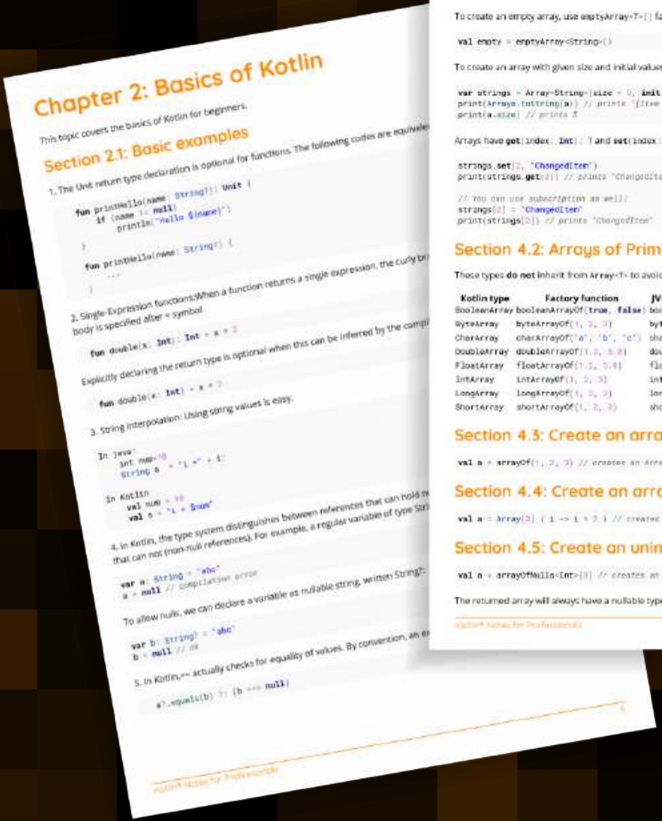
Kotlin®

Notes for Professionals



Chapter 2: Basics of Kotlin

This topic covers the basics of Kotlin for beginners.

Section 2.1: Basic examples

1. The Unit return type declaration is optional for functions. The following codes are equivale

```
fun printHello(name: String?): Unit {
    if (name != null)
        println("Hello ${name}")
}
fun printHello(name: String?) {
    ...
}
```

2. Single-Expression functions:When a function returns a single expression, the curly br
body is specified after = symbol

```
fun double(x: Int): Int = x * 2
```

Explicitly declaring the return type is optional when this can be inferred by the compi

```
fun double(x: Int) = x * 2
```

3. String interpolation: Using string values is easy.

```
In java:
    int num=10
    String s = "i =" + i;

In Kotlin
    val num = 10
    val s = "i = $num"
```

4. In Kotlin, the type system distinguishes between references that can hold n
that can not (non-null references). For example, a regular variable of type Stri

```
var a: String = "abc"
a = null // compilation error
```

To allow nulls, we can declare a variable as nullable string, written String?:

```
var b: String? = "abc"
b = null // ok
```

5. In Kotlin,== actually checks for equality of values. By convention, an ex

```
a?.equals(b) ?: (b === null)
```

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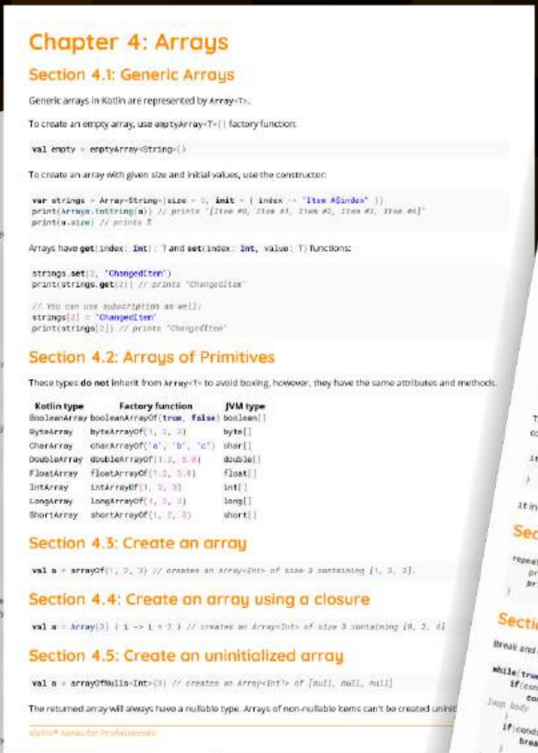

Chapter 4: Arrays

Section 4.1: Generic Arrays

Generic arrays in Kotlin are represented by Array<T>.

