World premiere!

The Software Design Volcano ®

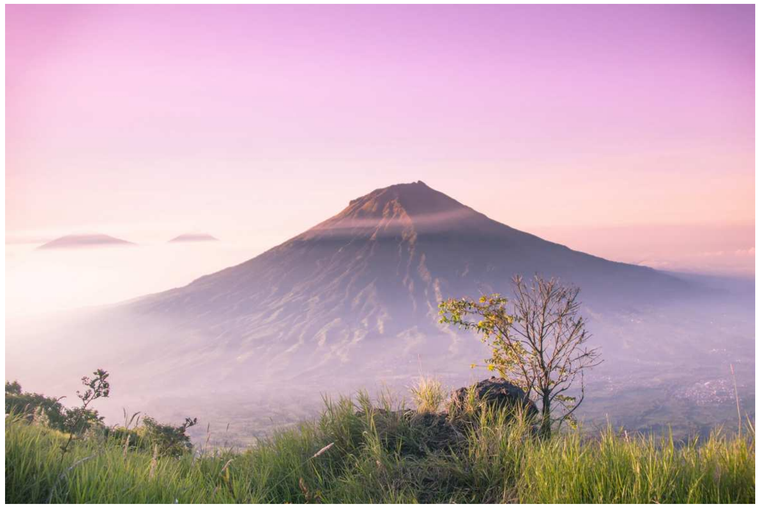
An explosive model to understand the relationship between Code Smells, Rules, Core Design Principles, Coupling & Cohesion and Problems

September 3, 2020
by Peti Koch

Today

- Introduction of the „The Software Design Volcano ®“ model
- The model in action —> a practical example
- Conclusions

Where would you like to be?



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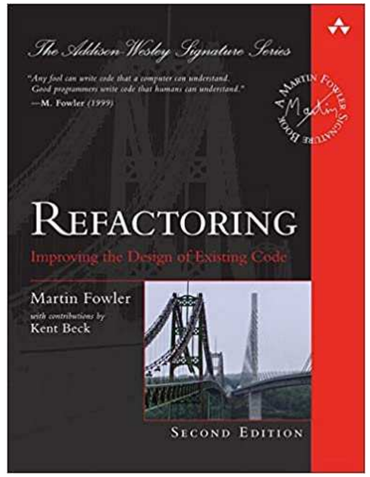
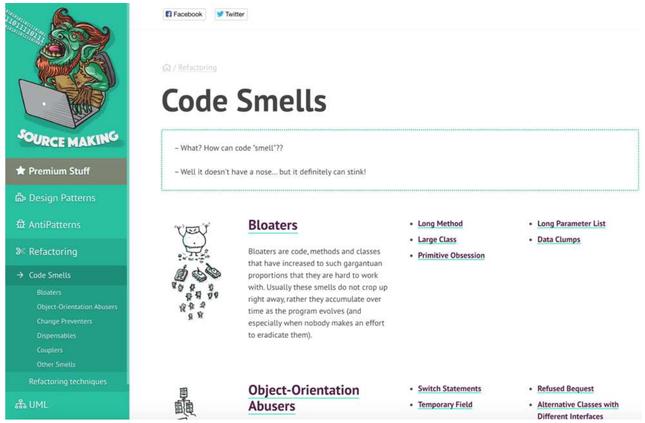
The components of the model

