

Software Specification and Design - Week 1

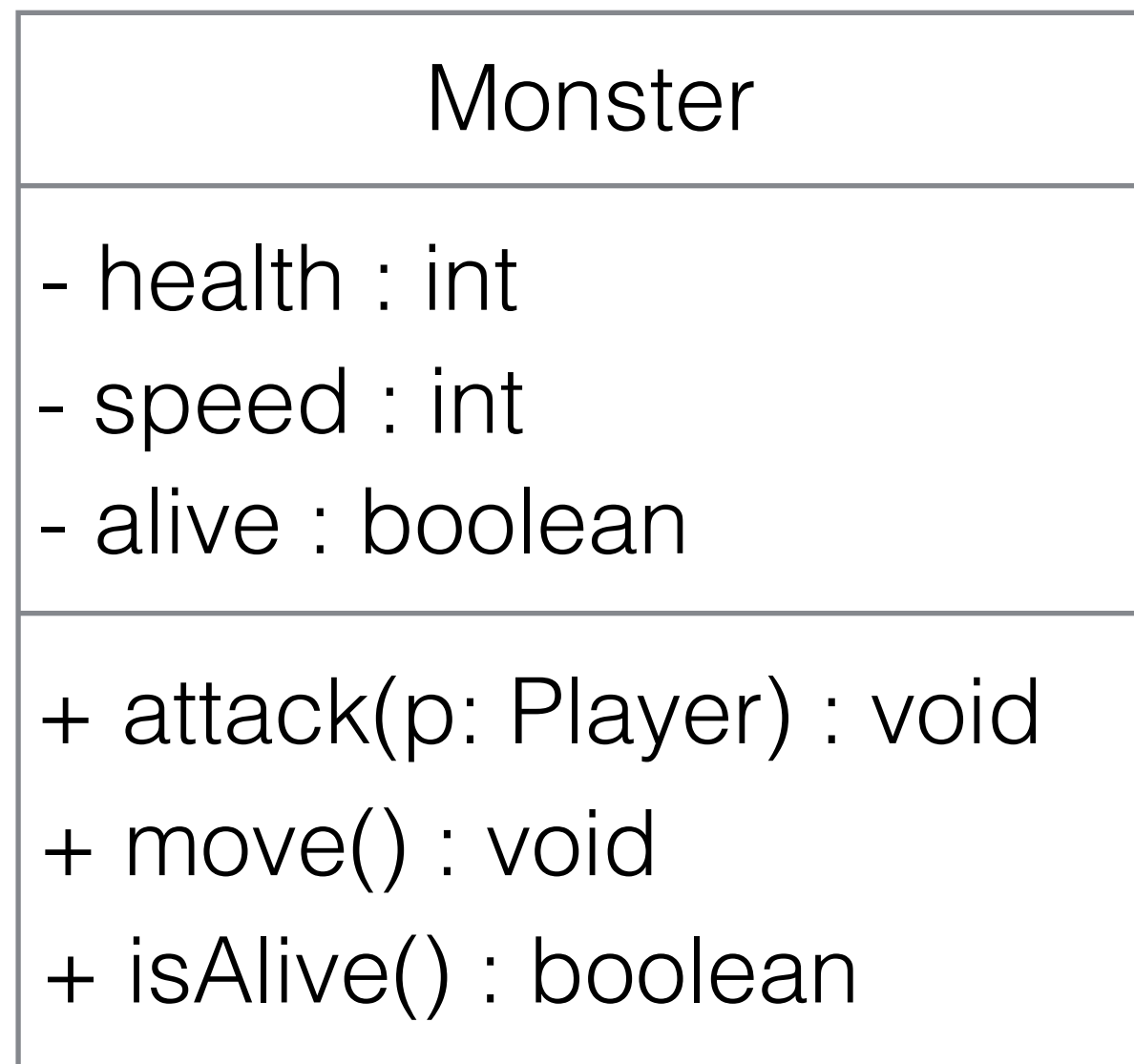
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A bit on technical stuffs

What we will learn today

- Intro to class diagram
- Some easy design patterns for beginners
- For each pattern
 - Concepts
 - Mock up example
 - Real example in real frameworks, library, etc.

