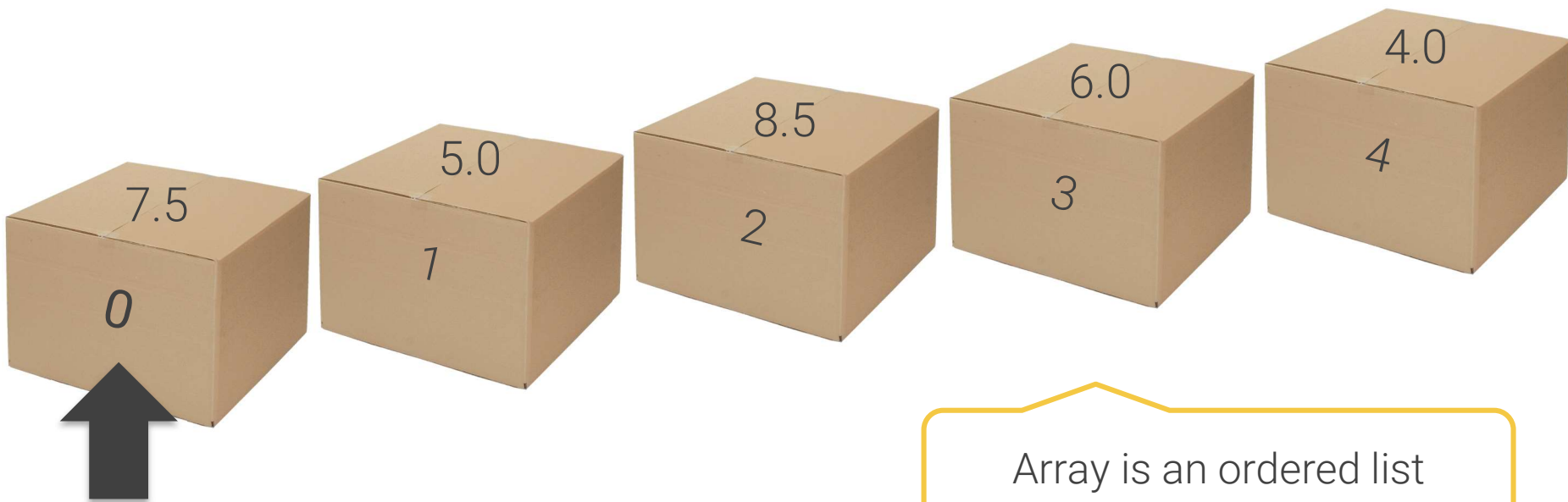
```
float[] scores={7.5,5.0,8.5,6.0,4.0};
```



Array is an ordered list

1. ArrayList

```
float[] scores={7.5,5.0,8.5,6.0,4.0};
```



Creating an array

```
float[] array1={7.5,5.0,8.5,6.0,4.0};
```

```
String[] array2=new String[4];
```

