

# JAVA GOES MODERN

## GOING BEYOND STREAMING-API

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-  [github.com/enolive/java-goes-modern](https://github.com/enolive/java-goes-modern)



A close-up, low-angle shot of Brad Pitt as the Narrator in the movie Fight Club. He has a serious, intense expression, looking slightly off-camera. His hair is spiky and dark. The background is dark and out of focus, with some blurred lights, suggesting a night scene in an urban environment. The lighting is dramatic, with strong highlights on his face and hair.

# **Welcome to FP Club!**

**Rule #1: You do not talk about the m-word**

**Rule #2: You DO NOT talk about the m-word**

## Speaker notes

- Image © Fight Club (1999)
- Monad Curse: as soon you understood what a monad is, you lose the ability to explain it to others!

**WHY'S FP SO POPULAR?**

Reactive programming    Microservices    Cloud  
Expressiveness    Parallel computing  
Multithreading    FP languages  
filter/map/reduce  
Promises/Observables  
Stateless    Immutability  
Lazy Evaluation    Avoid Nesting

# JAVA 8 ALLOWS FP!

- Streaming API
- Functional Interfaces
- Optional Type

```
List<String> list = Arrays.asList(  
    null, "anna", "bernd", "chris", "");  
  
String result = list  
    .stream()  
    .filter(word -> word != null)  
    .filter(word -> !word.isEmpty())  
    .map(String::toUpperCase)  
    .collect(Collectors.joining(", "));  
// result = "ANNA, BERND, CHRIS";
```

```
String input = ...;

String result = Optional
    .ofNullable(input)
    .filter(i -> !i.isEmpty())
    .orElseGet(() -> "default value");
// result = "default value"; when input is null or empty
// result = input; otherwise
```

# COLLECT TOO COMPLICATED

- allows converting to Map, List, Group, Set, String
- violates SRP 😞



```
String sentence = ...;

Map<Character, Long> countChars = sentence
    .chars()
    .boxed()
    .map(i -> (char)i.intValue())
    .collect(Collectors.groupingBy(
        Function.identity(), Collectors.counting()));
```

**STREAMING-API TOO LIMITED**

Either Try Lazy Future Tuple  
ordered reduce/fold unfold  
indexed operations reverse cycle  
range append/prepend partial application  
function composition currying zipping  
memoization







- pronounce as "waver"
- first version 2015
- heavily inspired by Scala
- FP collections & data types

Speaker notes

all vavr types are immutable, of course

**LET'S START CODING...**

# INTERESTING STUFF

-  Vavr documentation
-  Venkat Subramanian: Let's get lazy
-  Bodil Stokke: What every Hipster should know about Functional Programming
-  Marco Emrich: Loops must die! 