

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***

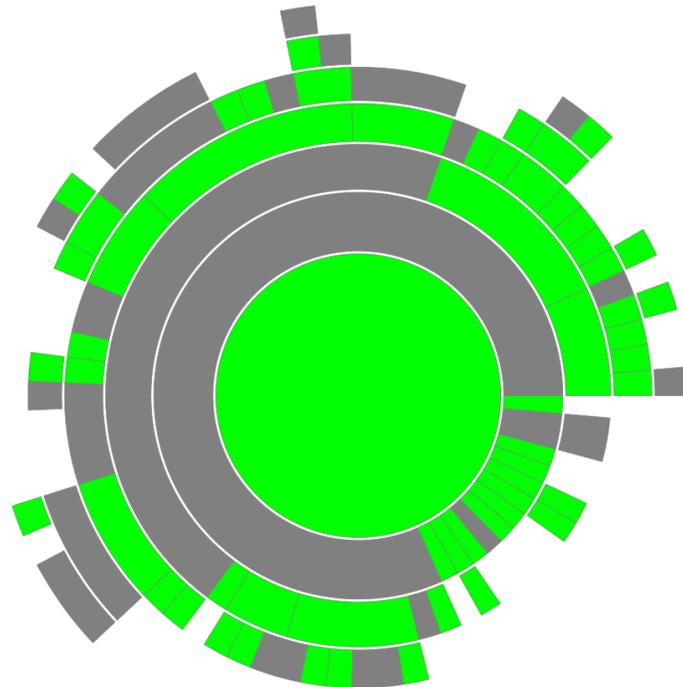
# *Pharo* + RT3

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

# A06 - Exercise 01 | Sunburst Visualization

## Smalltalk *coding*.

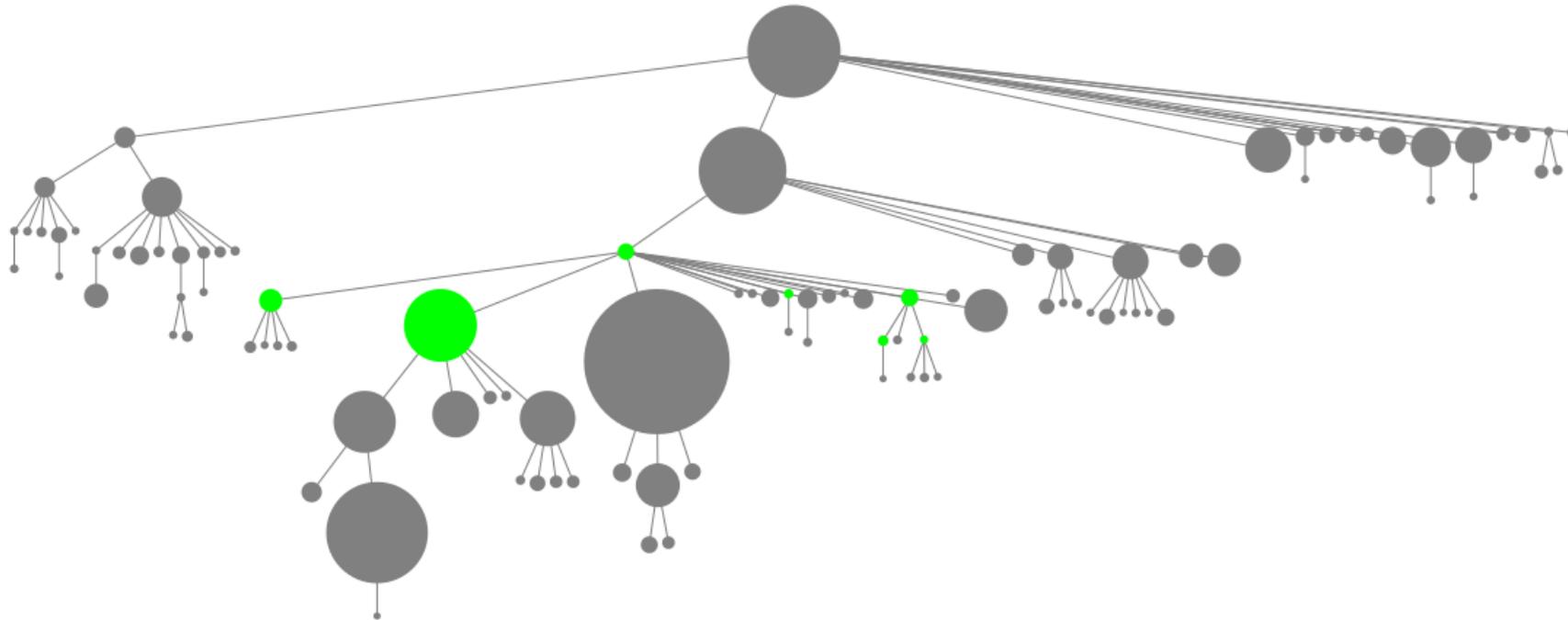
Build a *sunburst visualization* to analyze test coverage of the Collection class hierarchy.



# A06 - Exercise 02 | Tree Layout Visualization

## Smalltalk *coding*.

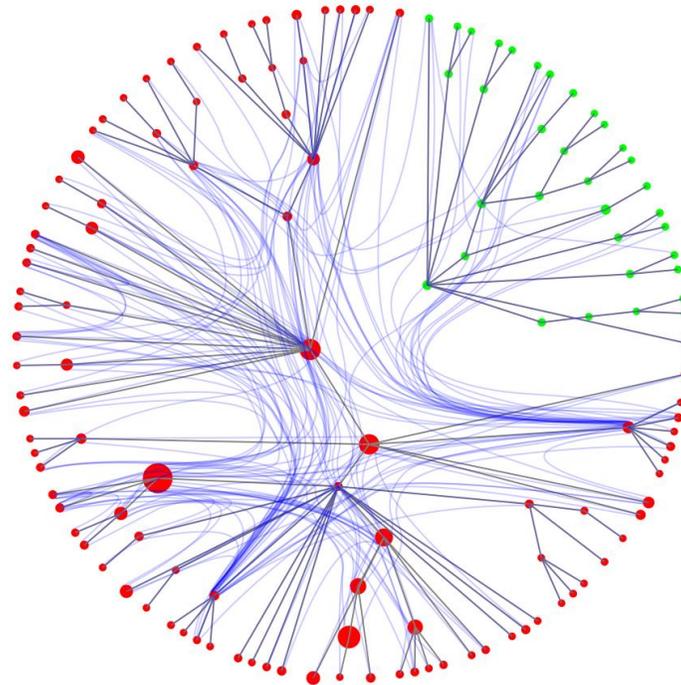
Build a *tree layout visualization* to gather an overview of classes with subclasses that contain the string `Array` in their names.



# 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: ...