1. ArrayList

Creating an array

```
float[] array1={7.5,5.0,8.5,6.0,4.0};
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String[] array2=new String[4];
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Creating an array with literals



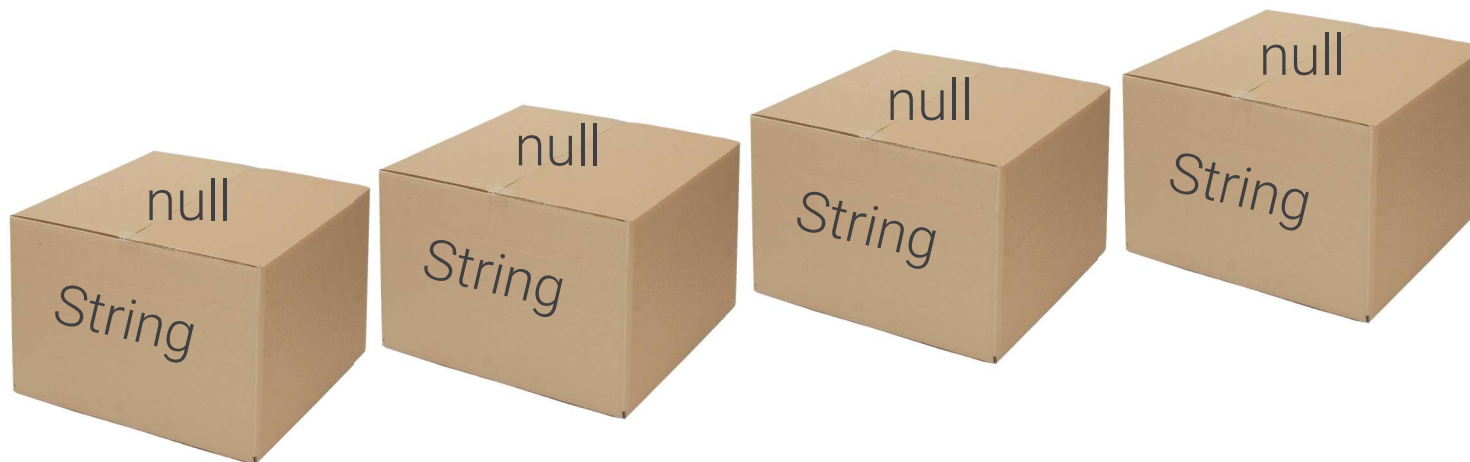
1. ArrayList

Creating an array

```
float[] array1={7.5,5.0,8.5,6.0,4.0};
```

```
String[] array2=new String[4];
```

Creating an array with a default value



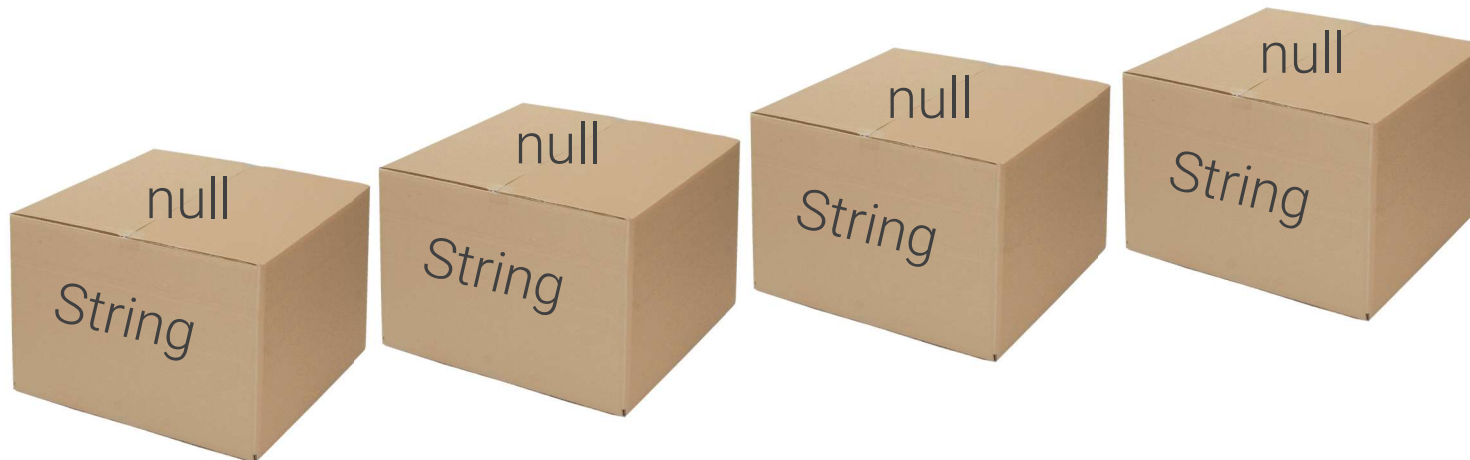
1. ArrayList

Creating an array

