Inheritance

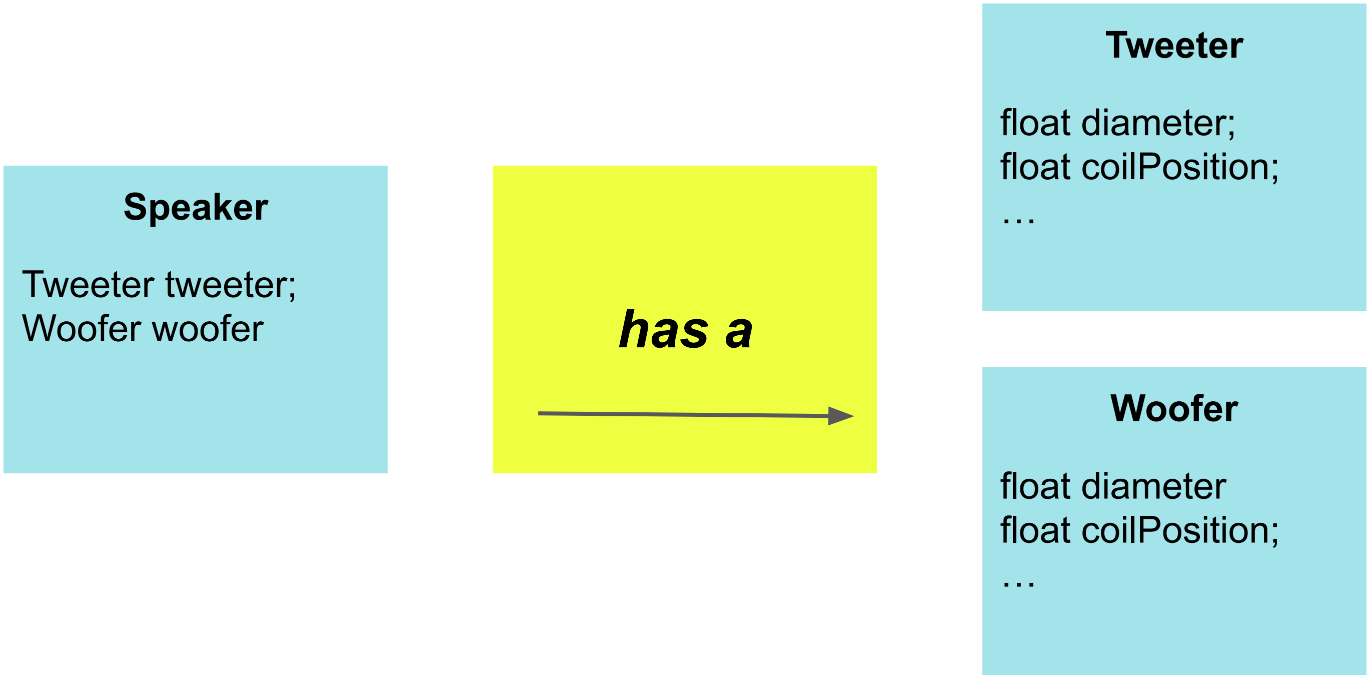
“Is a relationship”

Recap

- Difference between interpreted and compile language
- A c++ compiler, e.g. g++, compiles the code and creates an executable
- Each C++ application requires a main function
- A class …
    - … can be viewed as a blueprint for an object
    - ... contains members; methods (= function) and fields (= variables)
    - … can be used as a type
- ‘Has a relationship’; a class can contain fields (=variables).
    - Examples of standard types are int, float and char.
    - An example of a self defined type is a class. *E*

      E.g. The class Speaker has a Tweeter and a Woofer object.

Recap



Speaker

Tweeter tweeter;
Woofer woofer

has a

Tweeter

float diameter;
float coilPosition;
…

Woofer

float diameter
float coilPosition;
…

TEASER - “has a” vs. “is a”

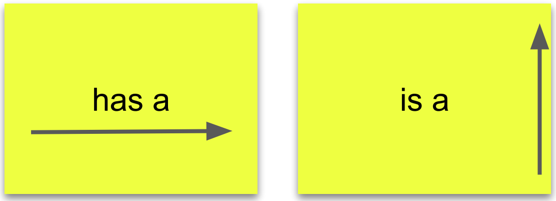
1. Noteer op 1 kleur post-it

   1 class per post-it!

