

Découvrir





Igor Laborie
Expert Web & Java

 @ilaborie

 igor@monkeypatch.io



Pourquoi un nouveau langage ?

#2

- Écrire du code plus sûr
- Faciliter la maintenance
- Écrire et Tester plus rapidement
- Résoudre de nouveaux problèmes
- ...

- Expressif et pragmatique
- *null-safety* (éviter les NPE), statiquement typé
- Abordable, si on vient de Java
- Inspiré par Java, Scala, C#, Groovy, ...
- Cross-platform



JVM et Android



JavaScript



Native avec
LLVM

```
fun main(args: Array<String>) {  
    println("Hello World!")  
}
```

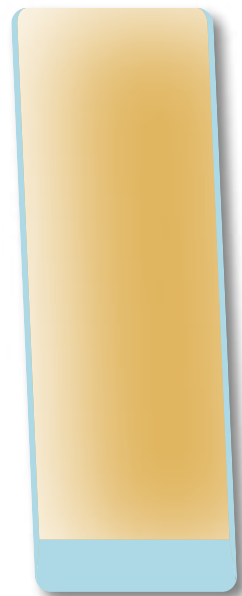


Utilisez `Alt + Shift + (Cmd|Ctrl) + K` pour convertir une classe Java en Kotlin

Ou copiez du code Java dans un fichier Kotlin



WATER POURING PROBLEM



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0 / 6

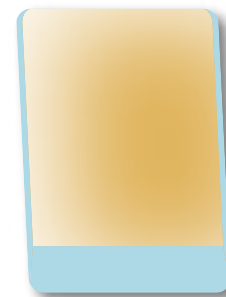


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Fill



1 / 4



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Empty



3 / 4



0 / 4



LIVE CODING

```
data class Glass(val capacity: Int, val current: Int = 0) {  
    init {  
        require(capacity > 0)  
        require(current in 0..capacity)  
    }  
  
    val isEmpty: Boolean = (current == 0)  
    val isFull: Boolean = (current == capacity)  
    val remainingVolume: Int by lazy { capacity - current }  
    fun empty(): Glass = copy(current = 0)  
    fun fill(): Glass = copy(current = capacity)  
    operator fun plus(value: Int): Glass =  
        copy(current = (current + value).coerceAtMost(capacity))  
    operator fun minus(value: Int): Glass =  
        copy(current = (current - value).coerceAtLeast(0))  
    override fun toString() = "$current/$capacity"  
}  
  
typealias State = List<Glass>
```

```
sealed class Move

data class Empty(val index: Int) : Move()

data class Fill(val index: Int) : Move()

data class Pour(val from: Int, val to: Int) : Move() {
    init {
        require(from != to)
    }
}
```

```
typealias StateWithHistory = Pair<State, List<Move>>

solve(from: State, to: State): List<Move> {
  @tailrec fun solveAux(states: List<StateWithHistory>, visitedStates: Set<State>): List<Move> {
    val solution: StateWithHistory? = states.find { (state, _) → state == to }
    if (solution != null) { return solution.second }


    val next = states
      .flatMap { (state, history) →
        state.availableMoves()
          .map { move → state.move(move) to (history + move) }
      }
      .filterNot { (state, _) → visitedStates.contains(state) }
    val nextVisited = visitedStates + next.map { it.first }
    return solveAux(next, nextVisited)
  }


  return solveAux(listOf(from to emptyList()), setOf(from))
}
```




```
fun State.move(move: Move): State =  
    mapIndexed { index, glass →  
        when (move) {  
            is Empty → if (index == move.index) glass.empty() else glass  
            is Fill  → if (index == move.index) glass.fill() else glass  
            is Pour   → when (index) {  
                move.from → glass - get(move.to).remainingVolume  
                move.to    → glass + get(move.from).current  
                else       → glass  
            }  
        }  
    }  
}
```

KOTLIN DÈS MAINTENANT

- Faible overhead
- Support officiel par Google
- ➡ Using Project Kotlin for Android
-  Kotlin Guide

- Supporter officiellement depuis Spring 5, SpringBoot 2
- Vert.x
-  SparkJava
-  KTor
- ...

Web







- Partager du code commun
-  Use Kotlin with npm, webpack and react

Natif

- Faire des applications sans JVM
- Partager du code avec iOS
- WebAssembly

CONCLUSION

- Code plus sûr, plus simple
- Interoperable avec Java
- Outillage
- Ecosystème et communauté
- Déjà mature
- Simple à apprendre

-  Référence
-  <https://kotlin.link/>
-  Blog
-  Forum,  Slack
-  Koans
-  Kotlin by example

Question ?