TDD – The Bowling Game Kata

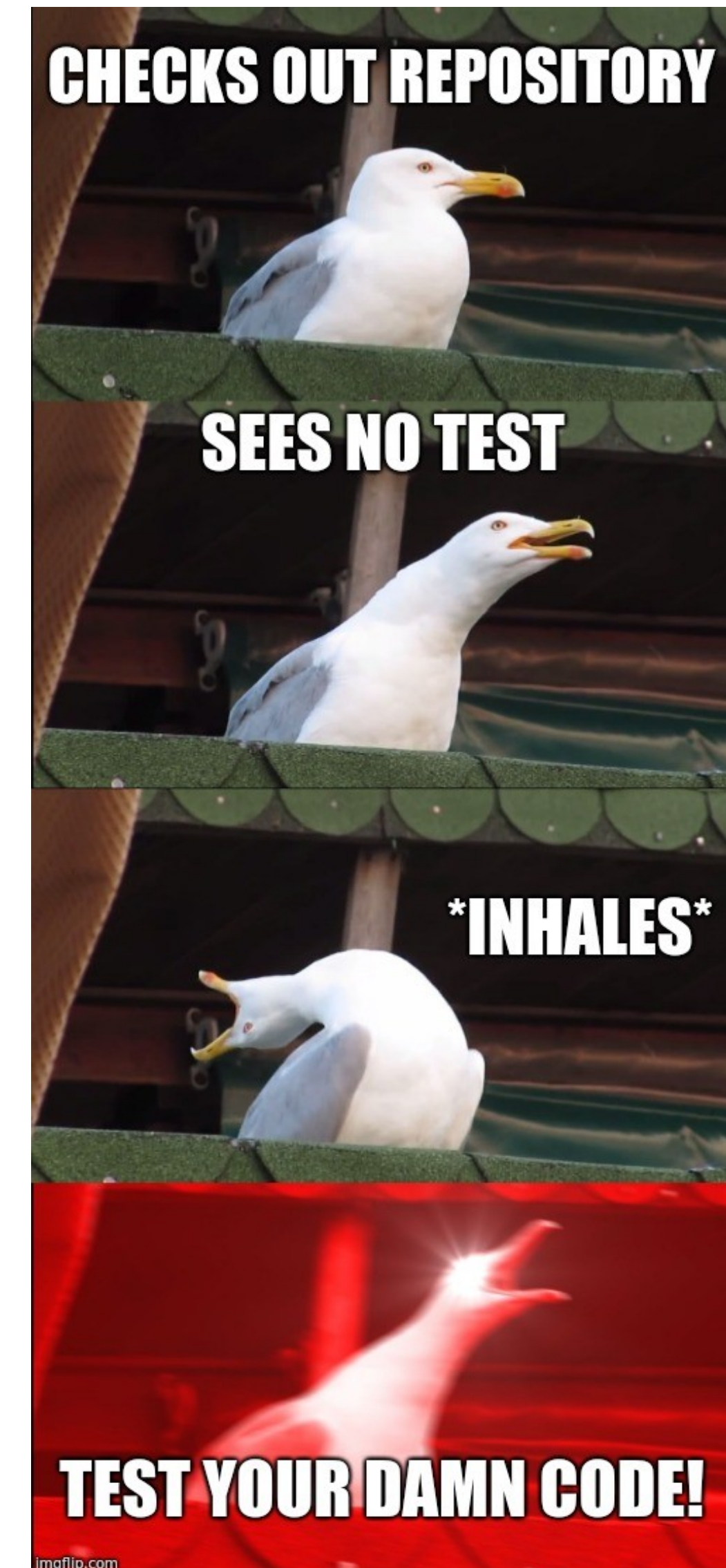*Sven Hettwer*
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Agenda

