Server Side Kotlin

(Bear with me here)

Russell Ivanovic

shifty jelly

WTF Is A 'Kotlin?!'

- It's not from Google, you can relax

- It's a lot like Swift! (http://nilhcem.com/swift-is-like-kotlin/)

- Pre-dates Swift

Swift

```swift
print("Hello, world!")
```

Kotlin

```kotlin
println("Hello, world!")
```

Variables And Constants

Swift

```swift
var myVariable = 42
myVariable = 50
let myConstant = 42
```

Kotlin

```kotlin
var myVariable = 42
myVariable = 50
val myConstant = 42
```

Explicit Types

Swift

```swift
let explicitDouble: Double = 70
```

Kotlin

```kotlin
val explicitDouble: Double = 70.0
```

Protocol

Swift

```swift
protocol Nameable {
    func name() -> String
}

func f<T: Nameable>(x: T) {
    print("Name is " + x.name())
}
```

Kotlin

```kotlin
interface Nameable {
    fun name(): String
}

fun f<T: Nameable>(x: T) {
    println("Name is " + x.name())
}
```

Extensions

Swift

```swift
extension Double {
    var km: Double { return self * 1_000.0 }
    var m: Double { return self }
    var cm: Double { return self / 100.0 }
    var mm: Double { return self / 1_000.0 }
    var ft: Double { return self / 3.28084 }
}
let oneInch = 25.4.mm
print("One inch is \(oneInch) meters")
// prints "One inch is 0.0254 meters"
let threeFeet = 3.ft
print("Three feet is \(threeFeet) meters")
// prints "Three feet is 0.914399970739201 meters"
```

Kotlin

```kotlin
val Double.km: Double get() = this * 1000
val Double.m: Double get() = this
val Double.cm: Double get() = this / 100
val Double.mm: Double get() = this / 1000
val Double.ft: Double get() = this / 3.28084

val oneInch = 25.4.mm
println("One inch is $oneInch meters")
// prints "One inch is 0.0254 meters"
val threeFeet = 3.0.ft
println("Three feet is $threeFeet meters")
// prints "Three feet is 0.914399970739201 meters"
```

So It's Not Scary?

- Familiar concepts, but why on earth would you use it?

  - Full interoperability with Java

  - Stable

  - Huge third party library support

  - Battle tested

```
[root@localhost:~# java -version
-bash: java: command not found
root@localhost:~#
```

```
root@localhost:~# apt-get -t jessie-backports install openjdk-8-jre
```

