

SMA:
Software Modeling and Analysis

Practical Session

Week 06

Assignment 05

Discussion

A05 - Exercise 01 | General questions

- Is code reading a problem? Argue the answer.
Yes, it is! Developers spend usually more than 50% of their time on code reading.
- Give an example where a custom tool improved the productivity in addressing a problem or issue.
 - status indicators* → *awareness of project state*
 - customized IDE plug-ins* → *report a variety of issues*
 - DIY tools* → *help in fixing things...*

A05 - Exercise 02 | Inspector extensions

i) How many classes in Pharo contain the <gtView> pragma?

547 classes have built-in support for GT inspector.

Code:

```
results := Set new.  
#gtView gtPragmas do: [ :method |  
    results add: (method classBinding value name)].  
results sorted: [ :a :b | a < b ].
```

A05 - Exercise 02 | Inspector extensions

ii) Improve DateAndTime so that GT inspector can visualize them with the following “Human Readable” format:

YYYY-MM-DD HH:MM

```
DateAndTime>>gtHumanReadableFor: aView
```

```
<gtView>
```

```
^aView textEditor
```

```
    title:    'Human Readable';
```

```
    text:    [self asStringYMDHM]
```

A05 - Exercise 03 | Live documents

i) What are supported annotation names in live documents?

Example:

`#{class:Object}` contains the annotation name `class` which tells the live document to use the appropriate visualization for classes.

11 annotation names can be found in **GtDocumentConstants:**

`changes, class, example, examples, explanation,
icebergFile, inputFile, method, parametrizedExample,
slides, xdocList`

A05 - Exercise 03 | Live documents

ii) Create a live document that always shows the current number of classes available in Pharo.

Expected result: I consist of 18605 classes.

Live document code:

```
I consist of ${example:  
    BaselineOfGToolkit>>#allClasses |  
    label=#size}$classes.
```

Corresponding logic code:

```
BaselineOfGToolkit>>#allClasses
```

```
<gtExample>
```

```
^ SystemNavigation default allClasses
```

Assignment 06

Preview

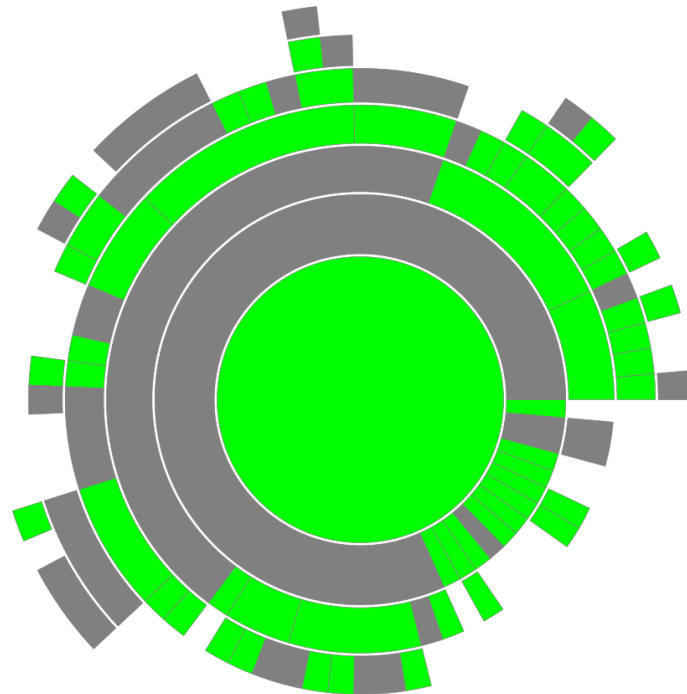
Pharo + RT3

Download and set up
Pharo **9.0** with the **full version** of **Roassal3**.

A06 - Exercise 01 | Sunburst Visualization

Smalltalk *coding*.