- Introduction into TDD
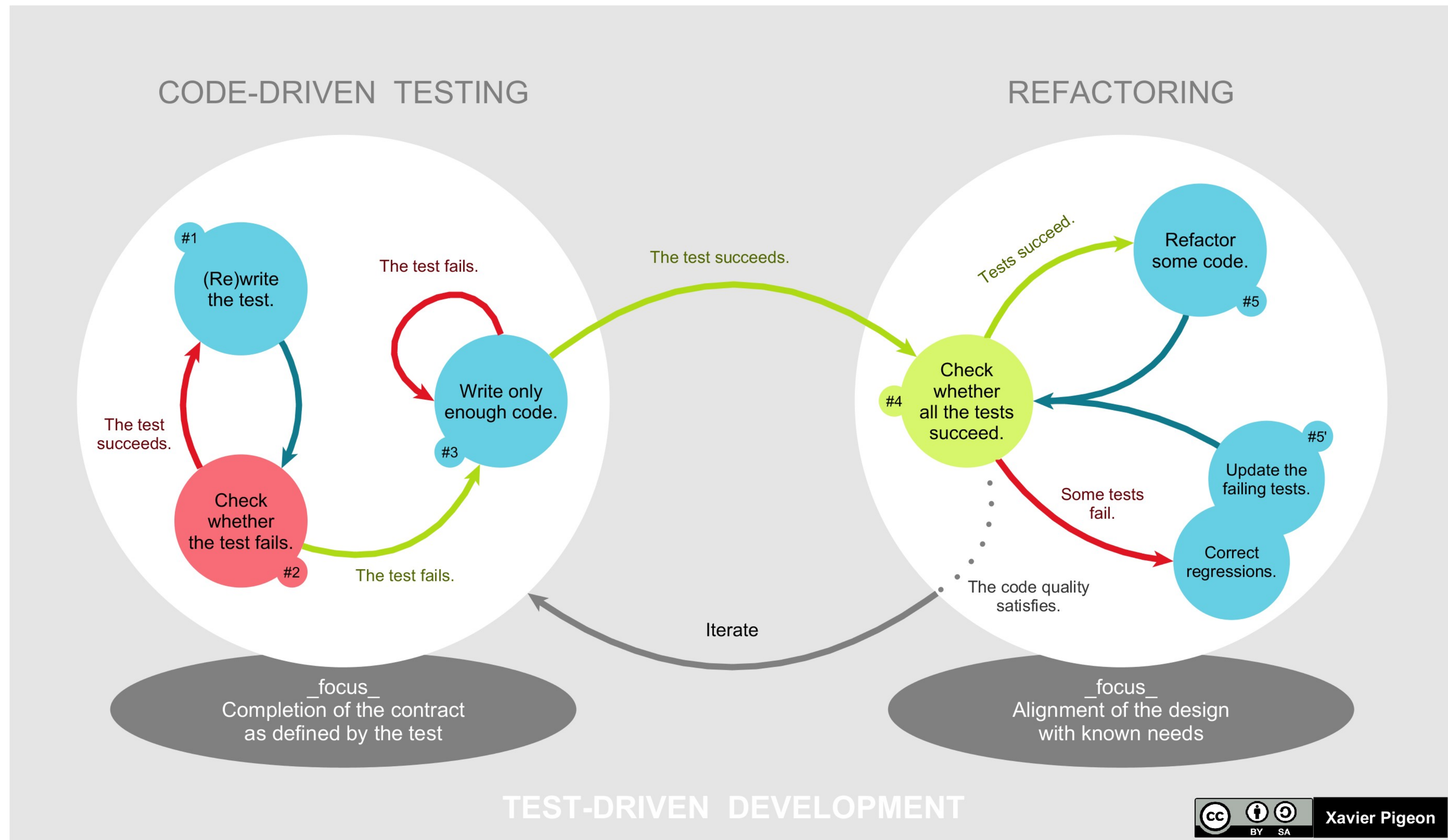- What is a coding kata?
- Hands-on – The Bowling Game Kata

Introduction into TDD

- **T**est **D**riven **D**evelopment
- In other words: Write your tests first!
- A life cycle for software development
- Increases test coverage
- Increases code quality
- Ensures a minimal code base

Introduction into TDD

CODE-DRIVEN TESTING

REFACTORING

#1 (Re)write the test.

The test fails.

The test succeeds.

Tests succeed.

Refactor some code. #5

Write only enough code. #3

Check whether all the tests succeed. #4

The test succeeds.

The test fails.

Check whether the test fails. #2

The test fails.

Some tests fail.

Update the failing tests. #5'

Correct regressions.

The code quality satisfies.

