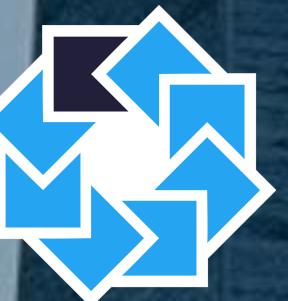


#8: Kotlin Ecosystem

JUNO

fitbit®

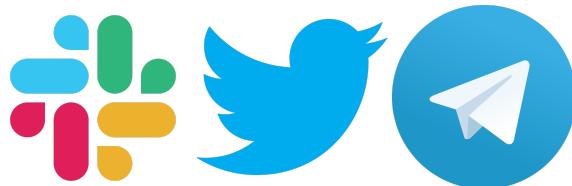
SPACE





Руслан Ибрагимов

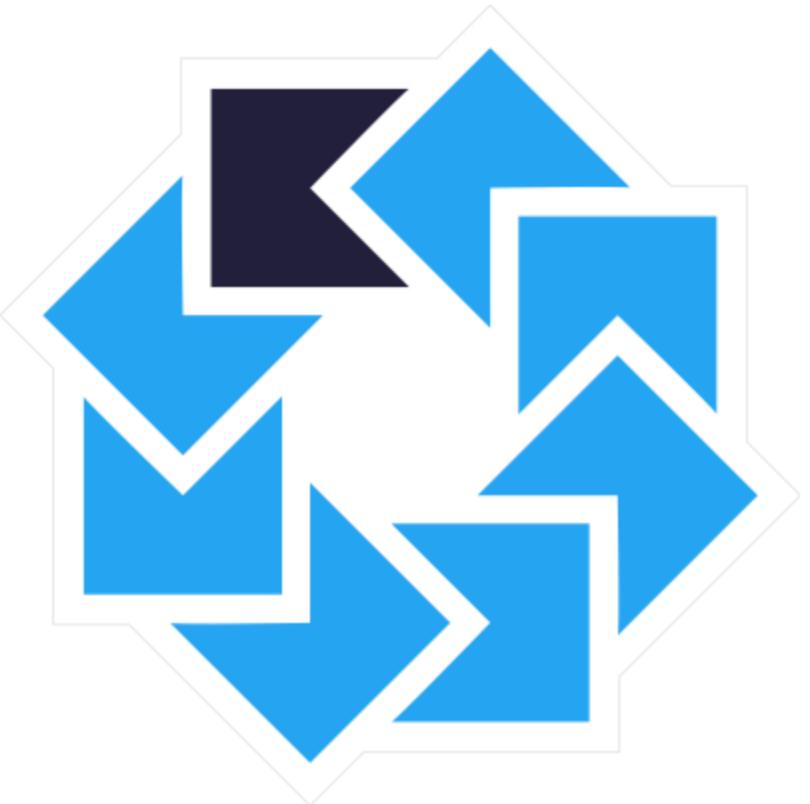
Full Stack Developer @ ObjectStyle



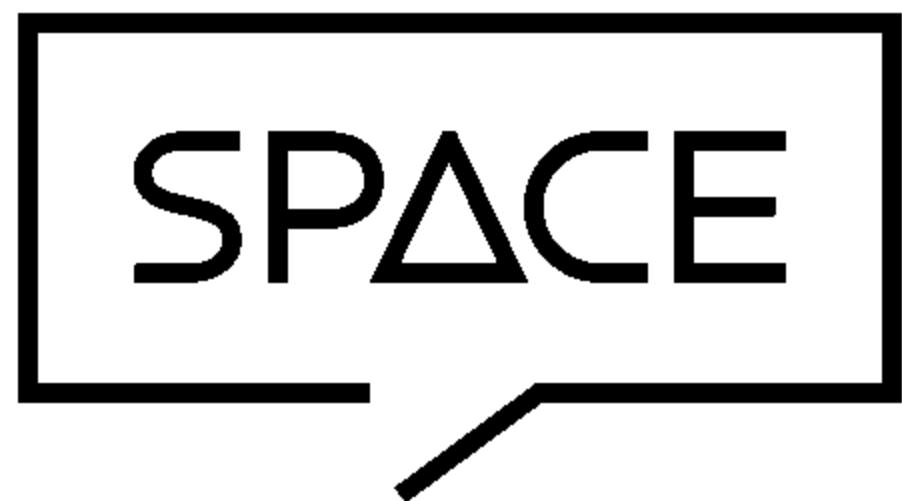
@HeapyHop



ruslan@ibragimov.by



fitbit®



JUNO



A close-up photograph from the Star Wars franchise. On the left, young Luke Skywalker with his signature brown hair and freckles looks directly at the viewer with a serious expression. On the right, the wise, elderly Jedi master Yoda, with his characteristic green skin, large ears, and wrinkles, also gazes forward. They appear to be in a dimly lit, possibly outdoor setting with some foliage visible in the background.

Менторы

Сегодня

- Руслан
 - Server Side
- Сергей
 - Gradle Kotlin DSL
- Кирилл
 - Android



Server Side



Server Side

- Spring Boot
- Ktor
- Spark Framework
- Vert.x
- Undertow
- Netty

Spring/Spring Boot

- написали экстеншеноов
- разметили API с помощью @NotNull аннотаций
- учитывают Nullable/NotNull типы в MVC
- suspend controller/repository (Spring 5.2+)

<https://docs.spring.io/spring/docs/current/spring-framework-reference/languages.html#kotlin>

Bad Java + Kotlin

```
// Kotlin  
@Component  
class ЭтоБудетКомпонентСпринга
```

```
// Java  
@Component  
public final class ЭтоБудетКомпонентСпринга
```

Bad Java + Kotlin

```
// Kotlin  
@Component  
open class ЭтоБудетКомпонентСпринга
```

```
// Java  
@Component  
public class ЭтоБудетКомпонентСпринга
```

Bad Java + Kotlin

Compiler Plugins:

kotlin-allopen (kotlin-spring)

koltin-noarg (kotlin-jpa)