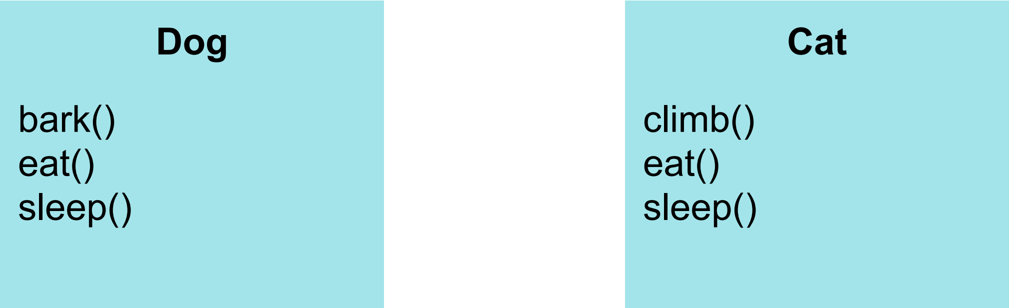
- Dog
- Cat
- Person
- ElectronicDevice
- Student
- Teacher
- Pet
- Animal
- Laptop
- MobileDevice

2. Orden de post-its én duid met een andere kleur post-it de relatie:

- “has a”
- “is a”



3. Voeg ev. extra classes toe.

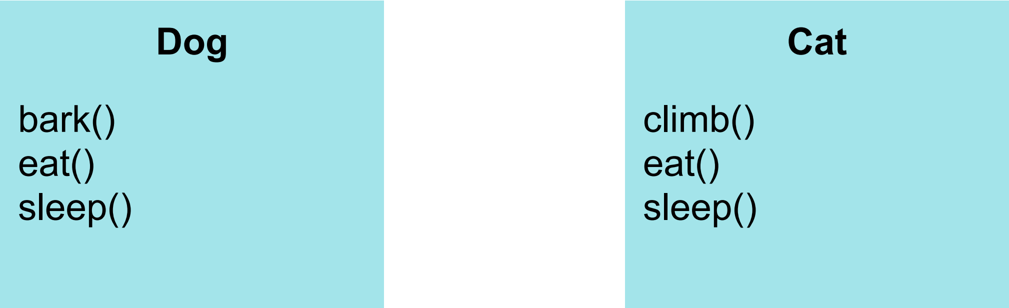


Dog

bark()
eat()
sleep()

Cat

climb()
eat()
sleep()



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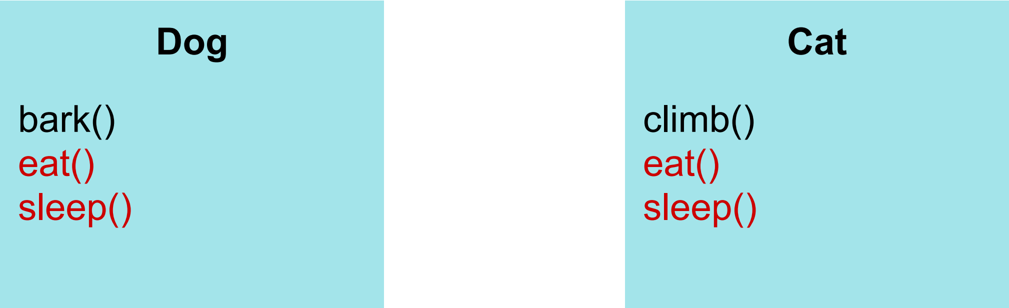
Duplicate code!



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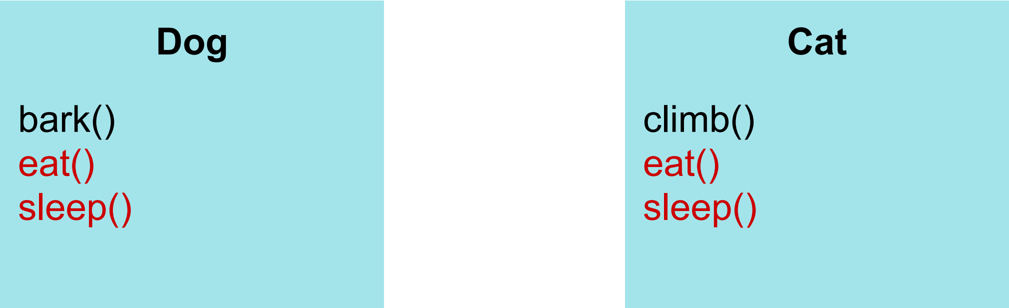
Duplicate code… is dat erg?