Iterate

focus
Completion of the contract as defined by the test

focus
Alignment of the design with known needs

TEST-DRIVEN DEVELOPMENT

Xavier Pigeon

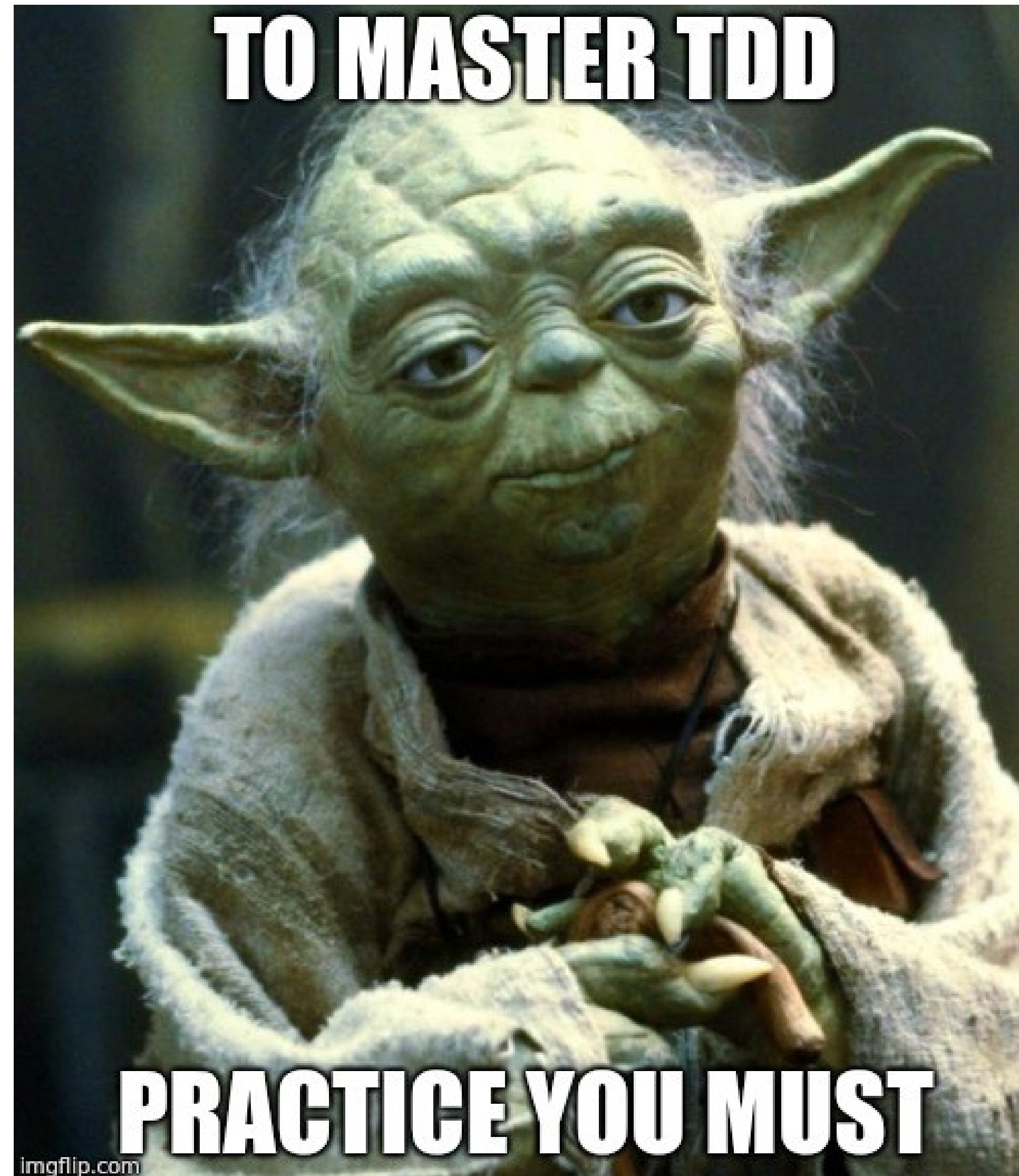https://en.wikipedia.org/wiki/File:TDD_Global_Lifecycle.png