Bad Java + Kotlin

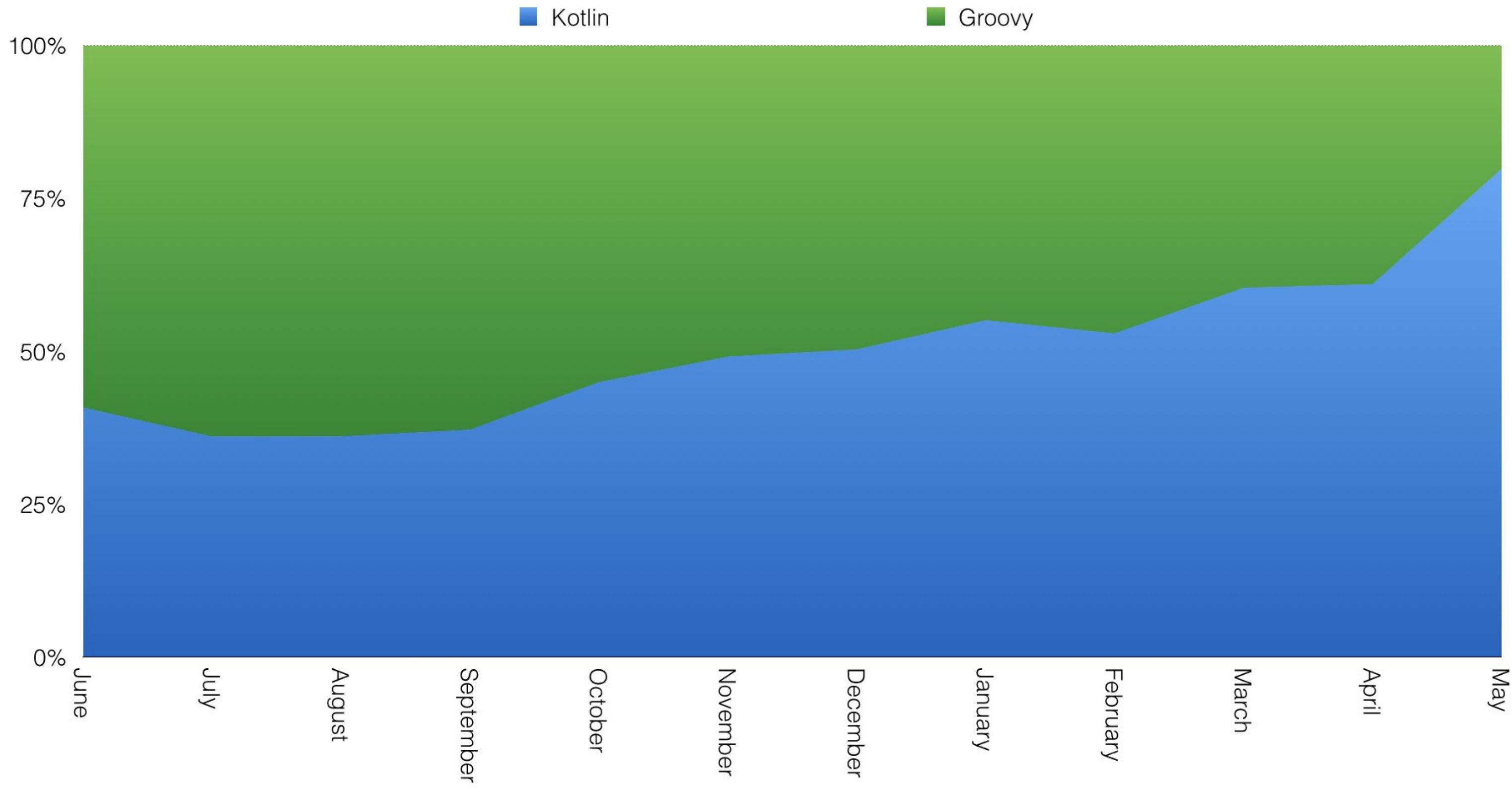
```
// Gralde  
apply plugin: "kotlin-allopen"
```

```
// Kotlin  
@Component  
class ЭтоБудетКомпонентСпринга
```

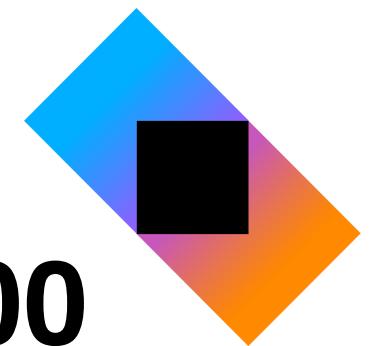
```
// Decompiled  
@Component  
public class ЭтоБудетКомпонентСпринга
```