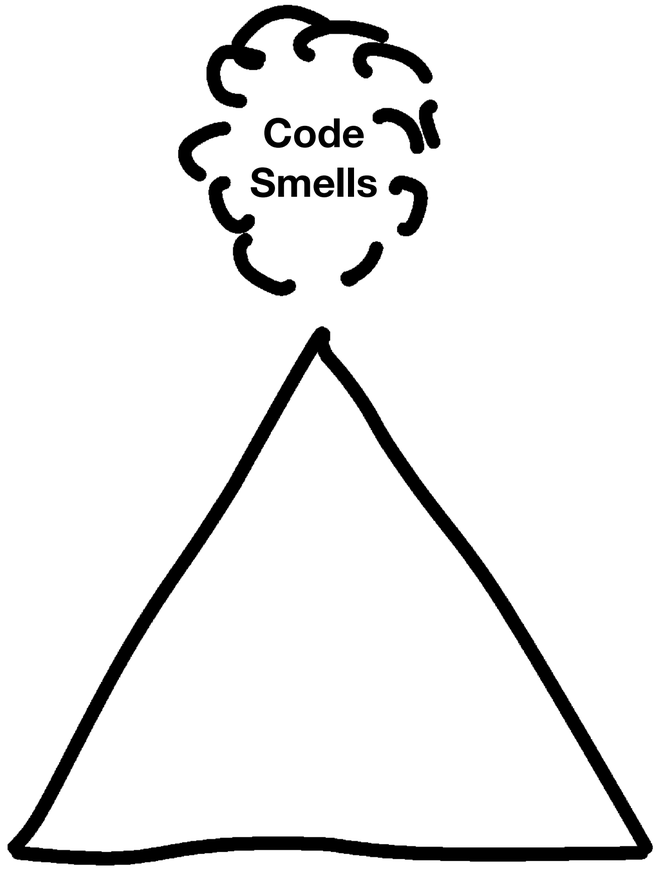
1) Code smells

- Bloaters
  - Long Method
  - Large Class
  - …
- Couplers
  - Feature Envy
  - Message Chains
  - …
- …





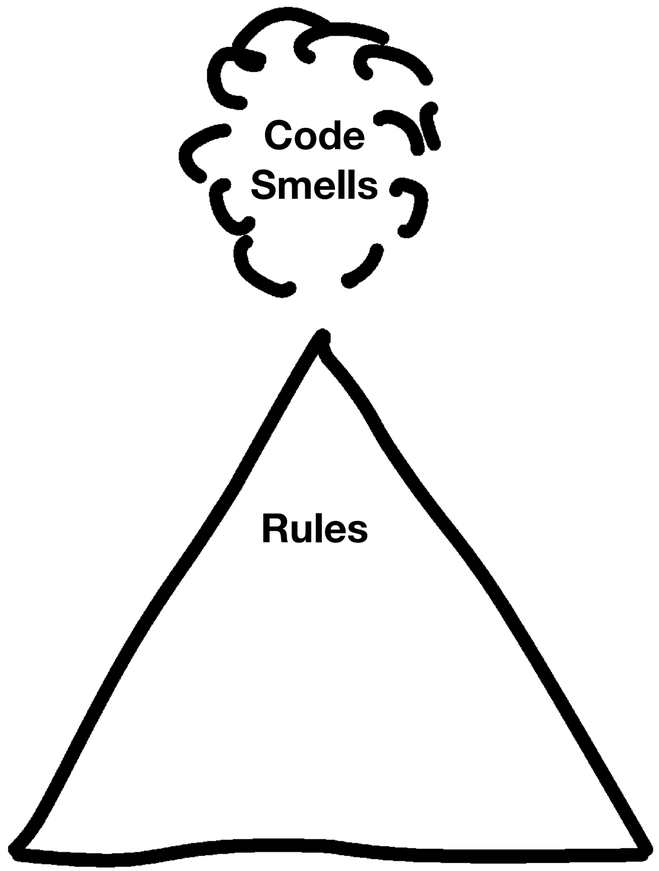
https://sourcemaking.com/refactoring/smells