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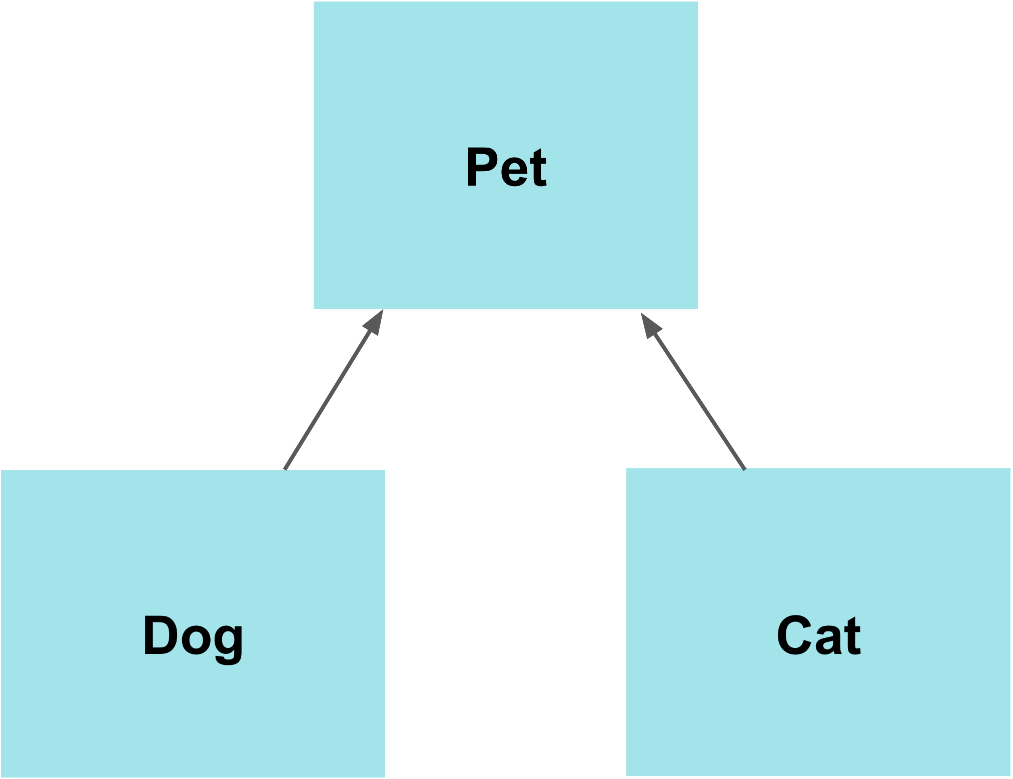
Inheritance



Pet

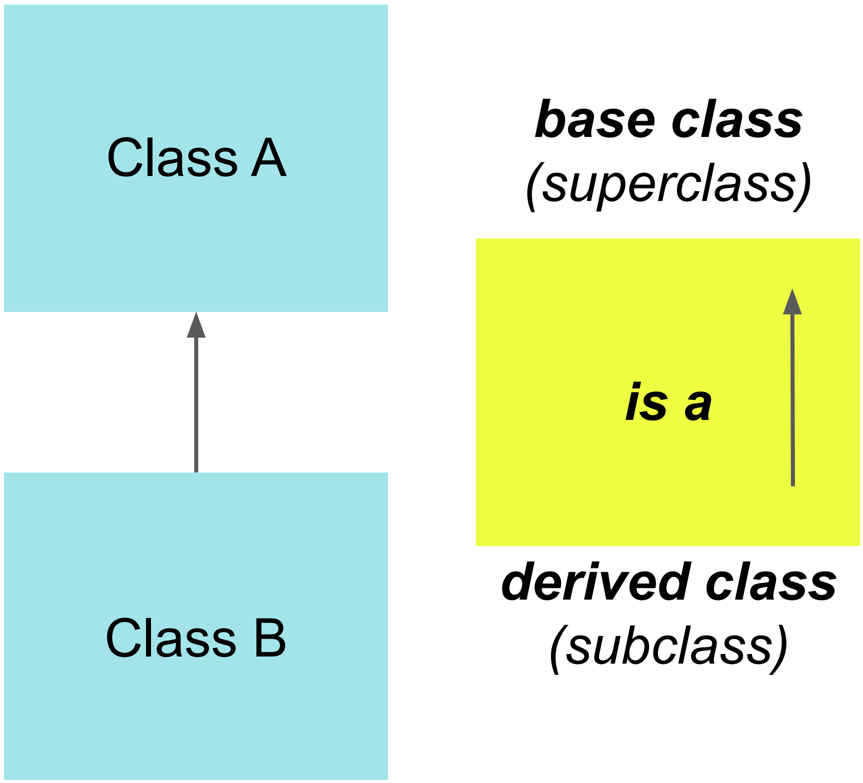
Dog

Cat

base class (superclass)

derived classes (subclasses)