Introduction into TDD – Disclaimer

- TDD is just a tool, use it for the right jobs!
- TDD fixiates the software according to the requirements
- There are use cases where TDD makes no sense e.g.
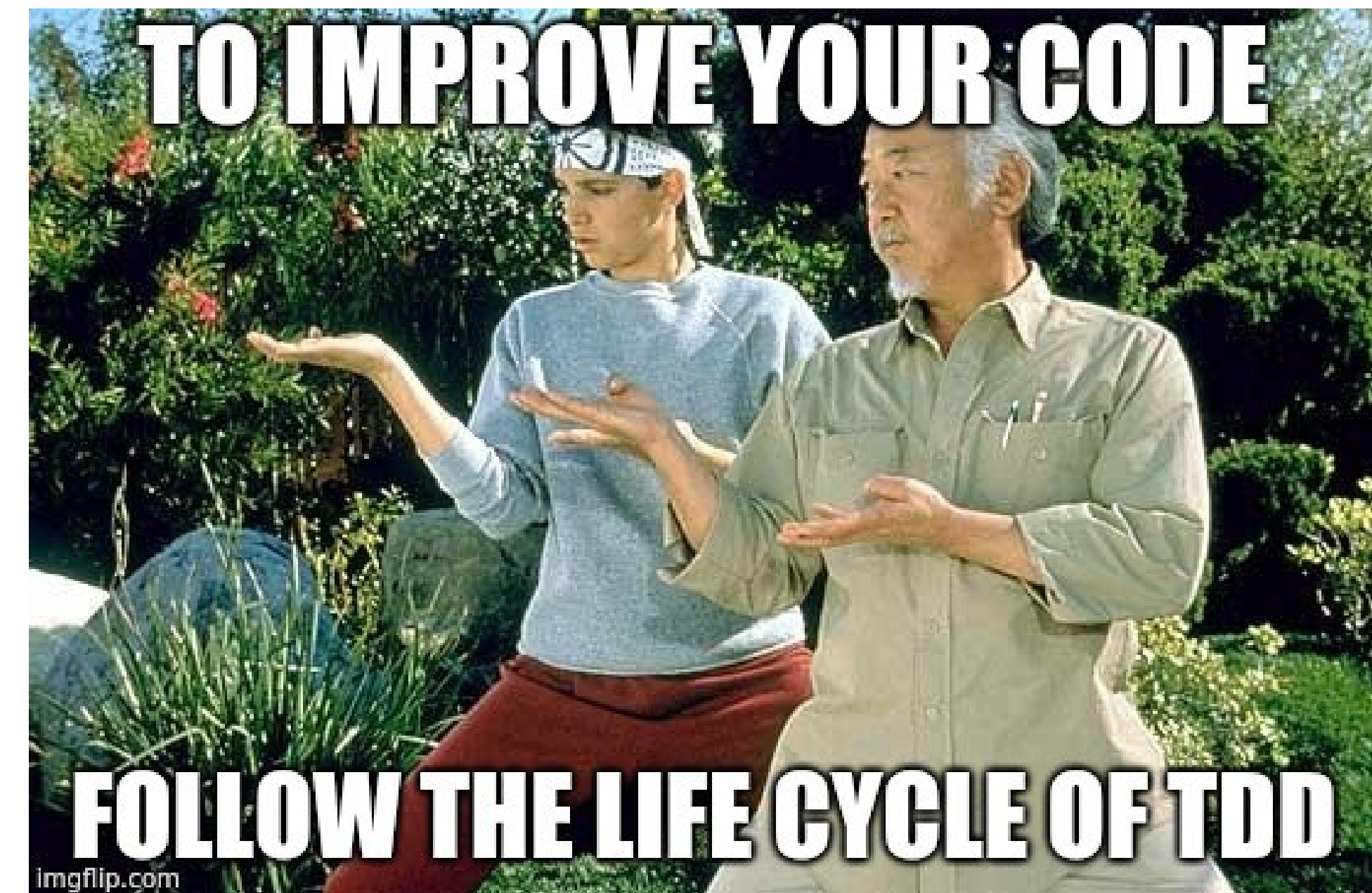 - Working on a proof of concept
  - Prototyping

What is a coding kata?

