

SMA: Software Modeling and Analysis

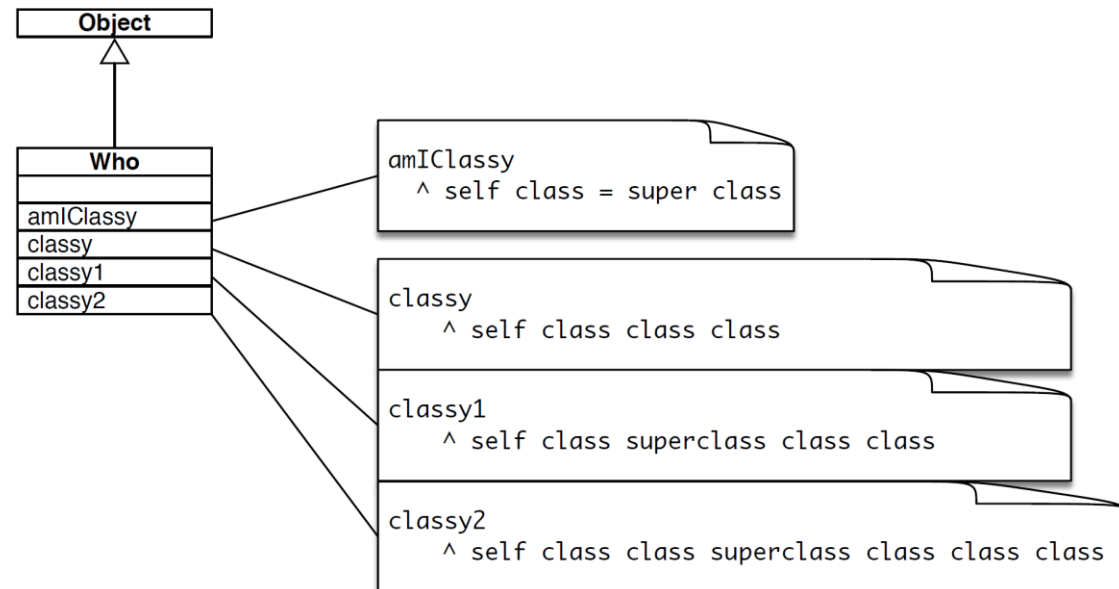
Practical Session
Week 03

Assignment 03

Discussion

A03 - Exercise 01 | Class identity

Evaluate Smalltalk code.



- Who new amIClassy.
- Who new classy = Who new classy1.
- Who new classy1 = Who new classy2.

A03 - Exercise 01 | Class identity

a) Who new amIClassy.

True: Super is used in the context of a object.

b) Who new classy = Who new classy1.

True: Both elements represent the same object.

c) Who new classy1 = Who new classy2.

True: Both elements represent the same object.

A03 - Exercise 02 | Abstract methods

Pharo *object inspection*.

Find all abstract methods of the class `Collection`

Collection methods select:

```
[ :eachMethod | eachMethod isAbstract ]
```

A03 - Exercise 03 | Class hierarchy

Pharo *object inspection* #2.

What is the name of Pharo's class hierarchy root class?

ProtoObject

What is its purpose?

It augments all objects with some "x-ray" capabilities to developers.

A03 - Exercise 04 | Sub and super classes

Pharo *object inspection* #3.

How many super classes does the class `Collection` have?

Collection allSuperclasses size. → 2

How many direct and indirect subclasses does it have?

Collection subclasses size. → 14

Collection allSubclasses size. → 101

Indirect subclasses: $101 - 14 = 87$

A03 - Exercise 05 | Object instantiation

Pharo architecture *review*.

Where is “new” defined?

“new” is first defined in the class Behavior.

Describe also Pharo’s method resolution strategy for the “new” message.

When the message new is sent to a class it is being resolved throughout its metaclass chain.

Assignment 04

Preview

A04 - Exercise 01 | Hierarchy traversal

Write a *method*.

Find the *longest inheritance chain* among all Smalltalk classes in the Pharo programming environment.

A04 - Exercise 02 | Method overrides

Write a *method*.

Find all *abstract method overrides* in the Pharo system.

A04 - Exercise 03 | Query methods

Write a ***method***.

Find all ***query method implementing classes***.

Hint: Query methods are prefixed with is, was, or will.

A04 - Exercise 04 | Root methods

Write a ***method***.

Find all ***root methods*** in the off-the-shelf Pharo image.

Hint: A “root method” is a method whose selector has been implemented in a class, such that the super class of that class does not understand it.

A04 - Exercise 05 | Dynamic coding

Dynamic extension of code.

Step 1:

Redefine code, add instance variable, add method receiver.

Step 2:

Execute code and observe results.

One more thing...

You have to attend the lecture to reveal such slides.*



**Disclaimer:*

The content that has been shown on this slide is irrelevant for the exam.