Inheritance



Class A

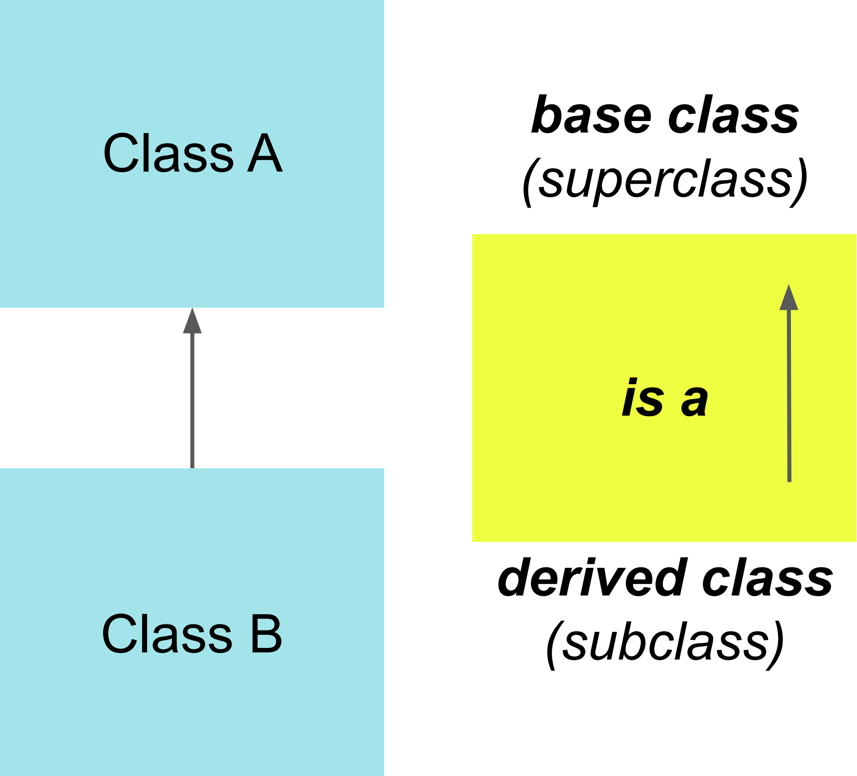
Class B

base class
(superclass)

is a

derived class
(subclass)

Waarom staat die pijl naar boven en niet naar beneden gericht?



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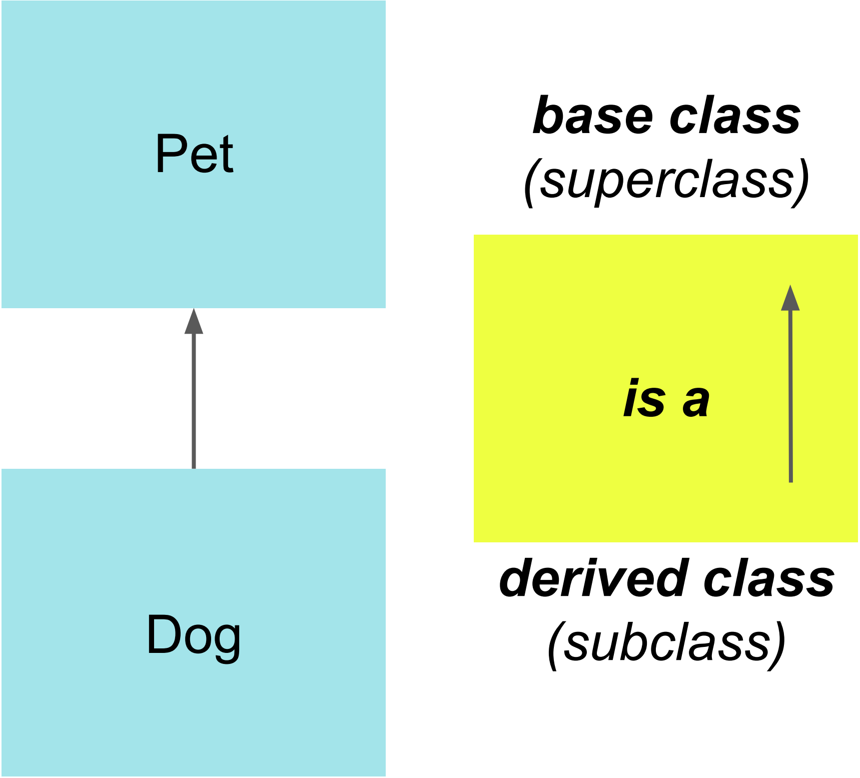
Inheritance