To create an empty array, use emptyArray<T>() factory function:

```
val empty = emptyArray<String>()
```

To create an array with given size and initial values, use the constructor:

```
var strings = Array<String>(size = 5, init = { index -> "Item #$index" })
print(Arrays.toString(a)) // prints "[Item #0, Item #1, Item #2, Item #3, Item #4]"
print(a.size) // prints 5
```

Arrays have get(index: Int): T and set(index: Int, value: T) functions:

```
strings.set(2, "ChangedItem")
print(strings.get(2)) // prints "ChangedItem"

// You can use subscription as well:
strings[2] = "ChangedItem"
print(strings[2]) // prints "ChangedItem"
```

Section 4.2: Arrays of Primitives

These types **do not** inherit from Array<T> to avoid boxing, however, they have the same attributes and methods.

Kotlin type	Factory function	JVM type
BooleanArray	booleanArrayOf(true, false)	boolean[]
ByteArray	byteArrayOf(1, 2, 3)	byte[]
CharArray	charArrayOf('a', 'b', 'c')	char[]
DoubleArray	doubleArrayOf(1.2, 5.0)	double[]
FloatArray	floatArrayOf(1.2, 5.0)	float[]
IntArray	intArrayOf(1, 2, 3)	int[]
LongArray	longArrayOf(1, 2, 3)	long[]
ShortArray	shortArrayOf(1, 2, 3)	short[]

Section 4.3: Create an array

```
val a = arrayOf(1, 2, 3) // creates an Array<Int> of size 3 containing [1, 2, 3].
```

Section 4.4: Create an array using a closure

```
val a = Array(3) { i -> i * 2 } // creates an Array<Int> of size 3 containing [0, 2, 4]
```

Section 4.5: Create an uninitialized array

```
val a = arrayOfNulls<Int>(3) // creates an Array<Int?> of [null, null, null]
```

The returned array will always have a nullable type. Arrays of non-nullable items can't be created uninit

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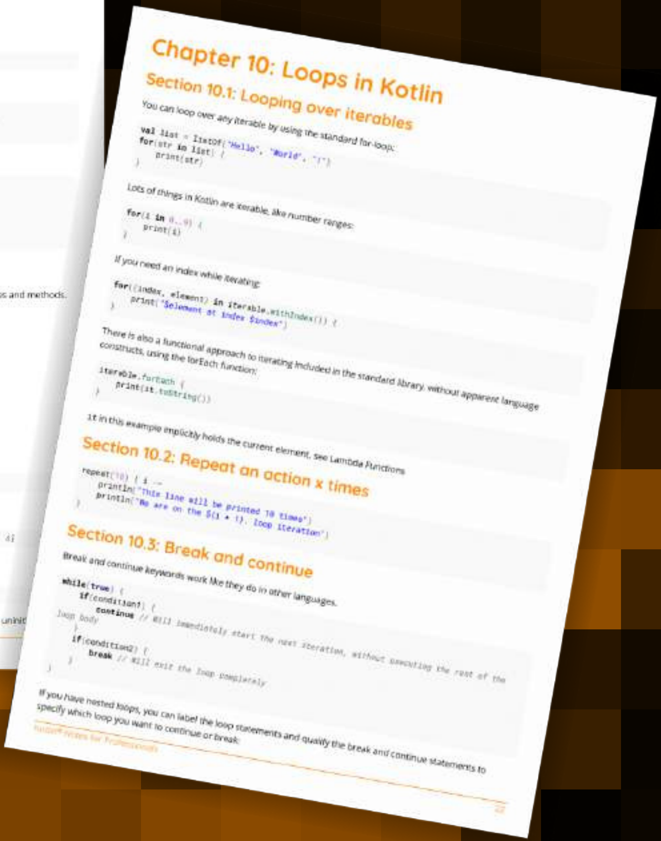

Chapter 10: Loops in Kotlin

Section 10.1: Looping over iterables

You can loop over any iterable by using the standard for-loop:

```
val list = listOf("Hello", "World", "!")
for(str in list) {
    print(str)
}
```

Lots of things in Kotlin are iterable, like number ranges:

```
for(i in 0..9) {
    print(i)
}
```

If you need an index while iterating:

```
for((index, element) in iterable.withIndex()) {
    print("$element at index $index")
}
```

There is also a functional approach to iterating included in the standard library, without apparent language constructs, using the forEach function:

```
iterable.forEach {
    print(it.toString())
}
```

it in this example implicitly holds the current element, see Lambda Functions

Section 10.2: Repeat an action x times

```
repeat(10) { i ->
    println("This line will be printed 10 times")
    println("We are on the ${i + 1}. loop iteration")
}
```

Section 10.3: Break and continue

Break and continue keywords work like they do in other languages.

```
while(true) {
    if(condition1) {
        continue // Will immediately start the next iteration, without executing the rest of the
loop body
    }
    if(condition2) {
        break // Will exit the loop completely
    }
}
```

If you have nested loops, you can label the loop statements and qualify the break and continue statements to specify which loop you want to continue or break:

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