The components of the model

2) Rules

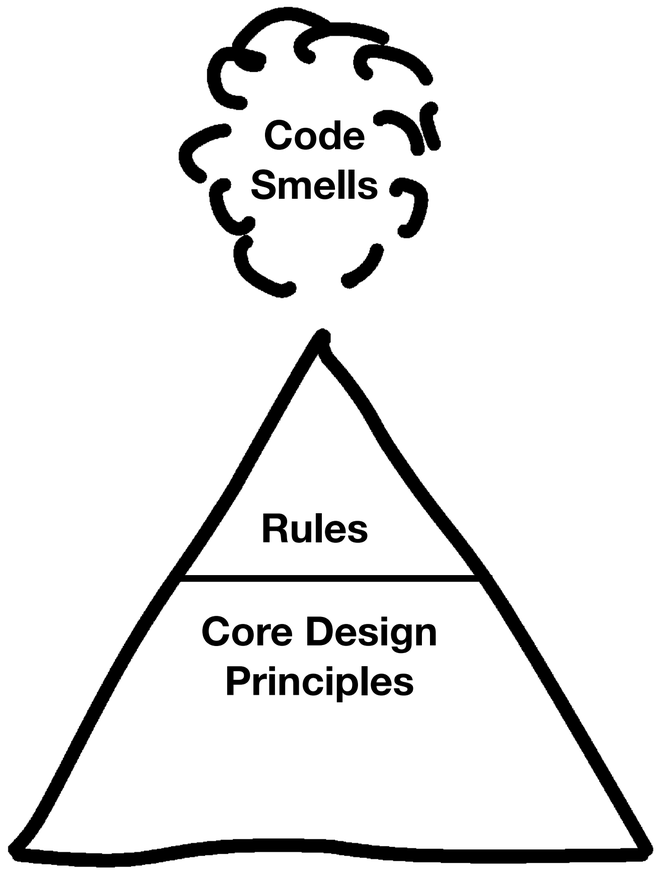
- Object Calisthenics
  - Only one level of indentation per method
  - Don’t use the ELSE keyword
  - …
- Rule of Three
- …



The components of the model

3) Core Design Principles

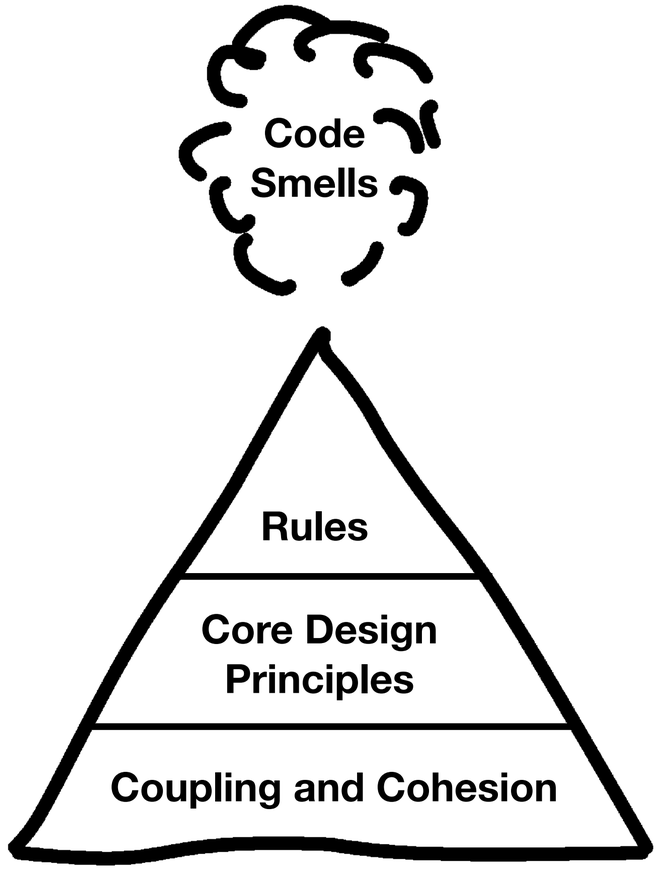
- SOLID
- Balanced Abstraction
- Least Astonishment
- KISS
- DRY
- YAGNI
- …



