

Smalltalk: Reflection

Please submit this exercise to the git repository before 10h15, October 18, 2016. Don't forget to register on piazza.com. Also [register for the course](#) by Oct 14!

Exercise 1

Write a method that finds all the abstract methods in the Pharo programming environment.

Exercise 2

Write a method to find all the methods that override an abstract method in the Pharo system.

Exercise 3

Write a method that finds the all the classes in Pharo environment with at least one query method.

Note: Query methods are those that test a property of an object, *e.g.*, having a selector with the prefix “is”, “was” or “will”.

Exercise 4

Find all the “root” methods in the Pharo image. A “root” method is a method with the selector implemented in a class, such that the superclass of that class does not understand it.

Exercise 4

Based on the code from the lecture and exercise ([CallGraph-5.st](#), [Calls.txt](#)), do the following exercise:

By redefining the method `Call>>#doesNotUnderstand`: dynamically add the instance variable `numberOfArguments` to the class `Call`, and the method

```
Call>>#numberOfArguments
  numberOfArguments := args size.
  ↑ numberOfArguments
```

and by executing the code

```
(CallGraph fromFile: 'Calls.txt') calls collect: [ :each | each numberOfArguments]
```

print the number of arguments for every call in the call graph.

Note: For the exercises, *file out* the appropriate source code and commit the .st file to the git repository on <https://bitbucket.org>.