```
float[] array1={7.5,5.0,8.5,6.0,4.0};
```

```
String[] array2=new String[4];
```

Array length: int number>0

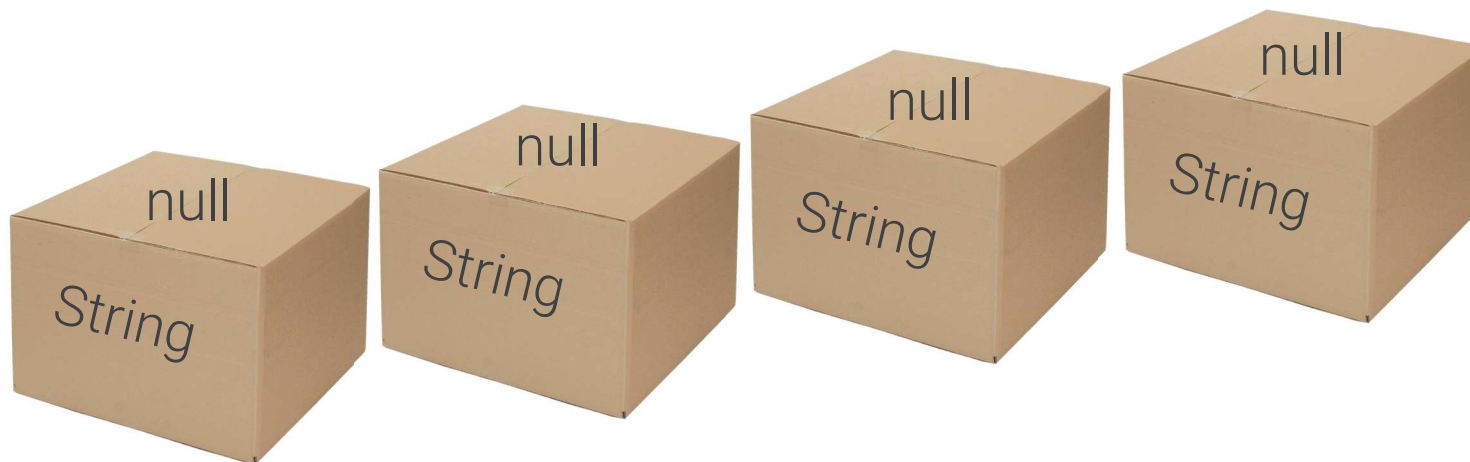


Creating an array

```
float[] array1={7.5,5.0,8.5,6.0,4.0};
```

```
String[] array2=new String[4];
```

Default data type value



Array data types

```
float[] arrayFloats={7.5,5.0,8.5,6.0,4.0};
```

```
boolean[] arrayBooleans=new boolean[4];
```

```
int[] arrayInts= {2,5,7};
```

```
String[] arrayStrings= new String[4];
```

```
StringBuilder[] arrayStringBuilders= new StringBuilder[7];
```

```
Car[] arrayCars= new Car[2];
```

Array data types

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float[] arrayFloats={7.5,5.0,8.5,6.0,4.0};
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boolean[] arrayBooleans=new boolean[4];
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Array data types

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float[] arrayFloats={7.5,5.0,8.5,6.0,4.0};
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boolean[] arrayBooleans=new boolean[4];
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int[] arrayInts= {2,5,7};
```

```
String[] arrayStrings= new String[4];
```

```
StringBuilder[] arrayStringBuilders= new StringBuilder[7];
```

```
Car[] arrayCars= new Car[2];
```

Array: no resizable

```
float[] arrayFloats={7.5,5.0,8.5,6.0,4.0};
```

```
boolean[] arrayBooleans=new boolean[4];
```

```
int[] arrayInts= {2,5,7};
```

```
String[] arrayStrings= new String[4];
```

```
StringBuilder[] arrayStringBuilders= new StringBuilder[7];
```

```
Car[] arrayCars= new Car[2];
```

- It allows add, modify, delete values
- It maintains its insertion order
- It allows duplicate values to be added to it
- It allows null values to be added to it
- It stores objects

1. ArrayList

- It allows add, modify, delete values
- It maintains its insertion order
- It allows duplicate values to be added to it
- It allows null values to be added to it
- It stores objects

String Double
Integer StringBuilder
Book
Car
~~int~~ ~~boolean~~
~~double~~

Creating an ArrayList

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

Creating an ArrayList


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

Creating an ArrayList

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

Creating an ArrayList

```
ArrayList<String> arrayList = new ArrayList<>(); //arrayList is an empty ArrayList
```



Declaration and
initialization

Creating an ArrayList

```
ArrayList<String> anotherArrayList; //anotherArrayList is null
```

A yellow callout box with a pointed left side, containing the word "Declaration".

