

Groovy and Java 8

Making Java Better

Contact Info

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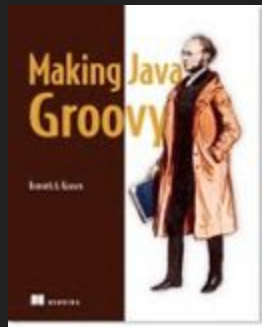
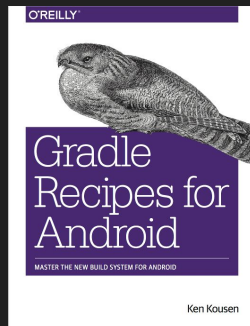
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Groovy Podcast: <http://nofluffjuststuff.com/groovypodcast>

Publications

O'Reilly video courses: See <http://shop.oreilly.com> for details

[Groovy Programming Fundamentals](#)

[Practical Groovy Programming](#)

[Mastering Groovy Programming](#)

[Learning Android](#)

[Practical Android](#)

[Gradle Fundamentals](#)

[Gradle for Android](#)

[Spring Framework Essentials](#)

[Advanced Java Development](#)

Groovy

OO language with functional features

Compiles to Java bytecodes

Works with Java

Topics

- Lambdas
- Method References
- Streams
- Map/Filter/Reduce
- Sorting
- Collectors
- Composition
- Currying
- Memoize

Lambda Expressions

Java 8 lambda expressions

Assigned to **S**ingle **A**bstract **M**ethod interfaces

Parameter types inferred from context

Functional Programming

Lambda, Method References, and Streams

LambdaDemo.java

MapFilterReduce.java

PrimeChecker.java

StreamsDemo.java

Functional Programming

Groovy uses closures for lambdas

Stream methods are on collections

collect, findAll, inject vs map, filter, reduce

lambdas.groovy

map_filter_reduce.groovy

PrimeCheckerGroovy.groovy

Lazy Streams

Java Streams are lazy

Only process as much data as needed

Groovy collections are not

But Groovy can use Java streams

LazyStreams.java

LazyStreamsGroovy.groovy

LazyStreamsSpec.groovy

POGOs vs POJOs

Plain Old **Groovy** Objects

private attributes, public methods, public class

map-based constructor

generated getters and setters

@Canonical → toString, equals, hashCode, tuple ctor

POJOs vs POGOs

Sorting streams with POJOs/POGOs

Golfer.java, SortGolfers.java

GroovyGolfer.groovy, sort_groovy_golfers.groovy

GroovyGolferCS.groovy

Groovy JDK

Methods added to Java to make it groovier...

Location.java

Geocoder.groovy

GeocoderTest.java

Going Beyond Java

AST transformations: @Memoize, @TailRecursive

AnnotatedFunctions.groovy

UseAnnotatedFunctions.java

AnnotatedFunctionsTest.java

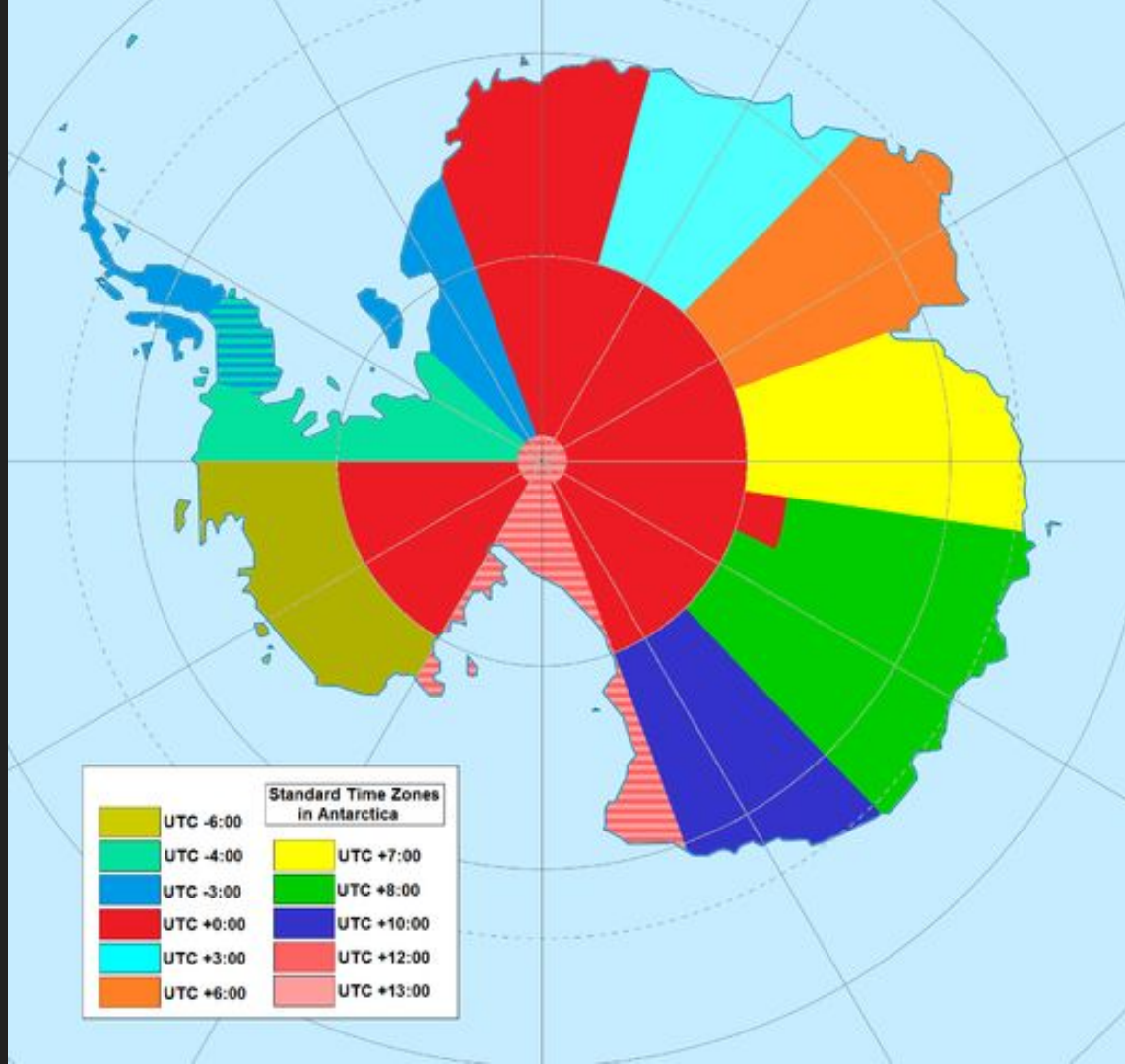
composition.groovy

currying.groovy

Metaprogramming

Can add methods to a class at runtime

pirate.groovy



Dates and Times

Java 8 Date-Time: `java.time` package

`AntarcticaTimeZones.java`

`antarctica.groovy`

Cat Pictures

Flickr RESTful (sort of) web service

Parsing JSON

SwingBuilder

Can use Java 8 parallel streams

`cat_pictures.groovy`

`parallel_kitties.groovy`

Summary

Use Groovy and Java together
Each does what it does well

Java functional capabilities help
Groovy goes beyond them

Easy to mix the languages together

All demos (and more) at:

https://github.com/kousen/groovy_java_8