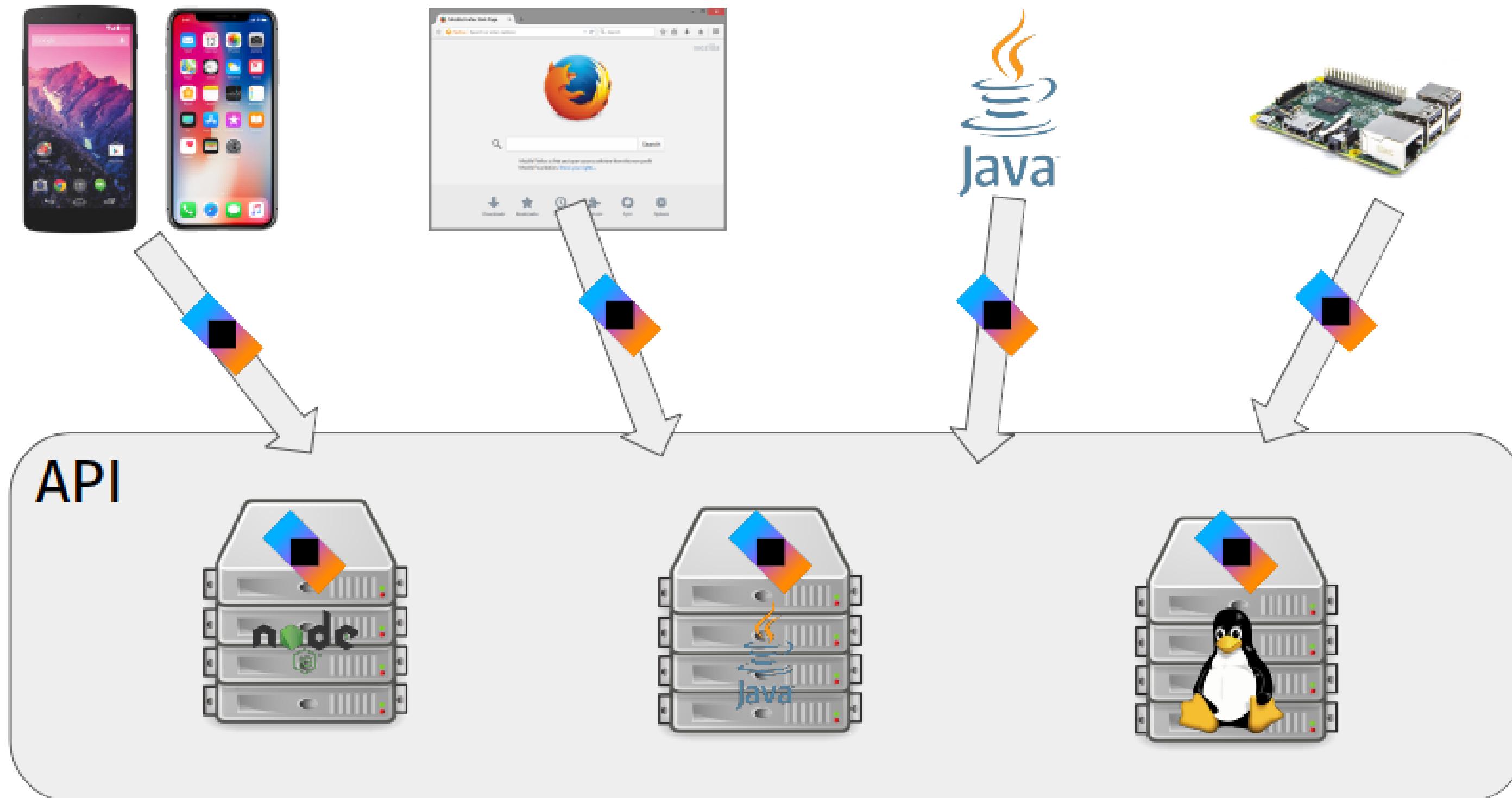
Projects choosing Groovy or Kotlin on start.spring.io



Ktor
★ 5000



Ktor



<https://www.youtube.com/watch?v=9FELyvdZauo>
<https://bkug.by/2018/02/23/otchet-o-bkug-8/>



Server Side

- Spring Boot
- Ktor
- Spark Framework
- Javalin
- Vert.x
- Undertow
- Netty
- ...

Data Serialization

- Jackson-Module-Kotlin
- Klaxon
- Kotlinx.Serialization

Jackson-Module-Kotlin

★ 570

Jackson-Module-Kotlin

```
1 data class SchoolKt(  
2     val venue: String,  
3     val organizers: List<Organizer>,  
4     val time: ZonedDateTime  
5 )  
6  
7 fun main( ) {  
8     ObjectMapper()  
9         .readValue(json, SchoolKt::class.java)  
10 }
```

Jackson-Module-Kotlin

```
1 data class SchoolKt(  
2     val venue: String,  
3     val organizers: List<Organizer>,  
4     val time: ZonedDateTime  
5 )  
6  
7 fun main() {  
8     ObjectMapper()  
9         .readValue(json, SchoolKt::class.java)  
10 }
```

Jackson-Module-Kotlin

```
fun main() {  
    ObjectMapper()  
        .readValue(json, SchoolKt::class.java)  
}
```