Declaration

Creating an ArrayList

```
ArrayList<String> anotherArrayList; //anotherArrayList is null
```

...

```
anotherArrayList= new ArrayList<>(); // Now anotherArrayList is an empty ArrayList
```

Declaration

Initialization

Creating an ArrayList

```
ArrayList<String> anotherArrayList; //anotherArrayList is null
```

```
...
```

```
anotherArrayList= new ArrayList<>(); // Now anotherArrayList is an empty ArrayList
```



Is null

Creating an ArrayList

```
import java.util.ArrayList;

public class Main {

    public static void main(String[] args) {
        ArrayList<String> arrayList = new ArrayList<>();
    }
}
```


Adding elements to an ArrayList

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

Adding elements to an ArrayList

```
ArrayList<String> arrayList = new ArrayList<>();  
arrayList.add("One");  
arrayList.add("Two");  
arrayList.add("Three");
```

Adding elements to an ArrayList

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ArrayList<String> arrayList = new ArrayList<>();  
arrayList.add("One");  
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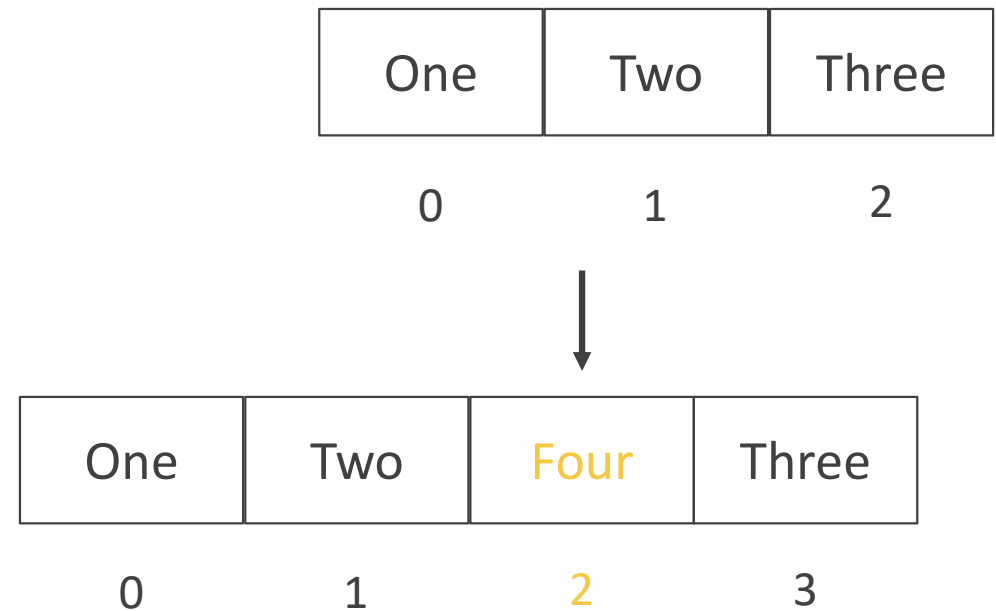
Adding elements to an ArrayList

```
ArrayList<String> arrayList = new ArrayList<>();  
arrayList.add("One");  
arrayList.add("Two");  
arrayList.add("Three");
```

| | | |
|-----|-----|-------|
| One | Two | Three |
| 0 | 1 | 2 |

Adding elements to an ArrayList

```
ArrayList<String> arrayList = new ArrayList<>();  
arrayList.add("One");  
arrayList.add("Two");  
arrayList.add("Three");  
arrayList.add(2, "Four");
```