The components of the model

4) Coupling and Cohesion

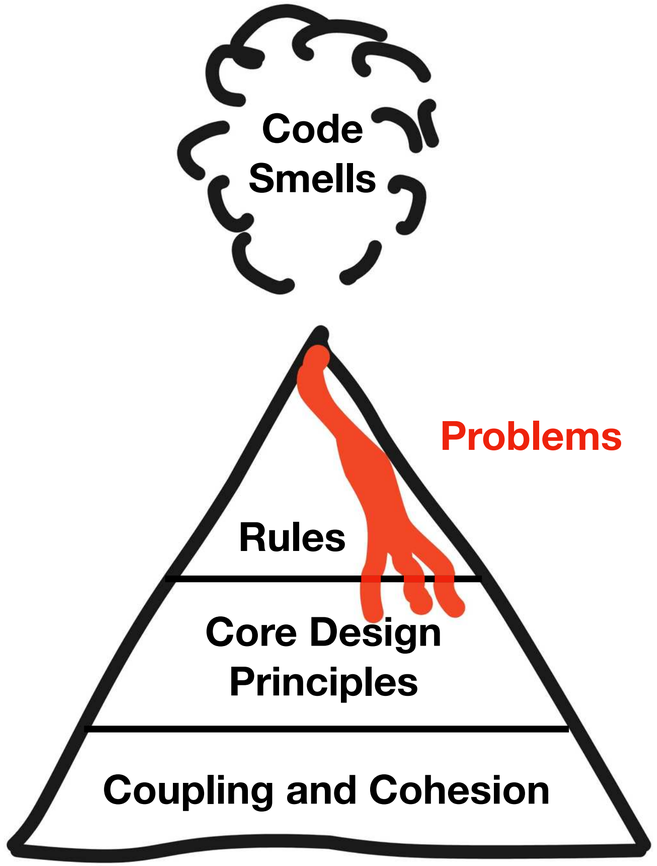
- Coupling (minimize, please)
  - Collaboration Coupling
  - Inheritance Coupling
- Cohesion (maximize, please)
  - Class Cohesion
    - Ideal
    - Mixed-Role
    - …
  - Method Cohesion
    - Functional
    - Sequential
    - …



The components of the model

5) Problems

- Problems in term of Software Design
  - Rigidity
  - Fragility
  - Immobility
  - …
- Resulting problems for us as Software Engineers / Humans
  - Regression
  - Bad mood / Stress
  - Having difficulties to deliver new features
  - High staff turnover
  - Unable to hire new engineers
  - Death of business / Job loss
  - … endless list …

