

# Kotlin @ DefDev

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# About Me



- [christoph.pickl@gmail.com](mailto:christoph.pickl@gmail.com)
- Developer for +15 Years
- In ❤️ with Java ever since
- Looking for alternatives
  - C#, Scala, Ceylon, Xtend, ...



# Kotlin?!

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**Disclaimer**


***“Most people talk about Java the language,  
and this may sound odd coming from me,  
but I could hardly care less.  
At the core of the Java ecosystem is the JVM.”***



**James Gosling**

Creator of the Java Programming Language [2011, TheServerSide]

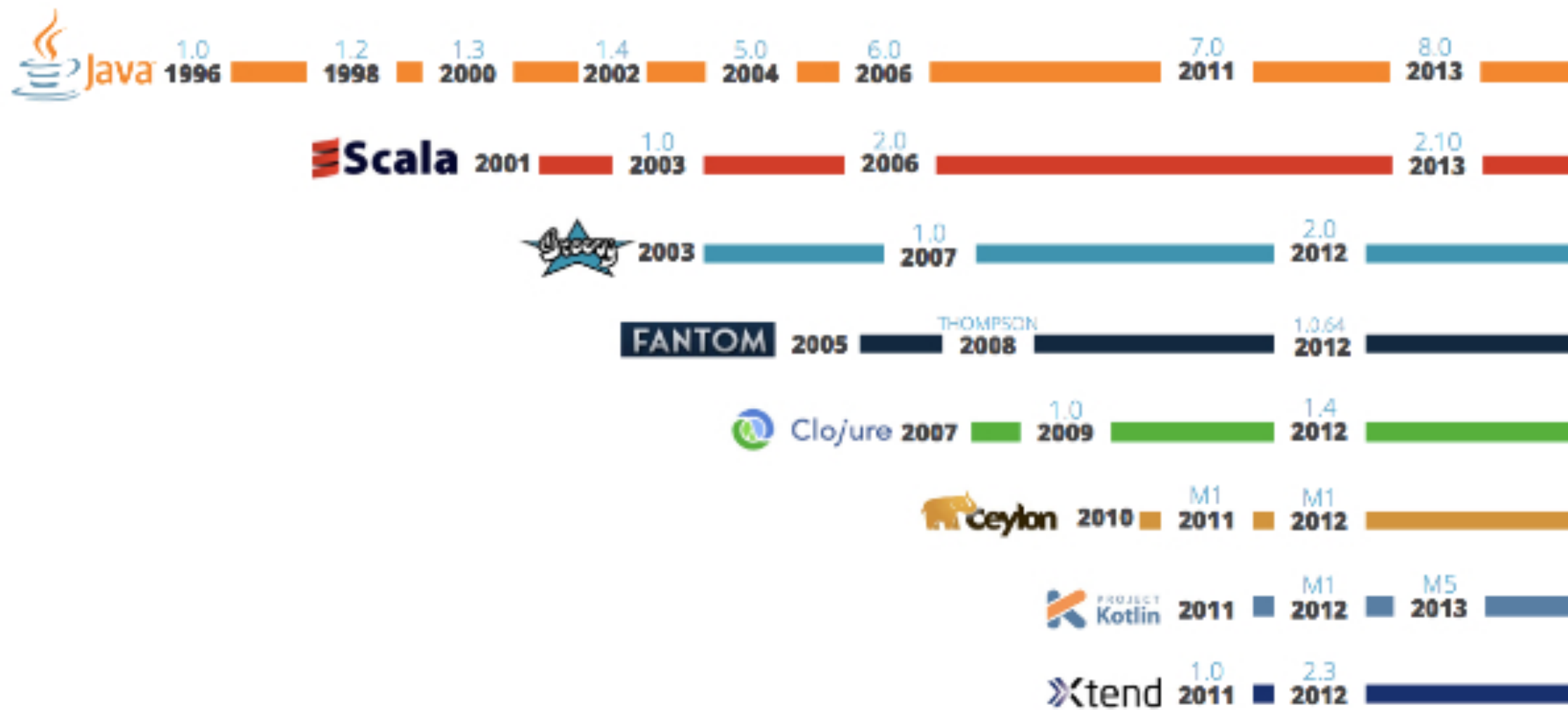




**U SAY JAVA IZ**

**NO COOL ANYMOAR?!**

memegenerator.net



**BUT WHY DO WE NEED**

**YET ANOTHER JVM LANGUAGE**



# What the fuzz?



- Statically typed, **hybrid language** (OO and functional)
- Reuse of all **good concepts** of other languages
  - **Easy** to learn, doesn't try to be super smart
- Seamless **Java interoperability**
  - Enables smooth, side-by-side **migration**
  - **Reuse** all the existing libraries and frameworks out there



# JetBrains



- Developed by a **company**, built for the industry
- Well known for their **sophisticated products**
  - IntelliJ, AndroidStudio
  - Ergo: Superb IDE/tooling support 🌟
- Still **open source** compiler and tools



# Sekurity

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# By Design



- Favours **immutability**
- No **static** cling
- **Concise**
- **Null** handling

# Concise



- Less code, less bugs, less crashes
- Nice new features, like:
  - type inference, smart casts
  - data classes, properties
  - no new, no semicolon, single expression methods
- Lombok anyone?



# Data classes



**Account**  
alias: String  
balance: Int

```
data class Account(  
    val alias: String,  
    val balance: Int  
)
```

```
public class Account {  
  
    private final String alias;  
    private final int balance;  
  
    public Account(String alias, int balance) {  
        this.alias = alias;  
        this.balance = balance;  
    }  
  
    public String getAlias() {  
        return alias;  
    }  
    public int getBalance() {  
        return balance;  
    }  
  
    @Override public boolean equals(Object o) {  
        if (this == o) return true;  
        if (o == null || getClass() != o.getClass()) return false;  
        final Account account = (Account) o;  
        return balance == account.balance &&  
            Objects.equal(alias, account.alias);  
    }  
    @Override public int hashCode() {  
        return Objects.hashCode(alias, balance);  
    }  
    @Override public String toString() {  
        return MoreObjects.toStringHelper(this)  
            .add("alias", alias)  
            .add("balance", balance)  
            .toString();  
    }  
}
```

**I DON'T ALWAYS CODE IN  
JAVA**



**BUT WHEN I DO, IT'S A  
NULLPOINTEREXCEPTION**

[memegenerator.net](http://memegenerator.net)

# NPEs



```
val maybe: String? = null
maybe.length // compile error!
maybe?.length // type is Int?
maybe?.length ?: -1 // type is Int
maybe!!.length // brute force!
if (maybe != null) {
    maybe.length // smart cast
}
```

