



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

How do musicians practice?



Then how do coders practice?

```
34 No I will  
35 ("fix", "your", "comput  
36 => $for_free;  
37  
38  
39  
40  
41 }
```


Code Kata



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, ..., $2^{43112609}-1$
- **Prime Factors:** prime numbers that divide an integer without remainder.
 - e.g. $2 = 2$,
 $4 = 2 * 2$,
 $24 = 2 * 2 * 2 * 3$
 $288 = 2^5 * 3^2$

**Don't
Hurt
Me!**



Demo

See step by step code: <https://bitbucket.org/pkofler/primefactors.php>

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)

Coding Dojo Vienna

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



Global Day of Code Retreat

- A world-wide event celebrating passion and software craftsmanship.
- GDCR 2014:
15th November
- Follow #GDCR14



Coderetreat

- honing the craft together

<http://globalday.coderetreat.org/>



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