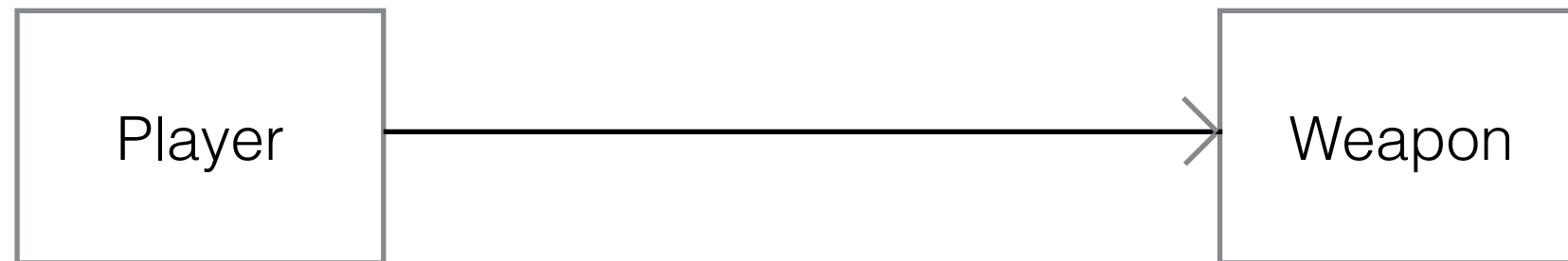
Class diagram - A class



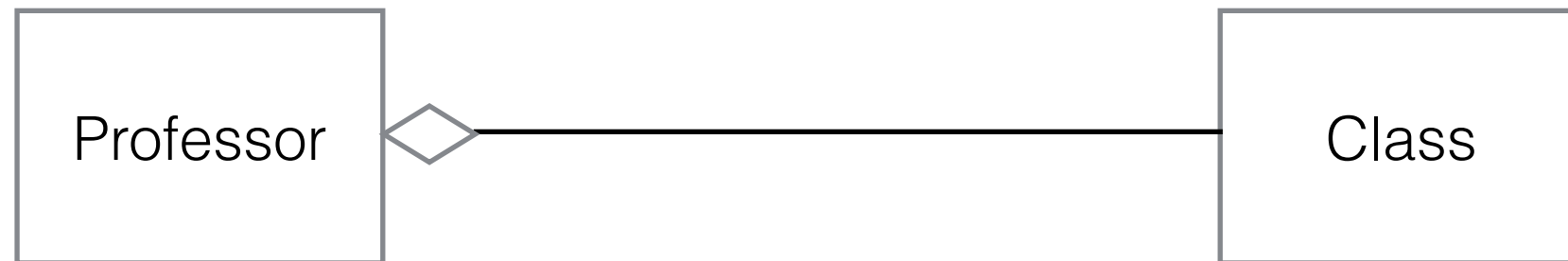
Class diagram - association



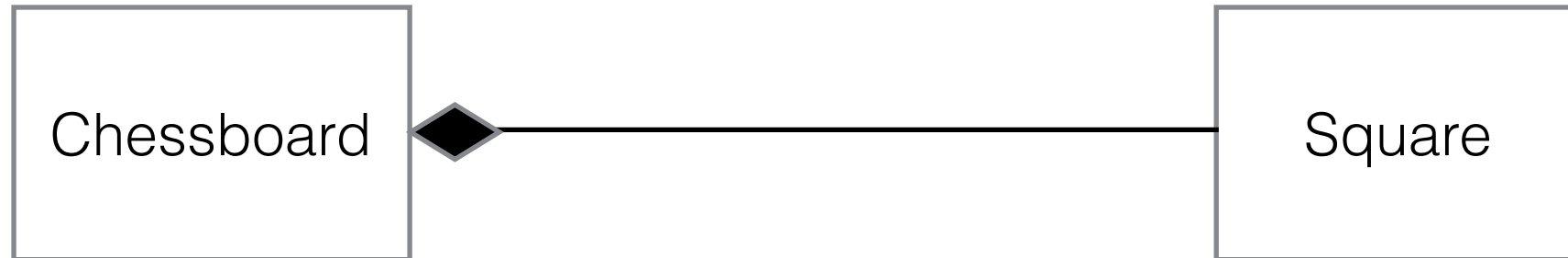
Class diagram - directed association



Class diagram - aggregation