# Android

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# Java on Steroids

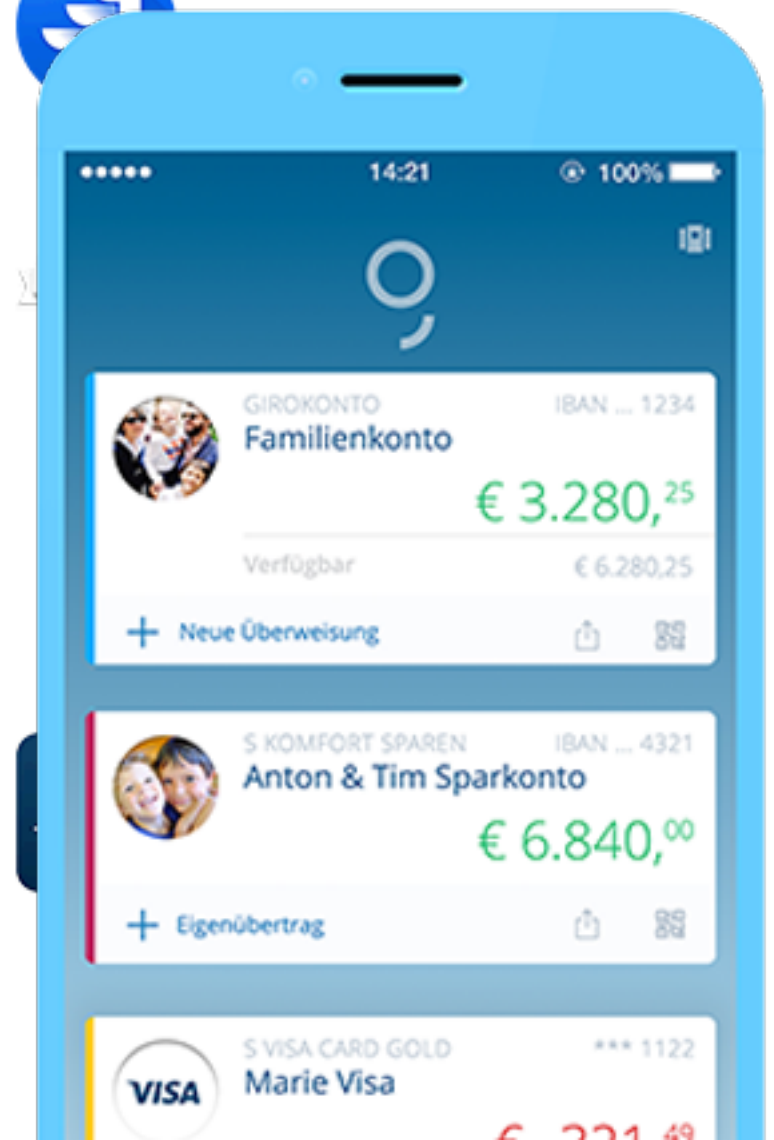
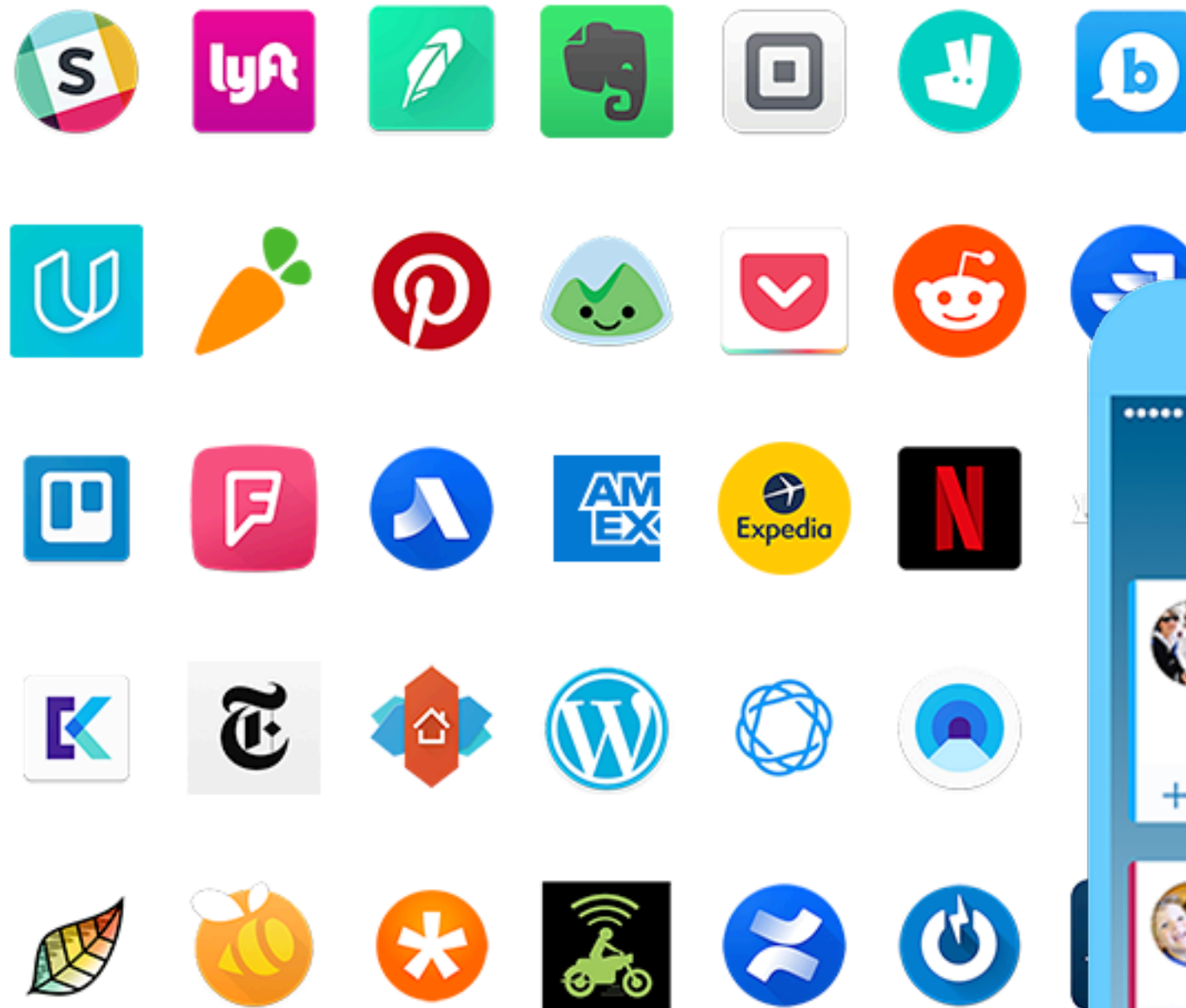


