#### **Prime Factors Code Kata**

(Practicing TDD in PHP)
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Peter Kofler

• Ph.D. (Appl. Math.)

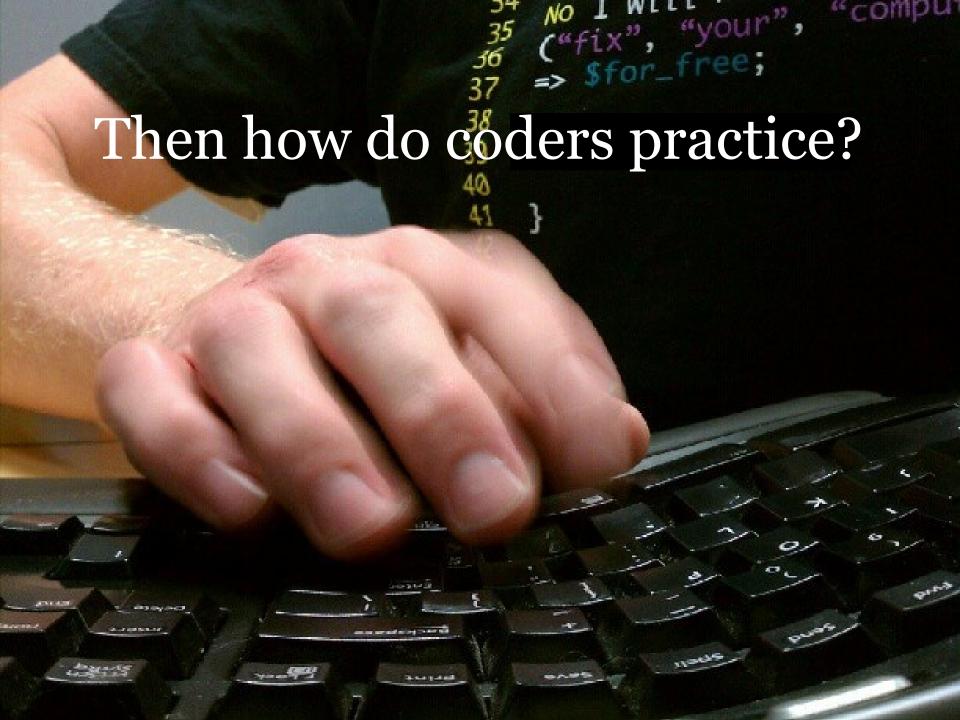
 Professional Software Developer for 15 years



- "fanatic about code quality"
- I help development teams

# Deliberate Practice







#### Code Kata Definition

- A kata as a detailed choreographed pattern of movement.
- A code kata is an exercise in programming which helps a programmer hone their skills through practice and repetition.

#### Code Kata

- simple problem (max. 20 minutes)
- solve every day
  - memorization
  - create reflexes
- experiment with solutions
  - stretch yourself

# Why repeat the same kata?

- de-emphasise the generation of code
- concentrate on
  - the process of writing the code
  - naming test cases
  - the Red/Green cycle

# Don't Focus on Getting it Done. Focus on Doing It Perfectly.

# The Prime Factors Kata

# What Exactly Will We Do?

- write code together
- using TDD
- see techniques
- discuss



# The Requirements.

- Write a class named "PrimeFactors" that has one static method: generate.
  - The generate method takes an integer argument and returns a List<Integer>.
  - That list contains the prime factors in numerical sequence.

#### First Some Math.

- **Prime Number**: number > 1 that has no divisors other than 1 and itself.
  - e.g. 2, 3, 5, 61, 67, ..., 997, ..., 2<sup>43112609</sup>-1
- **Prime Factors**: prime numbers that divide an integer without remainder.
  - e.g. 2 = 2, 4 = 2 \* 2, 24 = 2 \* 2 \* 2 \* 3 $288 = 2^5 * 3^2$



# Demo

# **Unit Testing**

- test individual units
- isolate each part
- show that individual parts are correct
- regression testing
- sort of living documentation
- executed within a framework

# Test-Driven Development

- add a test
- run all tests and see if the new one fails
- write some code
- run all tests and see them succeed
- refactor code mercilessly
- "Red Green Refactor"

"I write unit tests for one reason: so my coworkers don't f\*\*\* up my code."

(David Angry)

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- Biweekly Coding Dojo in Vienna
  - Every other Wednesday 6PM
- Changing locations

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