- Vertx: simple, scalable web services

    - Everything from JSON to MongoDB available as extensions

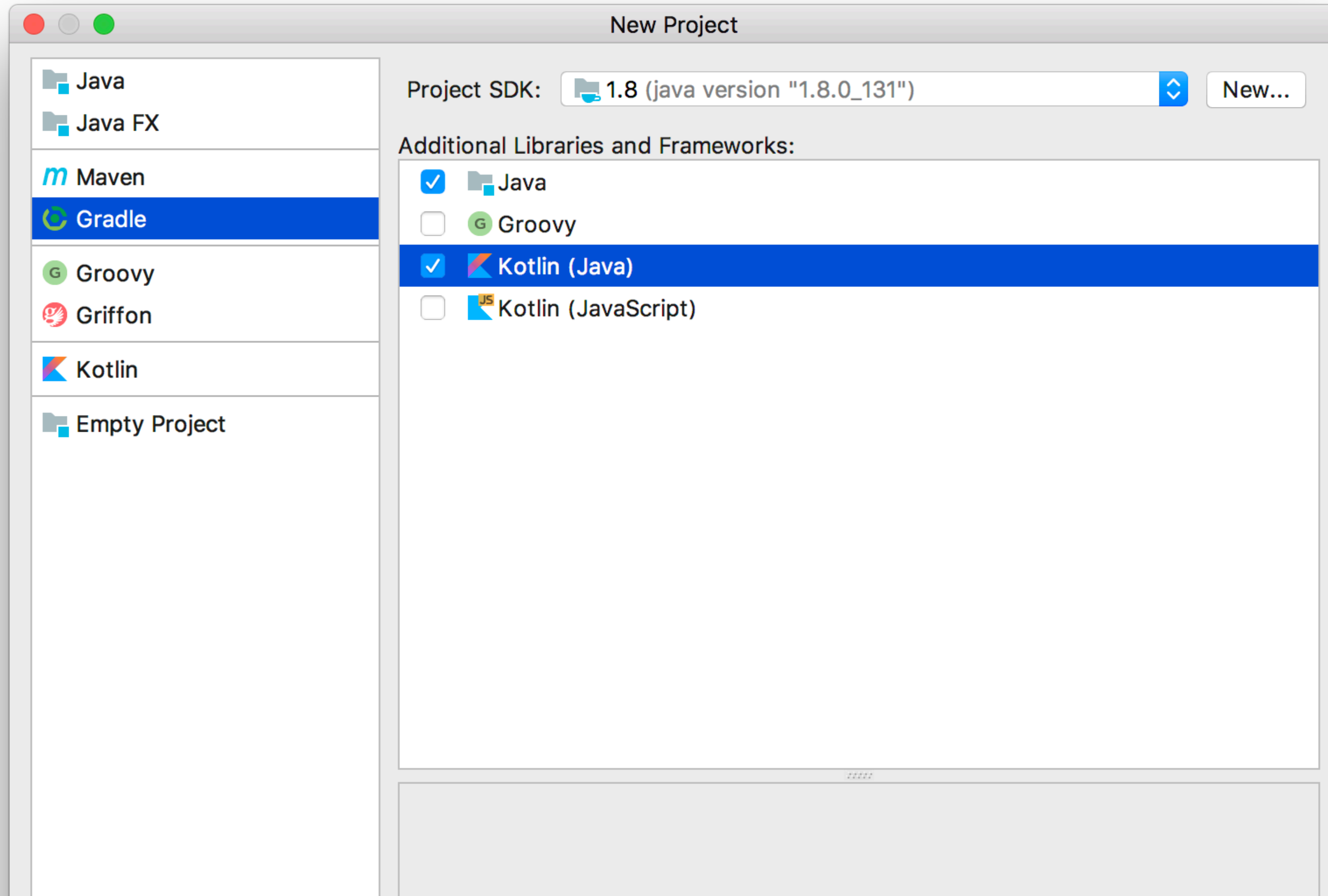   - Easy to get started with

    - Performant

Is Using Them Hard?

- Enter Gradle

  - Like CocoaPods/Carthage -> but done properly

  - Want to import Vertx and Kotlin into a web project...

```
dependencies {
    compile "io.vertx:vertx-core:3.4.2"
    compile "io.vertx:vertx-web:3.4.2"
    compile "org.jetbrains.kotlin:kotlin-stdlib-jre8:$kotlin_version"
}
```
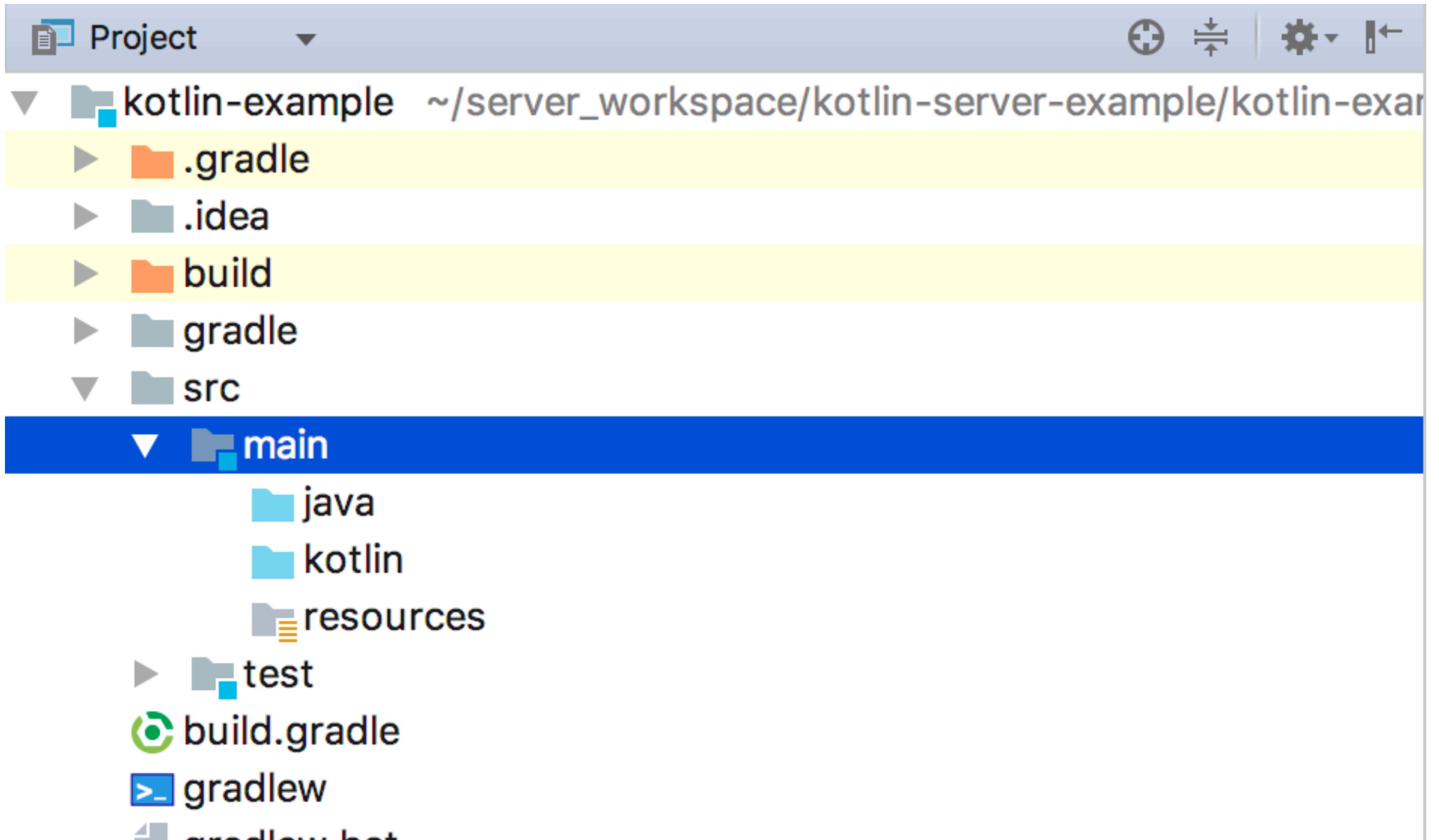
Demo Time!