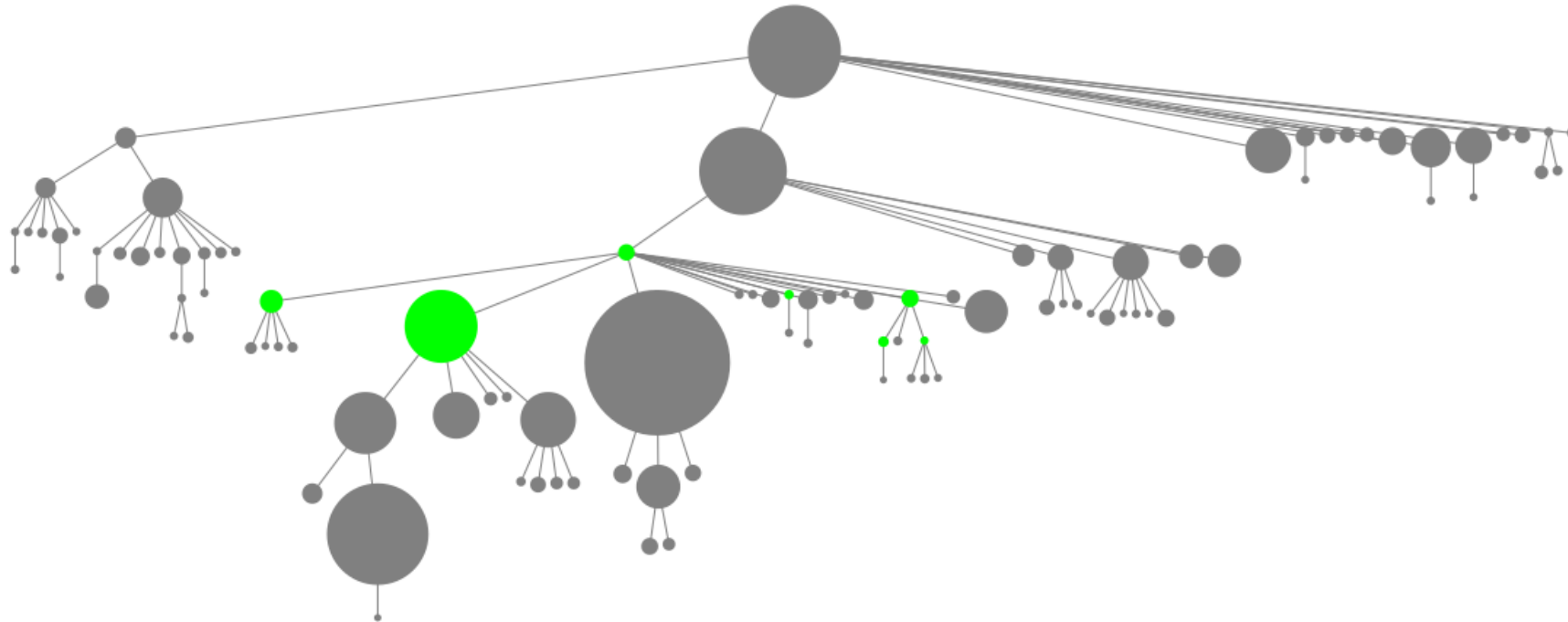
Build a *sunburst visualization* to analyze test coverage of the Collection class hierarchy.



A06 - Exercise 02 | Tree Layout Visualization

Smalltalk *coding*.

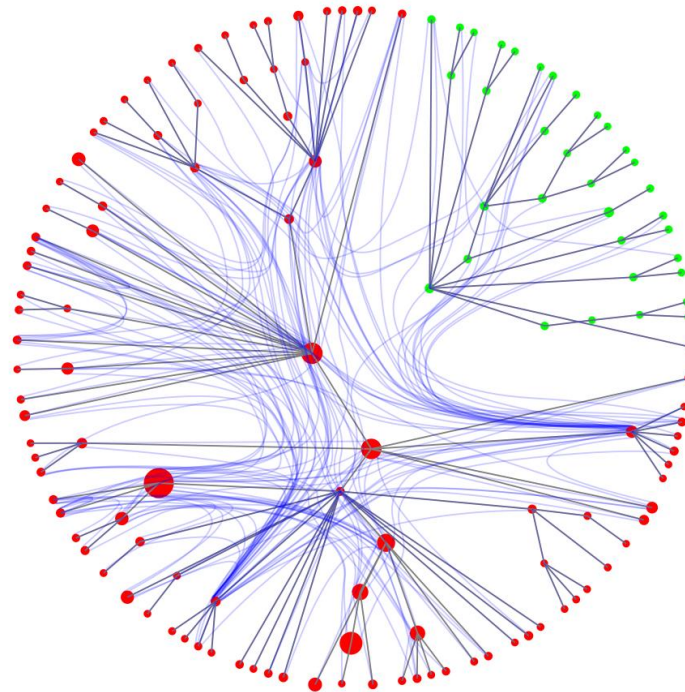
Build a *tree layout visualization* to gather an overview of classes with subclasses that contain the string `Array` in their names.



A06 - Exercise 03 | Node-link Visualization

Smalltalk *coding*.

Create a visualization to analyze the class dependencies between the Collection class hierarchy and the RSLayout class hierarchy.



A06 - Exercise 04 | Discussion

Visualization *reasoning*.

Comment on the strengths and limitations of each visualization you just created.

Sunburst visualization

Strengths: ...

Limitations: ...

Tree layout visualization

Strengths: ...

Limitations: ...

Node-link visualization:

Strengths: ...

Limitations: ...