- A "Kata" is a order of movements in the martial arts world
- Goal: memorization and perfection of movement
- Coding katas
  - Small coding exercise
  - Learning and experimenting
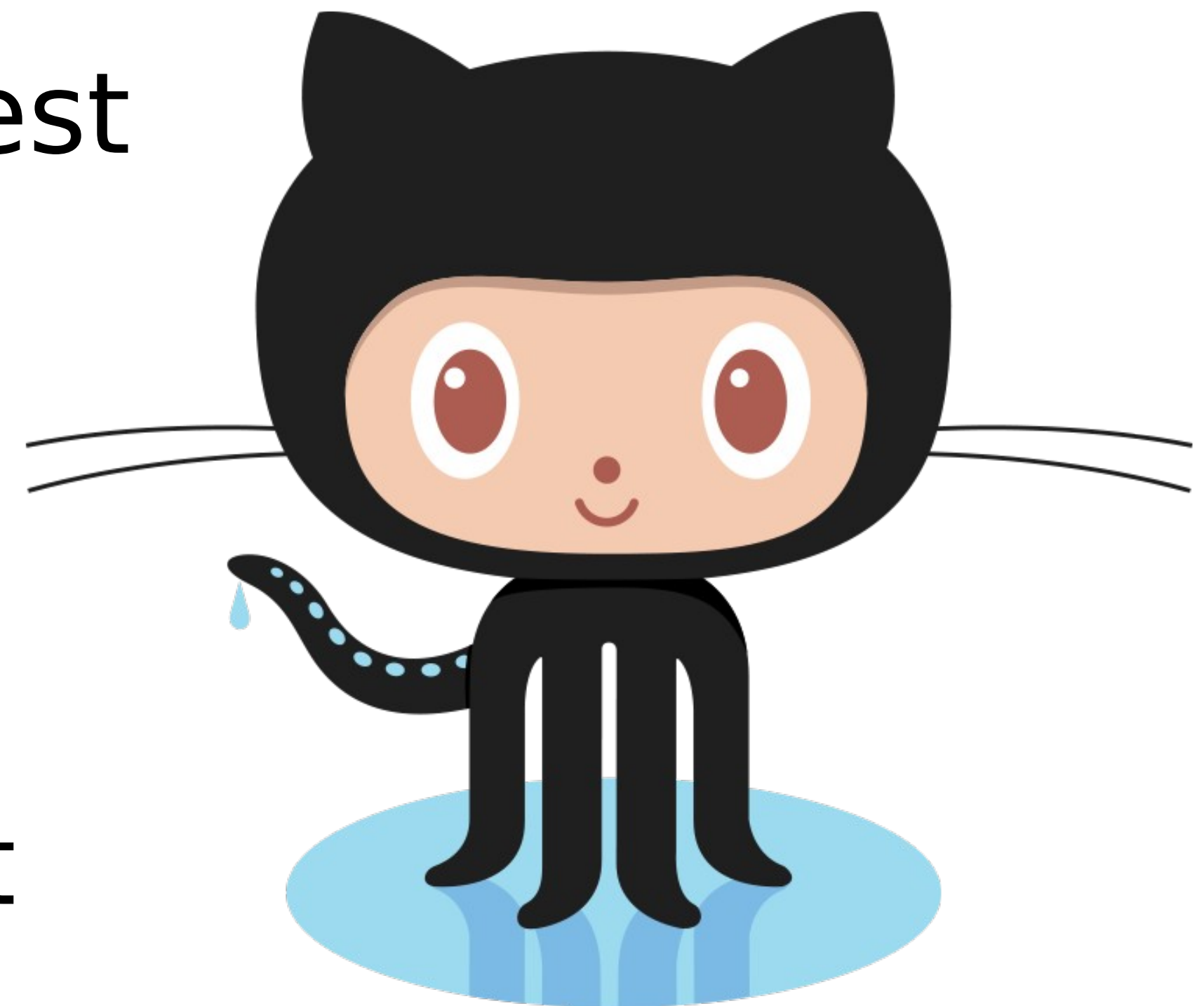 - Improve your programming skills

Hands-on – The Bowling Game Kata

- Based on Uncle Bobs "Bowling Game Kata"
- Implement a bowling game with TDD
- Goal: Practice TDD and experiment!
- It is not the goal to finish the Kata!
- Take your time!

TO IMPROVE YOUR CODE
FOLLOW THE LIFE CYCLE OF TDD
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Hands-on – The Bowling Game Kata – Boilerplate

- https://github.com/svettwer/bowling-game-kata.git
- Maven project + maven wrapper
- Contains test class and class under test
- Execute your tests
  - Via IDE
  - Via command line
    - On Linux: ./mvnw clean test
    - On Windows: .\mvnw.cmd clean test

- A Game consists of 10 frames.
- There are 10 pins per frame.
- A player has two tries per frame to knock down all pins.
- The score for the frame is the amount of pins plus Bonus.
- Spare: 10 pins down after two tries.
  - Bonus: Number of pins of the next roll.
- Strike: 10 pins down on first try.
  - Bonus: Number of pins of the next two rolls.
- Tenth Frame: Spare or Strike enable third roll.

1	4	4	5	6	/	5	/			0	1	7	/	6	/			2	/	6
5		14		29		49		60		61		77		97		117		133		

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Thank you!