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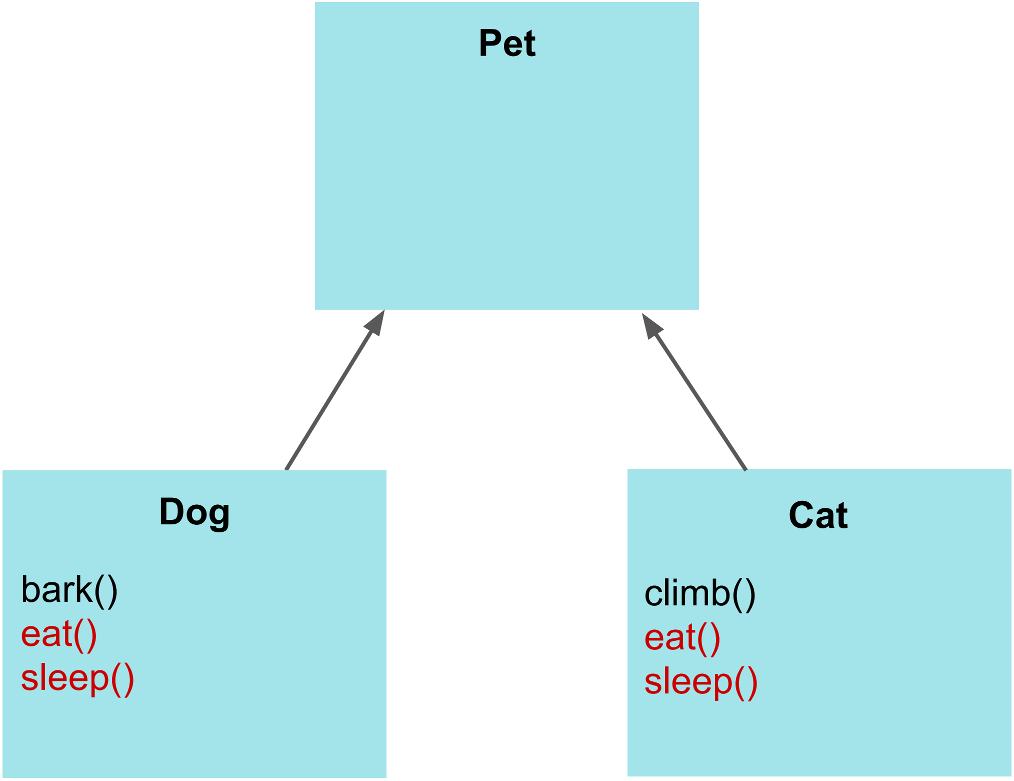