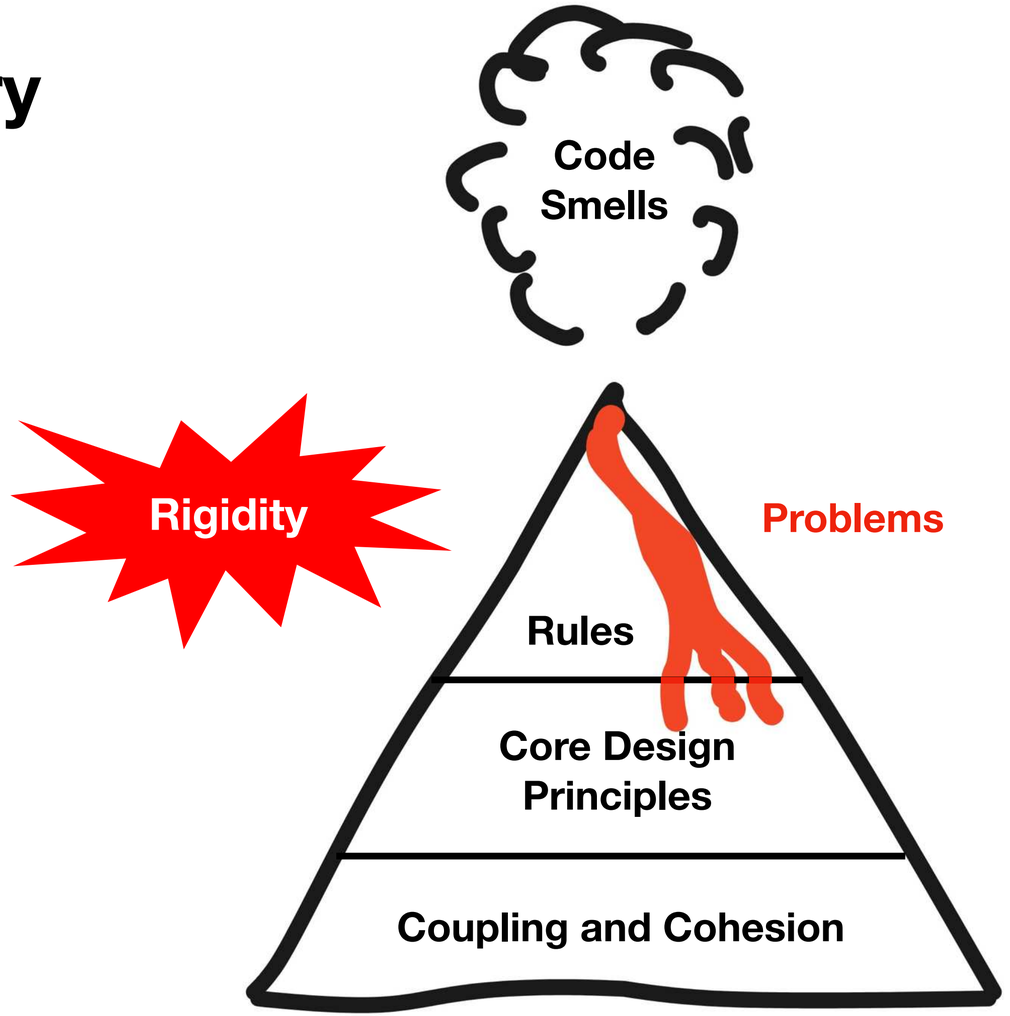


Example?

Please.

