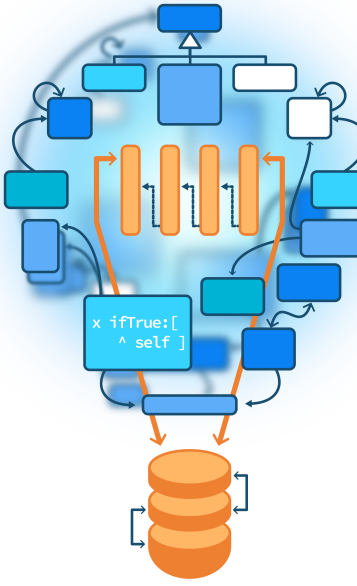
Class vs. Object-Oriented Programming

S.Ducasse, L. Fabresse, G. Polito, and P. Tesone



Pharo

http://www.pharo.org

Goals

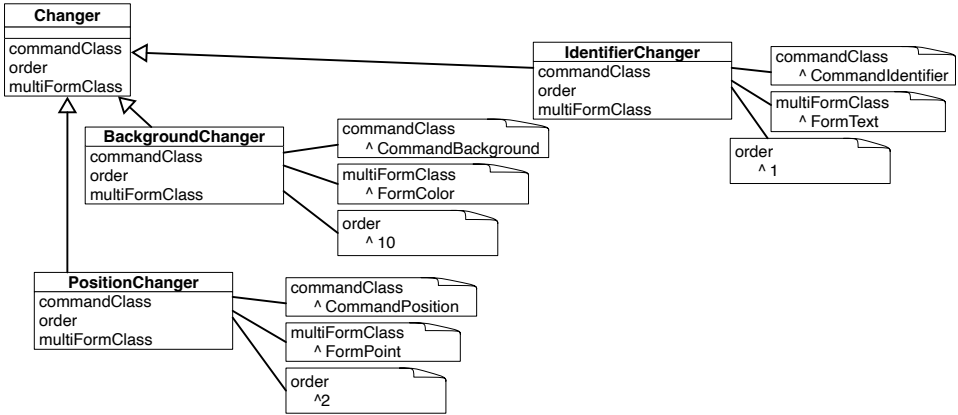
- Think about object-oriented programming
- Understand that class programming is not object-oriented programming
- Favor objects!

Class-based programming design

Sometimes we get class-based programming design:

- Classes are used as data holder
- Instances of such class **would share** the **same** data
- Require a **new class to represent a new** instance or configuration of data
- No real instance specific state

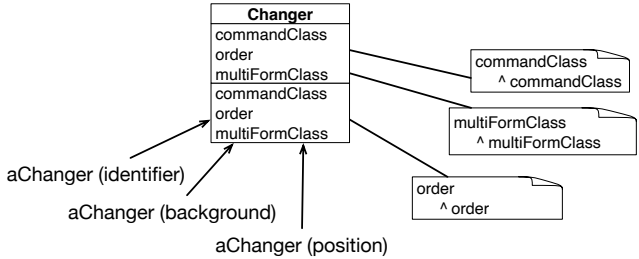
Studying a class hierarchy



Analysis

- Data-oriented classes
- Static: We **have to create** a new class for each new changer
- A class **represents one** instance! Fishy
- A class state should describe instance **shape** not instance values
- Each instance can have a different state

Compare with instance-based design



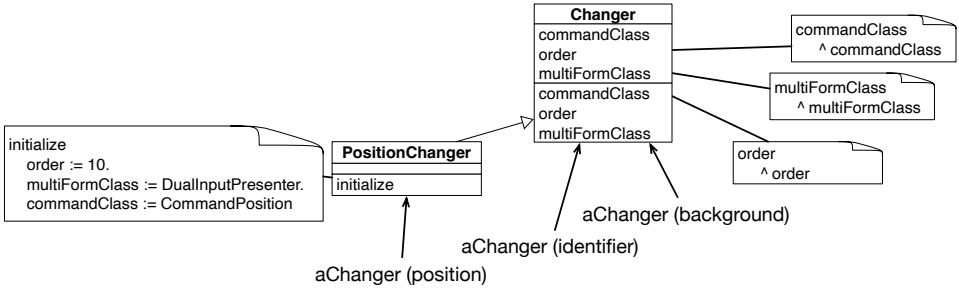
Analysis

Pros:

- Just create instances
- Can represent multiple and different configurations

```
Changer new
  command: CommandPosition;
  multiFormClass: PropertyDualInput ;
  ....
  yourself
```

With subclasses



Need a discovery mechanism

- Class-based
  - Annotation, hierarchy query, explicit registration
- Instance-based
  - Need to store instances somewhere
  - Explicit registration

Conclusion

- When you need a new class to represent a new instance, this is fishy
- A class describes the shape of instance not their values
- **Favor** instances over classes

Produced as part of the course on http://www.fun-mooc.fr

Advanced Object-Oriented Design and Development with Pharo

A course by
S.Ducasse, L. Fabresse, G. Polito, and P. Tesone

Inria LearningLab

2023