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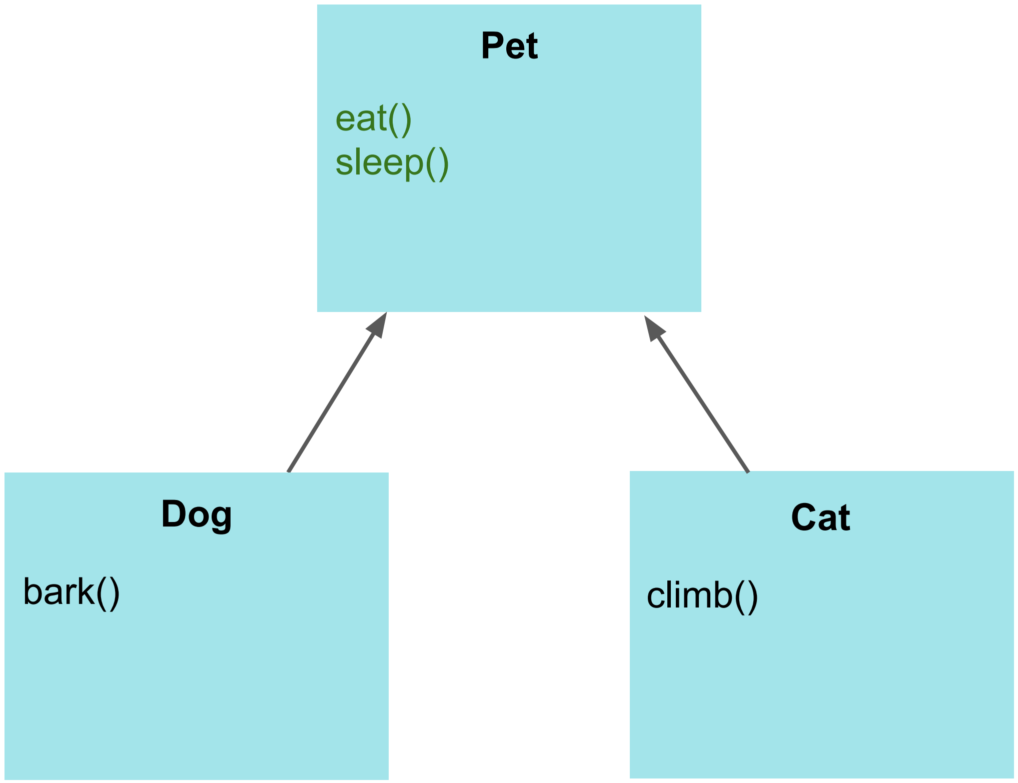

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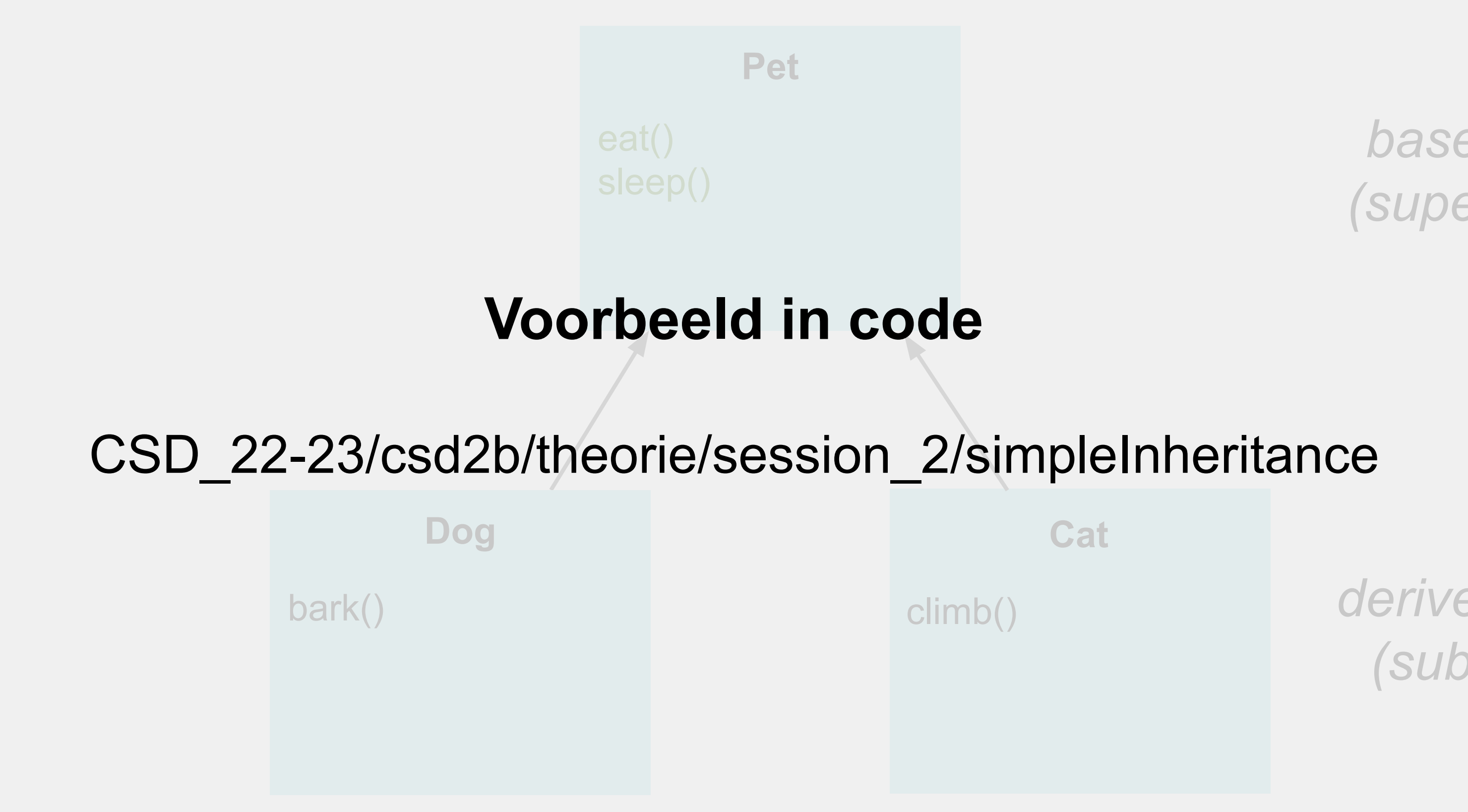