Example

Shotgun Surgery



The Software Design Volcano ®

Shotgun
Surgery
Code Smell

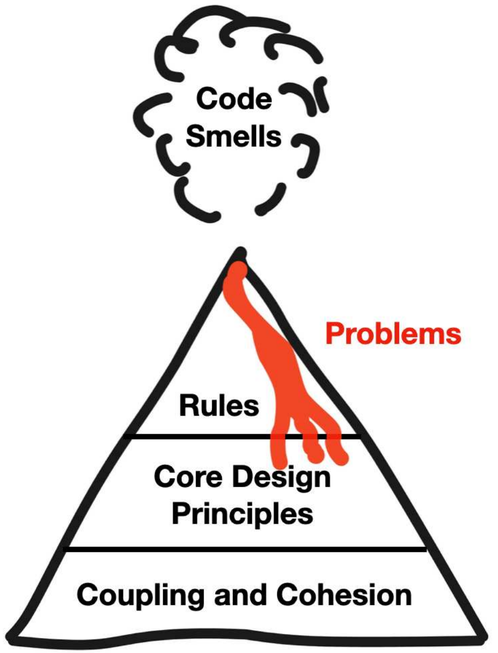
Rule of Three
not followed

Don’t Repeat Yourself
not respected

Minimize Coupling
not achieved

Consequences

In order to avoid / reduce problems

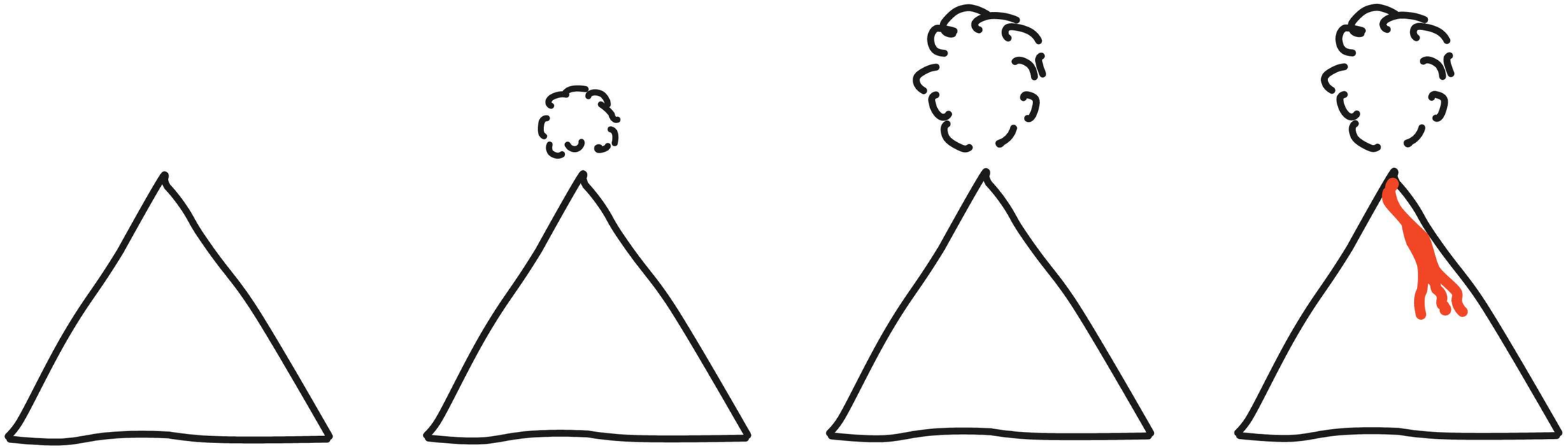


The Software Design Volcano ®

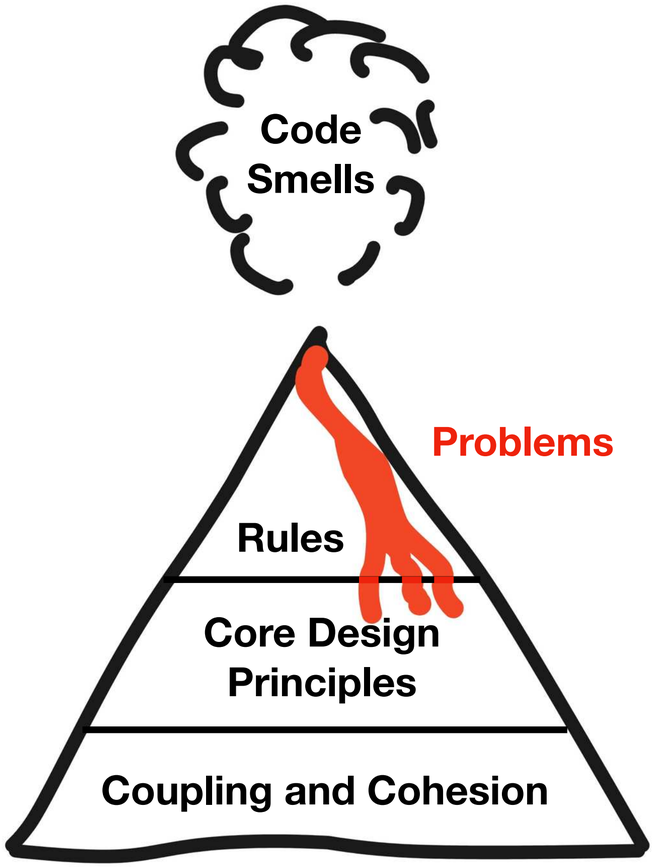
- Learn the *Code Smells* 💩
  - It is the ability to **see** (orange/red) traffic lights! 🚦👀
- Follow the *Design Rules* (not blindly) 📐
- Learn how to safely *refactor* toward a better design (—> less/no Code Smells) 🛠️
- Understand and apply the *Core Design Principles* 📚
- Then you will actually achieve *minimized Coupling and maximised Cohesion*, which you learned in your first year at CS university 😉👨‍🎓

Where would you like to be?

In Software Design, it is up to you.



Questions?



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