NullPointerException

```
ArrayList<String> arrayList;  
arrayList.add("One");
```



NullPointerException

Accessing elements of an ArrayList

```
ArrayList<String> arrayList = new ArrayList<>();  
arrayList.add("One");  
arrayList.add("Two");  
arrayList.add("Three");  
  
System.out.println(arrayList.get(0)); //Prints One
```

Iterating over elements of an ArrayList

```
ArrayList<String> arrayList = new ArrayList<>();  
arrayList.add("One");  
arrayList.add("Two");  
arrayList.add("Three");
```

```
for (int i=0; i<arrayList.size();i++){  
    System.out.println(arrayList.get(i));  
}
```

```
//Prints
```

```
One
```

```
Two
```

```
Three
```


Iterating over elements of an ArrayList

```
ArrayList<String> arrayList = new ArrayList<>();  
arrayList.add("One");  
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for (int i=0; i<arrayList.size();i++){  
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}
```

```
//Prints
```

```
One
```

```
Two
```

```
Three
```

Iterating over elements of an ArrayList

```
ArrayList<String> arrayList ...  
  
for (int i=0; i<arrayList.size();i++){  
    System.out.println(arrayList.get(i));  
}  
  
//Prints  
One  
Two  
Three
```

```
ArrayList<String> arrayList ...  
  
for (String element: arrayList){  
    System.out.println(element);  
}  
  
//Prints  
One  
Two  
Three
```

Iterating over elements of an ArrayList

```
ArrayList<String> arrayList ...  
  
for (int i=0; i<arrayList.size();i++){  
    System.out.println(arrayList.get(i));  
}  
  
//Prints  
One  
Two  
Three
```

```
ArrayList<String> arrayList ...  
  
for (String element: arrayList){  
    System.out.println(element);  
}  
  
//Prints  
One  
Two  
Three
```

Iterating over elements of an ArrayList

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ArrayList<String> arrayList ...  
  
for (int i=0; i<arrayList.size();i++){  
    System.out.println(arrayList.get(i));  
}  
  
//Prints  
One  
Two  
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ArrayList<String> arrayList ...  
  
for (String element: arrayList){  
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}  
  
//Prints  
One  
Two  
Three
```

Iterating over elements of an ArrayList

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ArrayList<String> arrayList ...  
  
for (int i=0; i<arrayList.size();i++){  
    System.out.println(arrayList.get(i));  
}  
  
//Prints  
One  
Two  
Three
```

```
ArrayList<String> arrayList ...  
  
for (String element: arrayList){  
    System.out.println(element);  
}  
  
//Prints  
One  
Two  
Three
```

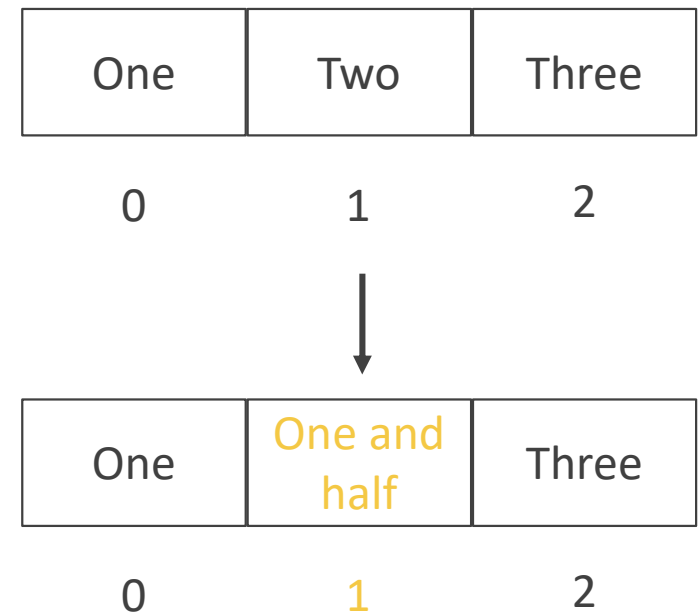
Iterating over elements of an ArrayList

```
ArrayList<String> arrayList ...  
  
for (int i=0; i<arrayList.size();i++){  
    System.out.println(arrayList.get(i));  
}  
  
//Prints  
One  
Two  
Three
```

```
ArrayList<String> arrayList ...  
  
for (String element: arrayList){  
    System.out.println(element);  
}  
  
//Prints  
One  
Two  
Three
```