New Project

GroupId   au.com.shiftyjelly.labs

ArtifactId kotlin-example

Version   1.0

Demo Time!

```
📋 Project                              ⊕  ⬍   ⚙▾ ⊩←

▼ 📁 kotlin-example  ~/server_workspace/kotlin-server-example/kotlin-exar
    ▶ 📁 .gradle
    ▶ 📁 .idea
    ▶ 📁 build
    ▶ 📁 gradle
    ▼ 📁 src
        ▼ 📁 main
            📁 java
            📁 kotlin
            📁 resources
        ▶ 📁 test
    ⊙ build.gradle
    >_ gradlew
```

Actual Demo Time

Things I Cheated On Part 1

- Normally you'd deploy Nginx as well (again, not hard)

- Wouldn't normally run as root

- Would have set the server to run as a service

- Might have set up logging

- Status page for reporting to something like Pingdom
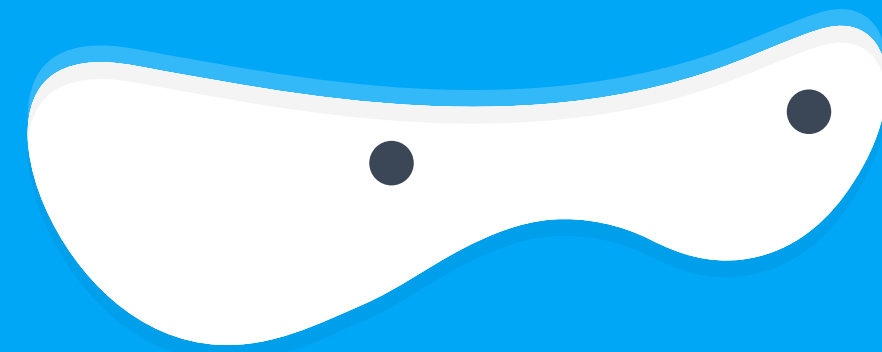
- Normally there'd be a database, again, not hard:

```kotlin
private fun findInCache(uuid: String, lastModifiedSent: String?, callback: FindCallback<ShowNotesInfo>) {
    mongoHelper.client.findOne(ShowNotesCollection.name, JsonObject().put(ShowNotesCollection.fields.uuid, uuid),  fields: null) {
        if (!it.succeeded()) {
            callback.onFailure(it.cause())
            return@findOne
        }

        val findResult = it.result()
```

Additional Resources

- https://github.com/rustyshelf/kotlin-server-example

- Kotlin: kotlinlang.org

- Intelli-J: https://www.jetbrains.com/idea/download/

- Vertx: http://vertx.io/

- Server Side Kotlin: https://kotlinlang.org/docs/reference/server-overview.html

  - Worth checking out Ktor

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