base class
(superclass)

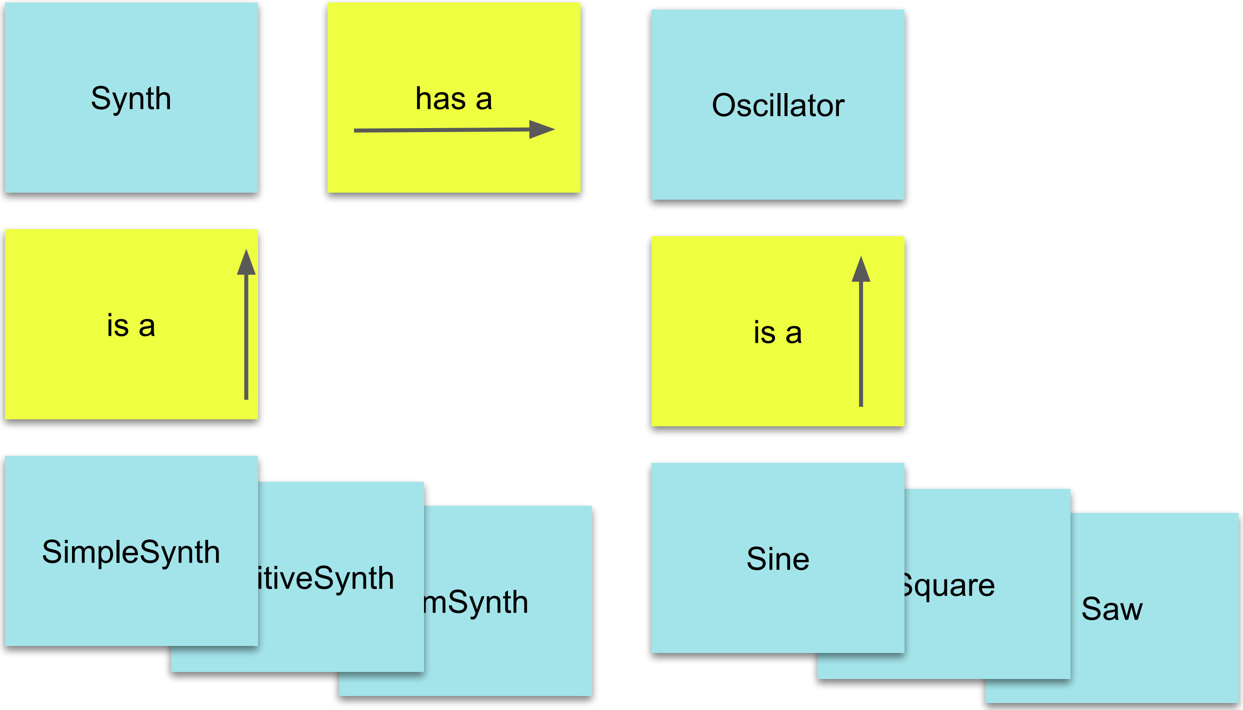
Voorbeeld in code

CSD_22-23/csd2b/theorie/session_2/simpleInheritance

derived class
(subclass)

Inheritance in een MT context

Synthesizer class voorbeeld


Synth
has a
Oscillator
is a
is a
SimpleSynth
itiveSynth
mSynth
Sine
Square
Saw