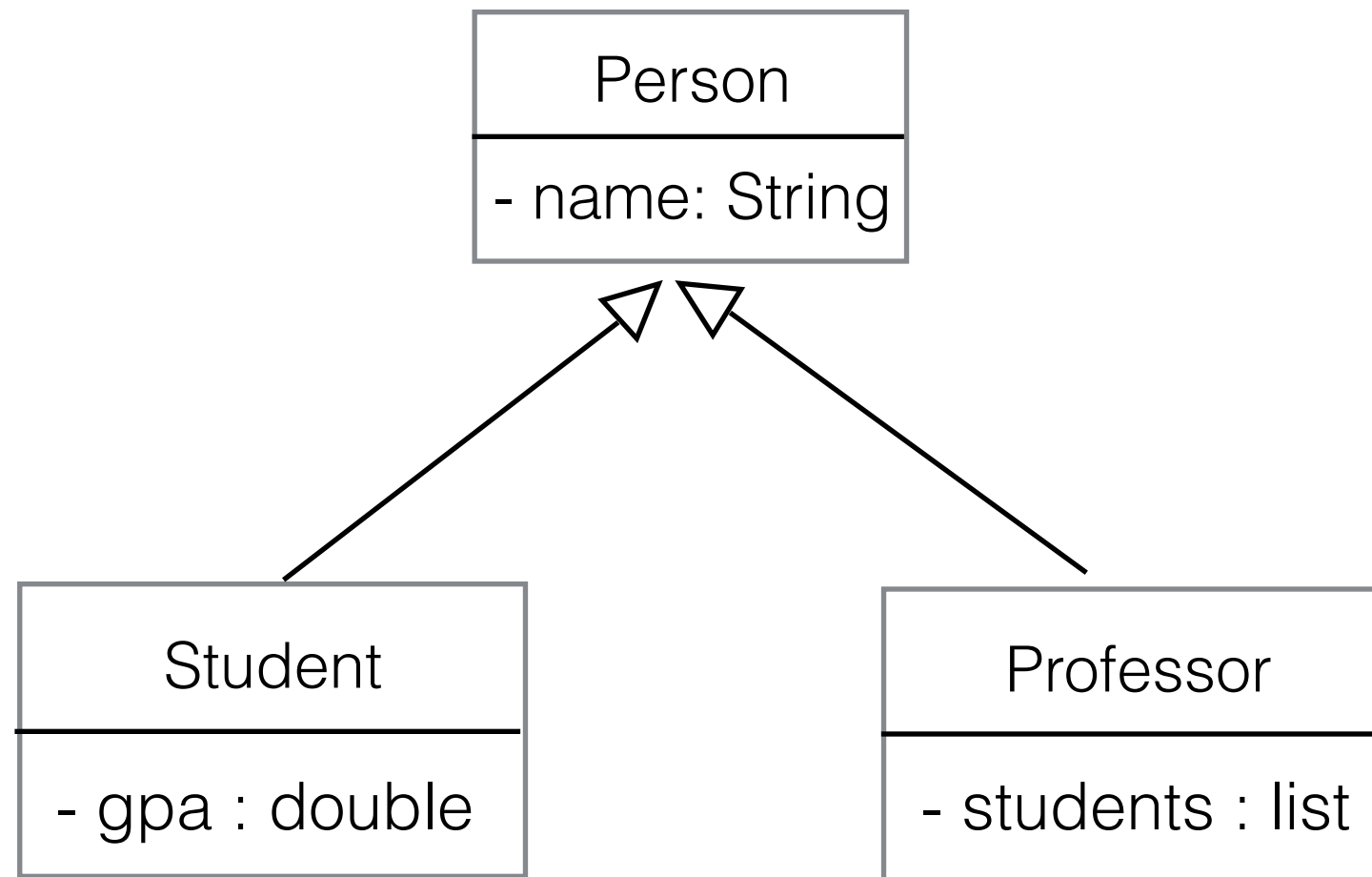
Class diagram - composition



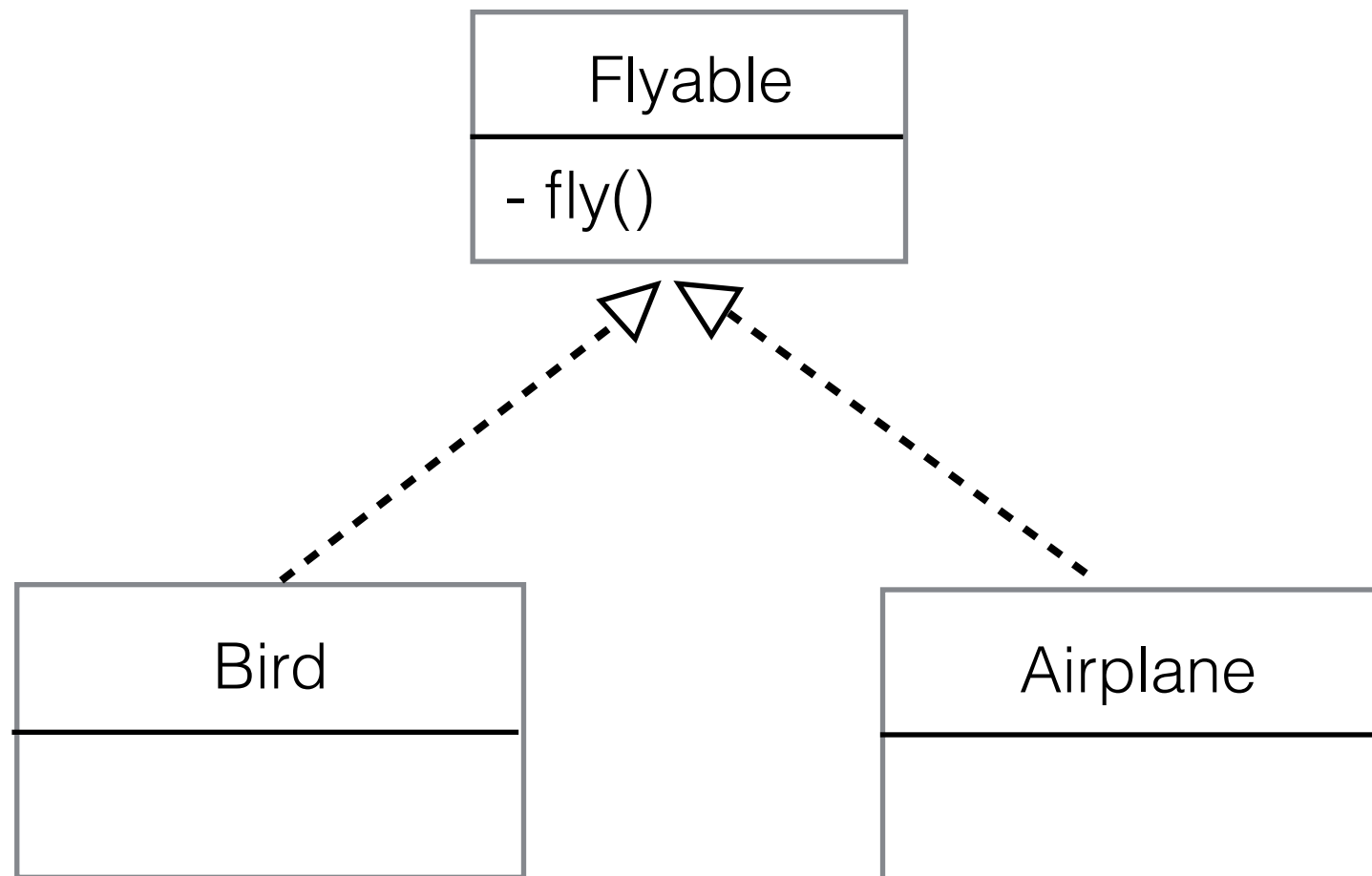
Class diagram

Aggregation vs Composition?

Class diagram - Generalization



Class diagram - Realization



Design Patterns

- Reusable solution for common problem in software design
- Language independent
- Can be classified in to many categories

Our first pattern today - Singleton

- The problem
 - Exactly one object is needed
 - How to be sure that there will always be only one instance of a class?