- **Officially supported** language for Android
- `kotlinc` generates 1.6 Bytecode
- Full **tooling** support (Android Studio, build system)
- Java on **steroids**: Extension functions, (proper) lambdas, no more `findViewById()`, typesafe intents, ...





# Apps built with



# Libraries



- Anko
- Butterknife → Kotterknife
- Espresso → Kakao
- ... and many more at [awesome-kotlin](#)



# Anko



```
class AnkoUI : AnkoComponent<AnkoActivity> {  
    override fun createView(ui: AnkoContext<AnkoActivity>) =  
        with(ui) {  
            verticalLayout {  
                val name = editText()  
                button("Say Hello") {  
                    onClick { ctx.toast("Hello, ${name.text}!") }  
                }  
            }  
        }  
}
```



```
class AnkoActivity : AppCompatActivity() {  
    override fun onCreate(...) {  
        super.onCreate(...)  
        AnkoUI().setContentView(this)  
    }  
}
```

# Kotter



```
class ButterActivity : Activity() {  
    @BindView(R.id.title) lateinit var title: TextView  
}
```



```
class KotterActivity : Activity() {  
    val title: TextView by bindView(R.id.title)  
    val details: TextView? by bindOptionalView(R.id.details)  
    val views: List<TextView> by bindViews(R.id.x1, R.id.x2)  
}
```

# Kakao



```
onView(allOf(withId(R.id.price_item),
    hasDescendant(withText("Standard Rate")))).check(
    matches(withEffectiveVisibility(Visibility.VISIBLE)))
```

```
class FormScreen : Screen<FormScreen>() {
    val email = KEditText { withId(R.id.email) }
    val submit = KButton { withId(R.id.submit) }
}
screen {
    email {
        hasText("christoph@pickl.com")
    }
    submit {
        click()
    }
}
```





# Outlook



- Generate **JavaScript** and **native code**
- Even more nice features:
  - *Type inference, smart casts, properties, named & default arguments, data classes, sealed classes, reified generics, inline functions, delegates, string interpolation, pattern matching, operator overloading, conditions as expressions, == as equals, range expressions, rename imports, backticks for escaping, improved standard library, ...*



**<https://try.kotlinlang.org>**



**<https://developer.android.com/kotlin/>**



**<https://www.meetup.com/Kotlin-Vienna/>**



Droidcon NYC 2016 - Kotlin in Production

<https://www.youtube.com/watch?v=mDpnc45WwII>