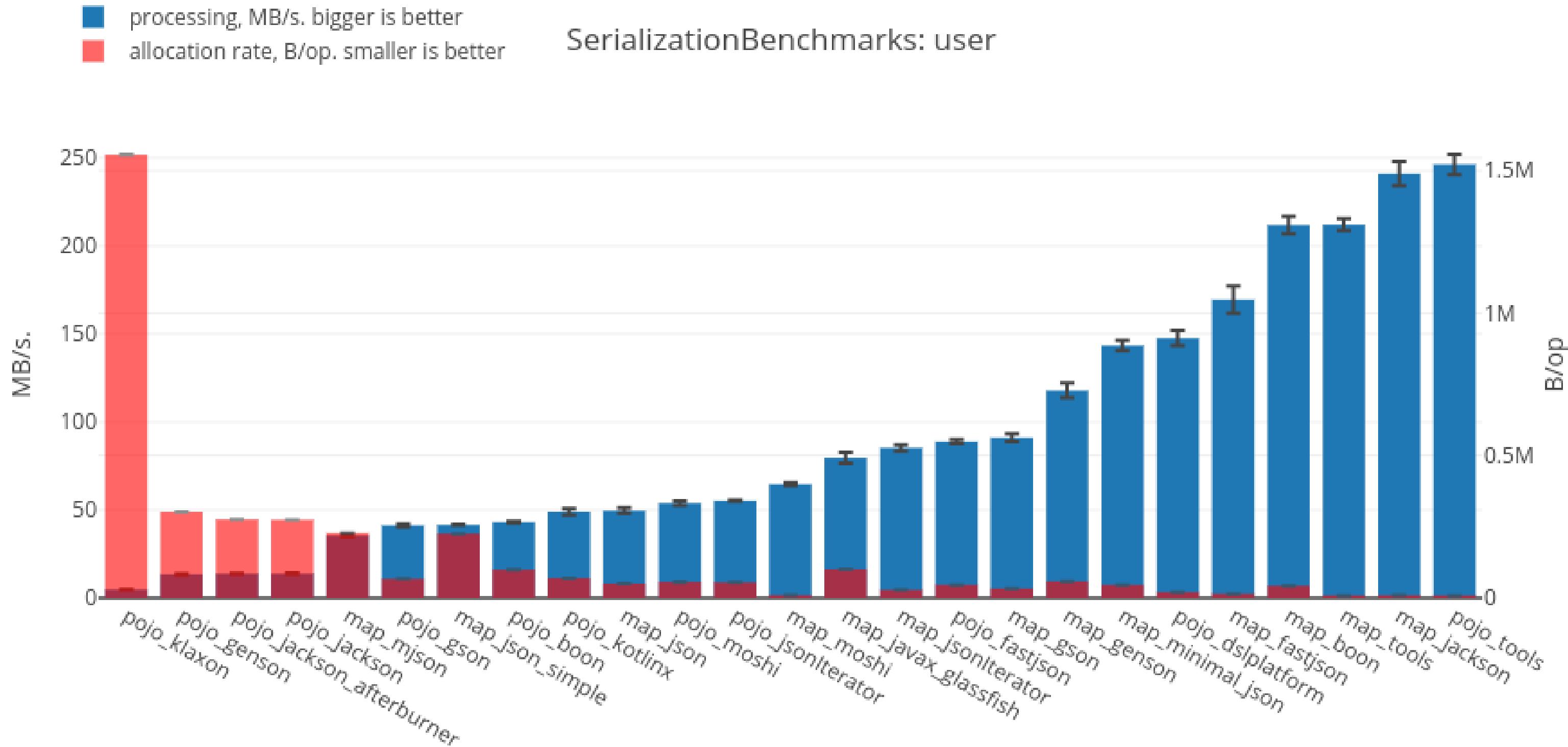
Exception in thread "main"
com.fasterxml.jackson.databind.exc.InvalidDefinitionException: Cannot construct instance of
`by.bkug.SchoolKt` (no Creators, like default
construct, exist): cannot deserialize from Object
value (no delegate- or property-based Creator)

