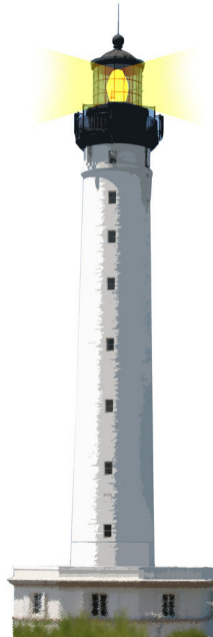# OOP and TDD

S. Ducasse and O. Zaitsev

About (I)

J'ai trouvé ça très intéressant, beaucoup plus que prévu !
je regrette de ne pas m'y être mis plus tôt. J'ai enfin l'impression
de vraiment faire de la POO ! Ou à l'inverse je me rend que je n'en faisais
pas vraiment... – Anonymous, 2019

About (II)

I have already learned so much ! I have spent the last 20 years or so in software development
and, following this Mooc, I realized I hadnt really grasped the essence of object oriented design. Anonymous'

I just completed the @pharoproject Mooc the best investment I have ever made of my time. MAQBOOL"

A word of Presentation

`http://stephane.ducasse.free.fr`

- Core developer of Pharo - Head of the consortium
- Language design (traits in PHP, Scala, Perl, Groovy...), maintenance, tests,...
- Expert in OO Design, OO implementation and more

Oleks

- IA expert
- Expert in OOP/OOD/TDD

Objectives

- Become comfortable with object-oriented programming: Learn to think with objects
- Tests
- Essence of OOP:
  - what really means to send a message
  - what is this/super

About this lectures

- Not a lecture on how to program
- A lecture on how to DESIGN programs
- It is not enough just to write code that works
- *Design starts when the program compiles*

Give some solid foundation for ANY OOP language

The world is complex, there are many languages

- Give you a key survival guide
- Concepts available in any languages

What is design?

- You learned so far how to code: writing functions, algorithms, structure ideas
- Making extensible, maintainable, readbable code
  - Tests
  - Design nice and beautiful objects

Our teaching challenges

- Some of you already 'know' (got exposed to) Java
- Some never really programmed in OOP
- Java is complex and ugly (it polluted the essence of objects)

Solution: Exposing yourself to beauty

We do not grow 'Chefs' by feeding them with McDonald

- Play the game
-
- Provide core and more advanced lectures (free access/consumption)

Solution: A la carte

- Use the Pharo Mooc: `http://mooc.pharo.org` and do the exercises there
- Don't be a Harry Potter, better an Hermione
- But this is your life.

Pharo / Mooc

https://www.fun-mooc.fr/fr/cours/programmation-objet-immersive-en-pharo/

- Watch `http://rmod-pharo-mooc.lille.inria.fr/MOOC/PharoMOOC-Videos/C0a19SD-Teaser-v4.mp4`
- Syntax fit on a postcard
- Fully immersive
- Will change totally the way to think about objects
- learn XtremeTDD

Outline

- Tests
- Rethinking message passing
- Rethinking this/ super / Inheritance
- Hooks and template
- Sending messages are plans for reuse
- Avoid is null
- Inheritance vs. Composition

At the end of the lecture

You should be able to

- Write tests and understand why but you need to practice
- Write small programs in TDD with Pharo
- Understand late binding for real
- Get first level about what good design is about

A course by

S. Ducasse, G. Polito, and Pablo Tesone