Kotlin JVM language and compiler

CONCEPTS

Types are non-null by default: String cannot hold null, String? can.

COMPILER AND RUNNER

`kotlinc <file>.kt -d <dir>`
Compile to class files

`kotlinc <file>.kt -include-runtime -d <out>.jar`
Self-contained jar

`java -jar <out>.jar`
Run a self-contained jar

`kotlinc -script <file>.kts`
Run a Kotlin script

`kotlinc -version`
Print compiler version

VARIABLES AND TYPES

`val <n>: <T> = <v>`
Read-only value

`var <n> = <v>`
Mutable variable, inferred type

`"Hi $<name> ${<expr>}"`
String template

`<x> is <T>`
Type check with smart cast

`<a>..<b>` / `<a> until <b>`
Inclusive / exclusive range

NULL SAFETY

`<T>?`
Nullable type

`<x>?.<member>`
Safe call

`<x> ?: <default>`
Elvis: fallback if null

FUNCTIONS AND LAMBDAS

`fun <n>(<p>: <T> = <d>): <R> { }`
Function with default value

FUNCTIONS AND LAMBDAS (cont.)

`fun <n>(<p>: <T>) = <expr>`
Expression body

`{ <x> → <expr> }`
Lambda

`it`
Implicit single lambda parameter

`fun <T>.<n>(): <R>`
Extension function

CLASSES AND OBJECTS

`class <N>(val <p>: <T>)`
Class with primary constructor

`data class <N>(val <p>: <T>)`
equals, copy, toString for free

CONTROL FLOW

`if (<c>) <a> else <b>`
Conditional expression

`when (<x>) { <v> → <r>; else → <d> }`
Pattern-style switch

`for (<i> in <range>) { }`
Loop over range or iterable

COLLECTIONS

`listOf(<a>, <b>)`
Read-only list

`mutableListOf(<a>)`
Mutable list

`mapOf(<k> to <v>)`
Read-only map

`<c>.map { <expr> }`
Transform each element

`<c>.filter { <cond> }`
Keep matching elements

COROUTINES

`suspend fun <n>()`
Function that can suspend