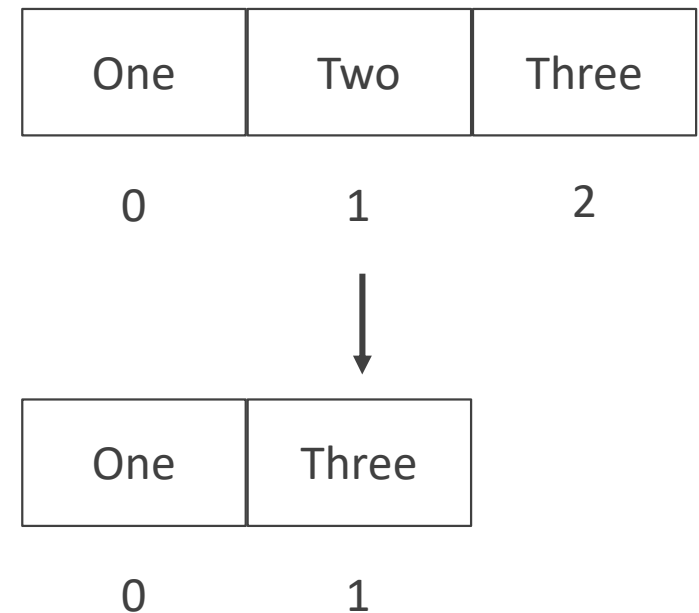
Modifying the elements of an ArrayList

```
ArrayList<String> arrayList = new ArrayList<>();  
arrayList.add("One");  
arrayList.add("Two");  
arrayList.add("Three");  
arrayList.set(1,"One and half");
```



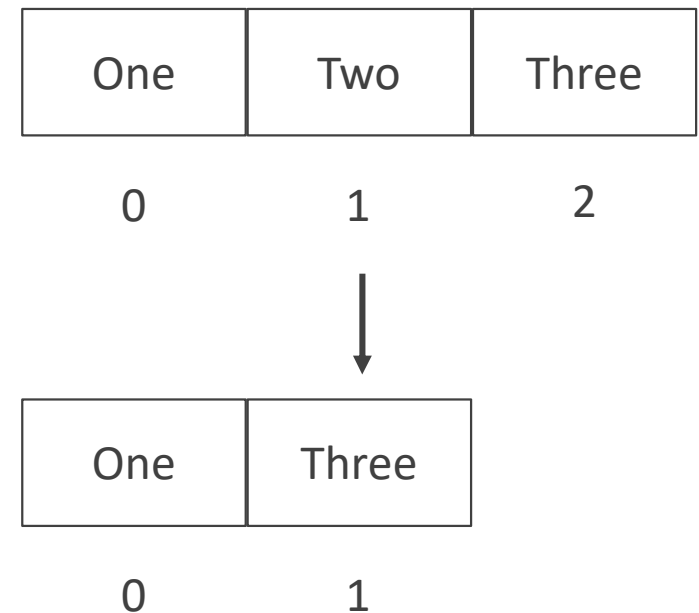
Deleting the elements of an ArrayList

```
ArrayList<String> arrayList = new ArrayList<>();  
arrayList.add("One");  
arrayList.add("Two");  
arrayList.add("Three");  
arrayList.remove(1);
```



Deleting the elements of an ArrayList

```
ArrayList<String> arrayList = new ArrayList<>();  
arrayList.add("One");  
arrayList.add("Two");  
arrayList.add("Three");  
arrayList.remove("Two");
```



Programmers use it all
the time!!

<https://docs.oracle.com/javase/...>

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“No hay nada permanente, excepto el cambio.”

Heráclito, filósofo griego