Jackson-Module-Kotlin

```
fun main() {  
    ObjectMapper()  
        .registerKotlinModule()  
        .readValue(json, SchoolKt::class.java)  
}
```

Klaxon
★ 1075

Klaxon



Kotlinx.Serialization

★ 1250

Kotlinx.Serialization

```
import kotlinx.serialization.*  
import kotlinx.serialization.json.Json  
  
@Serializable  
data class Data(val a: Int, val b: String = "42")  
  
fun main() {  
    // serializing objects  
    val jsonData = Json.stringify(Data.serializer(), Data(42))  
  
    // serializing lists  
    val jsonList = Json.stringify(Data.serializer().list, listOf(Data(42)))  
    println(jsonData) // {"a": 42, "b": "42"}  
    println(jsonList) // [{"a": 42, "b": "42"}]  
  
    // parsing data back  
    // b is optional since it has default value  
    val obj = Json.parse(Data.serializer(), """{"a":42}""")  
  
    println(obj) // Data(a=42, b="42")  
}
```

Kotlinx.Serialization

- cross-platform
- multi-format
- reflectionless

Testing

- Spek
- Mockito-Kotlin
- Mockk
- JUnit 5
- Kotlin Test

Spek
★ 1670

Spek

```
class SimpleTest : Spek( {
    describe("a calculator") {
        val calculator = SampleCalculator()

        it("should return the result of adding the first number to the second number") {
            val sum = calculator.sum(2, 4)
            assertEquals(6, sum)
        }

        it("should return the result of subtracting the second number from the first number") {
            val subtract = calculator.subtract(4, 2)
            assertEquals(2, subtract)
        }
    }
})
```

JUnit 5

JUnit 5

```
1 @Test fun test() {
2     assertAll(
3         Executable { assertEquals(20, testFun(10)) },
4         Executable { assertEquals(0, testFun(0)) }
5     )
6 }
7
8 @Test fun test() {
9     assertAll(
10        { assertEquals(20, testFun(10)) },
11        { assertEquals(0, testFun(0)) }
12    )
13 }
14
```

JUnit 5

```
1 @Test fun test() {
2     assertAll(
3         Executable { assertEquals(20, testFun(10)) },
4         Executable { assertEquals(0, testFun(0)) }
5     )
6 }
7
8 @Test fun test() {
9     assertAll(
10        { assertEquals(20, testFun(10)) },
11        { assertEquals(0, testFun(0)) }
12    )
13 }
14
```

Mockito-Kotlin

★ 1710

Mockito-Kotlin

```
1 open class Foo {  
2     fun bar(s: String) {}  
3 }  
4  
5 @Test  
6 fun myTest() {  
7     val foo = Foo()  
8     whenever(foo.bar(any()))  
9 }
```

Mockito-Kotlin

```
1 open class Foo {  
2     fun bar(s: String) {}  
3 }  
4  
5 @Test  
6 fun myTest() {  
7     val foo = Foo()  
8     whenever(foo.bar(any()))  
9 }
```



Mockk
★ 1725

Mockk

```
val car = mockk<Car>()
```

```
every { car.drive(Direction.NORTH) } returns Outcome.OK
```

```
car.drive(Direction.NORTH) // returns OK
```

```
verify { car.drive(Direction.NORTH) }
```

```
confirmVerified(car)
```

Code Quality

- detekt
- klint
- SonarQube Kotlin Plugin



Ktlint
★ 2175

Ktlint

```
1 data class C(val a: Any,  
2                 val b: Any = 0,  
3                 val c: Any) {  
4 }  
5  
6 data class C(  
7         val a: Any,  
8         val b: Any = 0,  
9         val c: Any  
10    ) {}  
11
```

Ktlint

```
1 data class C(val a: Any,  
2             val b: Any = 0,  
3             val c: Any) {  
4 }  
5  
6 data class C(  
7     val a: Any,  
8     val b: Any = 0,  
9     val c: Any  
10    ) {}  
11
```

Detekt
★ 1835

Detekt

- static code analysis:
 - Code smell
 - Complexity report
 - Gradle plugin
 - SonarQube integration
 - Klint integration

