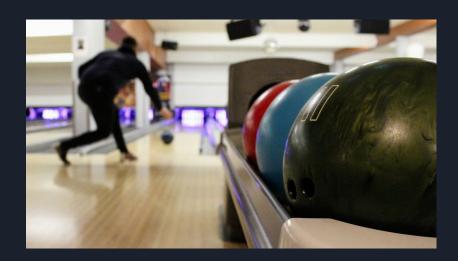# Test driven Development
The Bowling Game Kata

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Software Engineer

Agenda

- Introduction to TDD
- What is a Coding Kata?
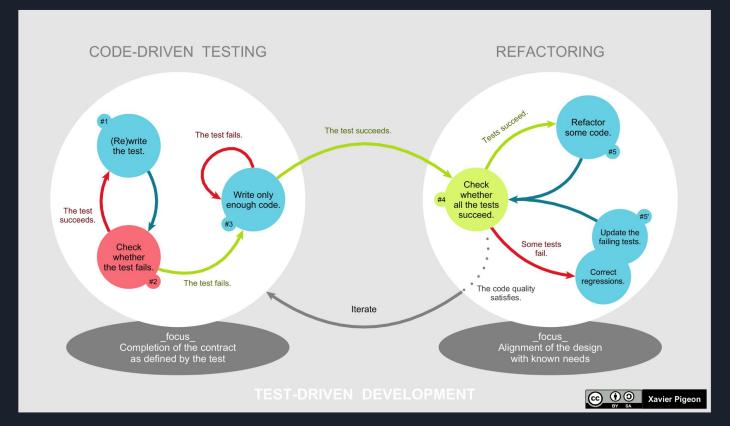- Hands-on - The bowling Game Kata

Introduction to TDD

Introduction to TDD

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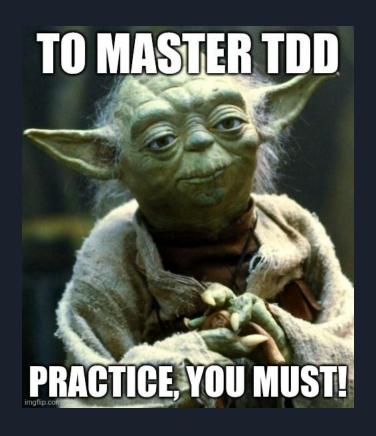
Introduction to TDD

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 like
  - Working on a proof of concept
  - (Rapid) Prototyping

Introduction to TDD - Most important aspect
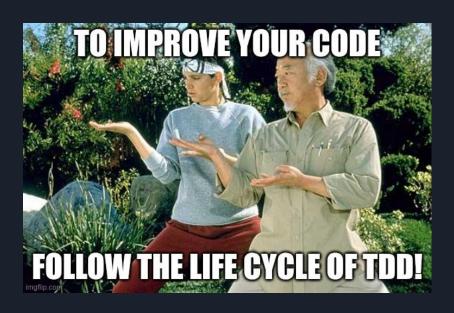
What is a coding Kata?

What is a coding kata?

- A "Kata" is a structured sequence of movements and techniques practiced in martial arts to develop form, precision, and muscle memory, often simulating combat scenarios.
- Goal: Memorization and perfection of the movement
- Coding Katas
  - Small coding exercises
  - Learning and experimenting
  - Improve your programming skills

Hands-on
The Bowling Game Kata

Hands-on - The Bowling Game Kata

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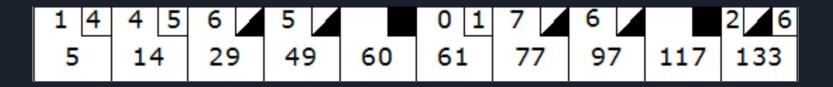- Take your time!

Hands-on - The Bowling Game Kata - Boilerplate

- https://github.com/svettwer/bowling-game-kata
- 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

Hands-on - The Bowling Game Kata - Rules

- A game consists of 10 frames.
- There are 10 pins per frame.
- A player has two tries per frame to knock down all the pins.
- The score of the frame is the amount of knocked down pins + Bonus points.
  - Strike: 10 pins down after the first try
    - Bonus: Amount of knocked down pins of the **next two tries**.
  - Spare: 10 pins down after the second try
    - Bonus: Amount of knocked down pins of the **next try**.
  - Tenth Frame: Spare or Strike unlock a third try.

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

Thank you!