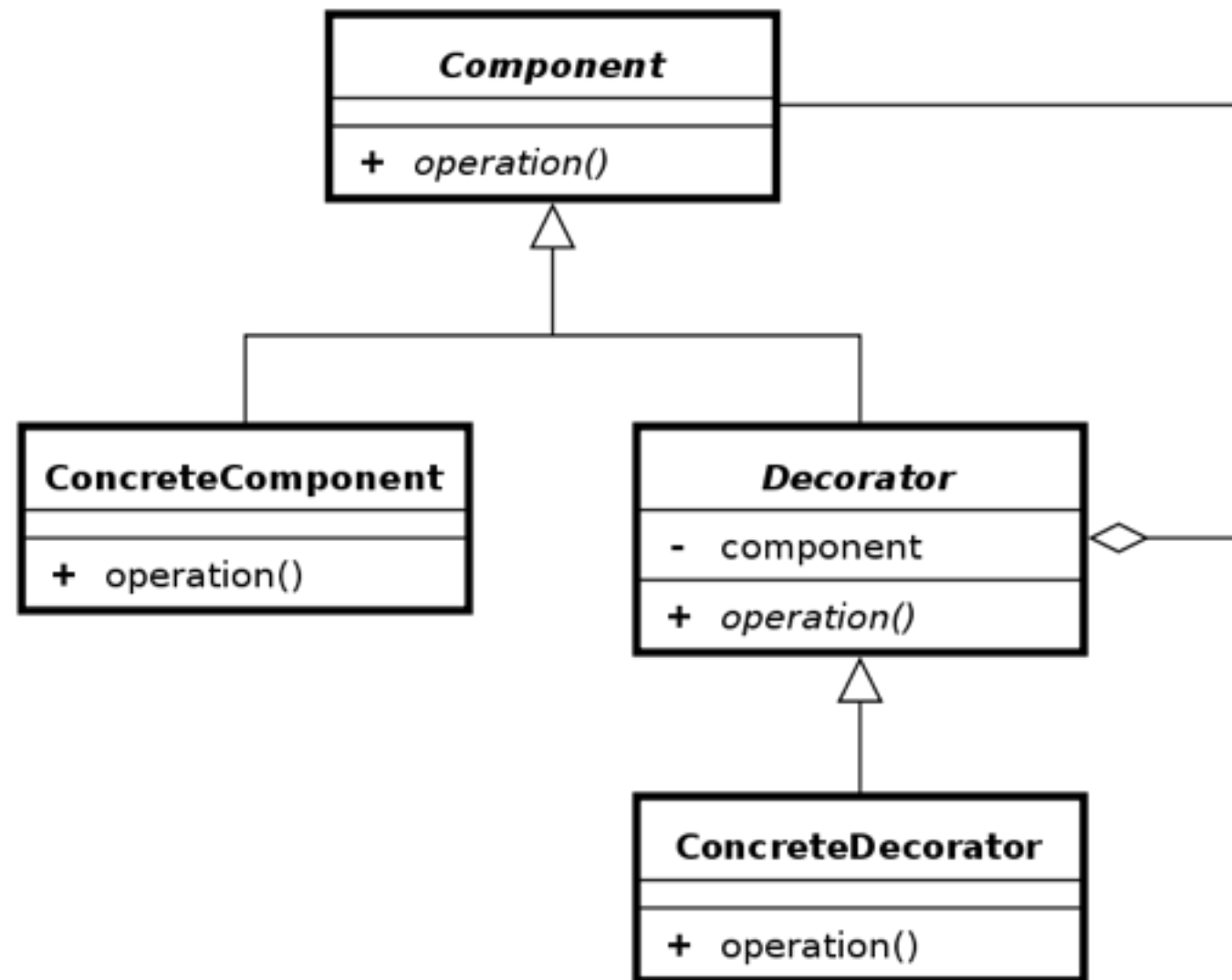
Singleton

Singleton
<u>- instance : Singleton</u>
<u>+ getInstance() : Singleton</u> - Singleton() : void

Decorator Pattern

- Problem
 - How can we add a new behaviour to an object
 - without affect other objects from the same class

Decorator Pattern



Source: Wikipedia