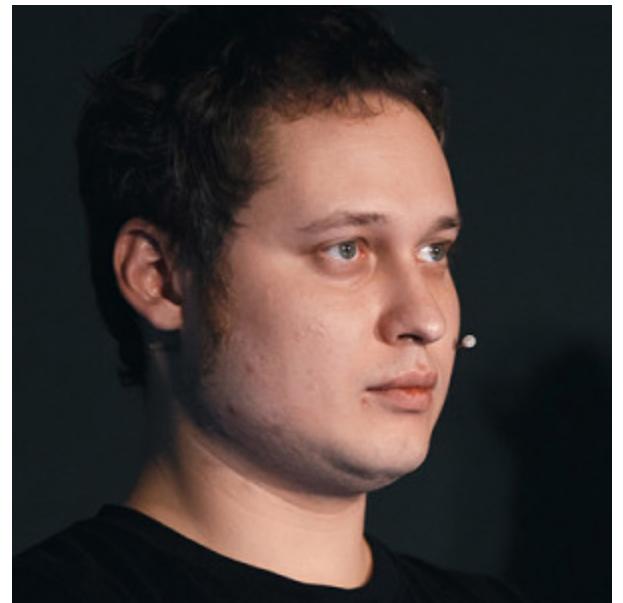
SonarQube Kotlin Plugin

★ 1250

SonarQube Kotlin Plugin

- AndroidLint
- Detekt

JaCoCo



Java 4..11, Kotlin, Code
Coverage and their best friend

JAVA

**KOTLIN
ADAPTERS**

KOTLIN

**KOTLIN
MULTIPLATFORM**



kotlin.link

The screenshot shows the homepage of kotlin.link. At the top center is the official Kotlin logo. Below it is a search bar with the placeholder "Type to Filter" and a magnifying glass icon. To the right of the search bar is a "Fork me on GitHub" button. A navigation bar at the bottom of the header contains links for versions 1.0.7, 1.1.61, 1.2.71, and 1.3.30.

LINKS

Official Links	Resources	Books and Courses
JetBrains/kotlin Last update: Apr 17, 2019	dbacinski/Design-Patterns-In-Kotlin Last update: Jan 19, 2019 Design Patterns implemented in Kotlin.	Kotlin in Action - Dmitry Jemerov, Svetlana Isakova
Kotlin/KEEP Last update: Apr 17, 2019 Kotlin Evolution and Enhancement Process	AlexeySoshin/Hands-on-Design-Patterns-with-Kotlin Last update: Jun 13, 2018 Code examples for 'Hands-on Design Patterns with Kotlin' book	Kotlin for Android Developers - Antonio Leiva
Home Page	Podcast: Talking Kotlin A Podcast on Kotlin and more	Programming Kotlin - Stephen Samuel, Stefan Bocutiu
Language Reference	/r/Kotlin	Fundamental Kotlin, First Edition Learn Kotlin quickly from the start
Slack (21k+ users) Public chat archive of Kotlin's Slack	Stackoverflow Documentation on Kotlin	Kotlin for Java Developers 160-minute Android Course.
Try Kotlin!	Quora Kotlin	Functional Kotlin Learn Functional Programming in Kotlin from scratch and how to apply Functional Programming with Kotlin to real-life projects with popular libraries like Arrow. By Mario Arias, Rivu Chakraborty
Blog	Trending Kotlin on Github	Reactive Programming in Kotlin - Rivu Chakraborty Learn how to implement Reactive Programming paradigms with Kotlin, and apply them to Web programming with Spring Framework 5.0 as well as in Android Application Development. By Rivu Chakraborty
Issue Tracker	Antonio Leiva - Android and any other monsters	Kotlin Programming: Next Level Java Development Learn coding in Kotlin from scratch!
Twitter	Programming Community Curated Resources for learning Kotlin	Introduction to Kotlin Programming by
Forum	LinkedIn: Kotlin Developers (join!)	
	Kotlin - Google+	
	From Java To Kotlin	

**TO BE
CONTINUED... ➤**

