Kotlin Arrays

An array is a collection of a fixed number of values. Each item in an array is called an element. We can access each individual array item by using its index. Array indices begin from 0.

We can create an array by using the `arrayOf()` function.

```
var numArray = arrayOf(10,14,32,6,43,2,75,8)
```

Then access its elements by index as such

```
println(numArray[0]) //prints out 10
println(numArray[2]) //prints out 32
println(numArray[5]) //prints out 2
```

Arrays can be created to hold elements of a single type or different types

```
var namesArray= arrayOf("Ada", "Beth", "Chris", "Diana", "Elsie",
"Fiona")
println(namesArray[2]) //prints out Chris

var country = arrayOf("Kemya", 50000000, 0.97, true)
println(country[3]) //prints out true
```

Basic Array Operations

We will use this array for the section below

```
var namesArray= arrayOf("Ada", "Beth", "Chris", "Diana", "Elsie",
"Fiona")
```

Get an element at a certain index

```
var name = namesArray.get(4)
println(name)  //Elsie
```

Set a value at a certain index

```
namesArray.set(2, "Justine")
print(namesArray.get(2))  //Justine
```

Add an element to an array

When a new element is added to an array, a new array is created to include the old values and the new one. This is because arrays are fixed in size. Once declared we can't make an array longer or shorter.

```
var namesArray2 = namesArray.plus("Jane")
print(namesArray2[6])   //Jane
```

Get the index of an array Element

```
var index = namesArray.indexOf("Beth")
println(index) //1
```

Builtin Array Functions

These are some functions we can use to count, sum, get minimum and maximum values from an array

```
var numArray = arrayOf(10,14,32,6,43,2,75,8)

var numElements = numArray.count()
println(numElements)  //8

var sumElements = numArray.sum()
println(sumElements)    //190

var  minValue = numArray.minOrNull()
println(minValue)   //2

var maxValue = numArray.maxOrNull()
println(maxValue)   //75
```

Looping through arrays

We can access all the array elements in sequence by using built in loop functions

```
var namesArray= arrayOf("Ada", "Beth", "Chris", "Diana", "Elsie",
"Fiona")
namesArray.forEach { name->
    println(name)
}

//OR
for (x in namesArray){
    println(x)
}
```

Sorting Arrays

```
var namesArray= arrayOf( "Fiona", "Diana", "Ada", "Elsie","Beth",
"Chris")
var sortedNames = namesArray.sortedArray()
println(Arrays.toString(sortedNames))   //[Ada, Beth, Chris, Diana,
Elsie, Fiona]

var numArray = arrayOf(10,14,32,6,43,2,75,8)
var sortedNums = numArray.sortedArray()
println(Arrays.toString(sortedNums))    //[2, 6, 8, 10, 14, 32, 43, 75]
```