

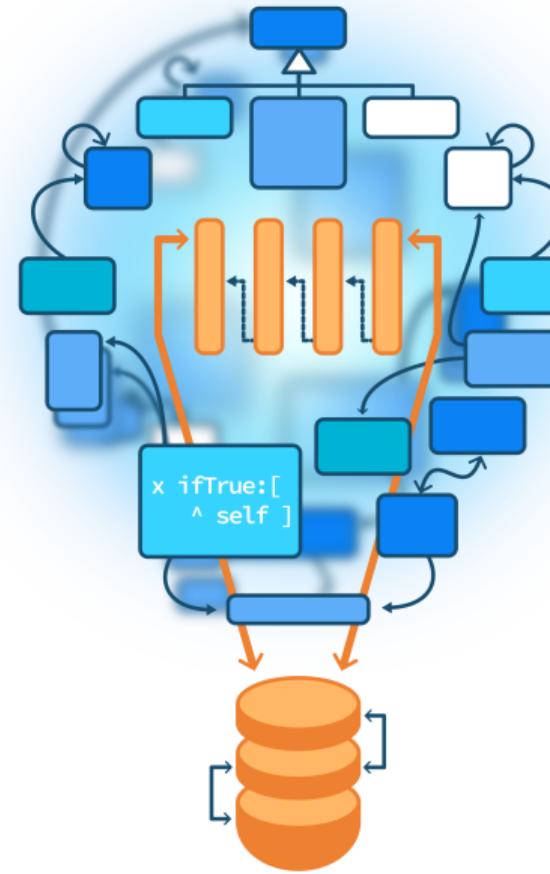
# Building UI with Spec

An introduction

S.Ducasse, L. Fabresse, G. Polito, and P. Tesone



<http://www.pharo.org>



# Outline

- Spec
- Some realization
- Concepts
- An example of key points



# Spec

- Application builder
- Independent from the back-end (morphic, GTK, Toplo)
- Build to reuse components (not shown in this lecture)



# Angular Stone

- To build desktop applications fast
- Work with different back-ends
- All Pharo are ported to Spec20
- Can mix low level cairo and high level widgets

# A little notepad

Activities pharo 21 août 08:46

Repositories

Repositories	Status	Branch
*pharo	Detached Working Copy	add-convenience-methods-to-tfprocesslocalworker
*Spec2	Detached Working Copy	dev-3.0
NewTools	Detached Working Copy	Pharo12
Roassal3	Local repository missing	Unknown
Microdown	Local repository missing	Unknown
BeautifulComments	Local repository missing	Unknown
iceberg	Detached Working Copy	dev-2.0
*libgit2-pharo-bindings	Detached Working Copy	add-1.6-support
themes	Detached Working Copy	master
*Spec-Gtk	Detached Working Copy	gtk4
*gtk-bindings	Detached Working Copy	gtk4
*newtools-systembrowser	Uncommitted changes	main
linden	Up to date	main
stargate	Detached Working Copy	master
gnome-iconthemebrowser	Up to date	master
hiedra	1 not published	master

Working copy of Spec2

Name	Status
*Spec2-Adapters-Morphic	Uncommitted changes
*Spec2-Commander2	Uncommitted changes
*Spec2-Core	Uncommitted changes
BaselineOfSpec2	Up to date
BaselineOfSpecCore	Up to date
Spec2-Adapters-Morphic-Tests	Up to date
Spec2-Adapters-Stub	Up to date
Spec2-Backend-Tests	Up to date
Spec2-Code	Up to date
Spec2-Code-Backend-Tests	Up to date
Spec2-Code-Commands	Up to date
Spec2-Code-Diff	Up to date
Spec2-Code-Diff-Morphic	Up to date

Filter... dev-3.0 at 5721842 Detached Working Copy



# New browser experiment

The screenshot shows a software interface designed to look like a web browser, but for navigating through code and data. The top bar has tabs for "Project", "Perspective", "SpPresenter>initializePresenters", "PvHeaderBarPresenter / initializePresenters", "initializePresenters", and "updatePresenter". The left sidebar is a "Project" tree with categories like "Perspective", "Command-Actions", "Command-Base", "View", and "Extensions". The main area displays code snippets for "PvHeaderBarPresenter / initializePresenters" and "SpPresenter>initializePresenters". The right sidebar is an "Outline" view showing "Shared Variables", "Class Slots", "Slots", "Class Methods", and "defaultLayout". Below the main area is a "Playground" tab showing a factorial function and its implementors. A bottom panel shows a table for a large integer value.

Project x

Perspective

- Announcement
- Application
- Command-Actions
- Command-Base
  - PvAction
  - PvActionCollector
  - PvActionGroup
  - PvActionSettings
  - PvEditorAction
  - PvSpecCommand
  - PvSpecCommand
  - PvSpecToggleCommand
  - PvToggleableAction
- Icon
- Model
- View
  - PvContextActionBuilder
  - PvEntityActivatedPort
  - PvEntitySelectedPort
  - PvHeaderBarPresenter
  - PvPerspectiveView
  - PvPresenter
  - PvActionHolder
  - PvScripting
- View-Container
- View-Editor
- View-Perspective
- View-Window

Extensions

SpPresenter>initializePresenters

PvHeaderBarPresenter / initializePresenters

```
toolbar  
bar  
toolbarDisplayMode;
```

initialize

Playground x Implementors of activationAction [1] x

42 factorial

a LargePositiveInteger (140...)

key	value
decimal	1405006117752879898543142606244511569936384000000000
hex	3C1581D491B28F523C23ABDF35B689C908000000000
octal	36025403522154507522170216536732664234410000000000000
binary	11110000010101100000011101010010010011010010001110101001000111

Line: 1:1

+L

# A little notepad

The screenshot shows a dark-themed application window titled "Nevermind Notes". On the left is a sidebar containing a list of notes with their titles and creation dates. The main pane displays a single note with a title, abstract, and a section about choosing Pharo.

Nevermind Notes

ESUG Talk : "Unlocking Potential: The Spec Framework's Evolution"  
Today, 6:29 am

phep interpolation notes  
Today, 6:29 am

Doing a Remote Debugger is complex  
22 June 2023, 2:36 pm

Pharo 11 brainstorm  
2 June 2023, 7:59 am

Notes CR Stef  
11 May 2023, 8:42 am

document browser revision  
3 March 2023, 2:02 pm

Cagliari  
21 February 2023, 6:04 pm

Proposal Roberto  
11 February 2023, 8:47 am

UI/UX analysis/improvement list  
11 January 2023, 9:43 am

# ESUG Talk : "Unlocking Potential: The Spec Framework's Evolution"

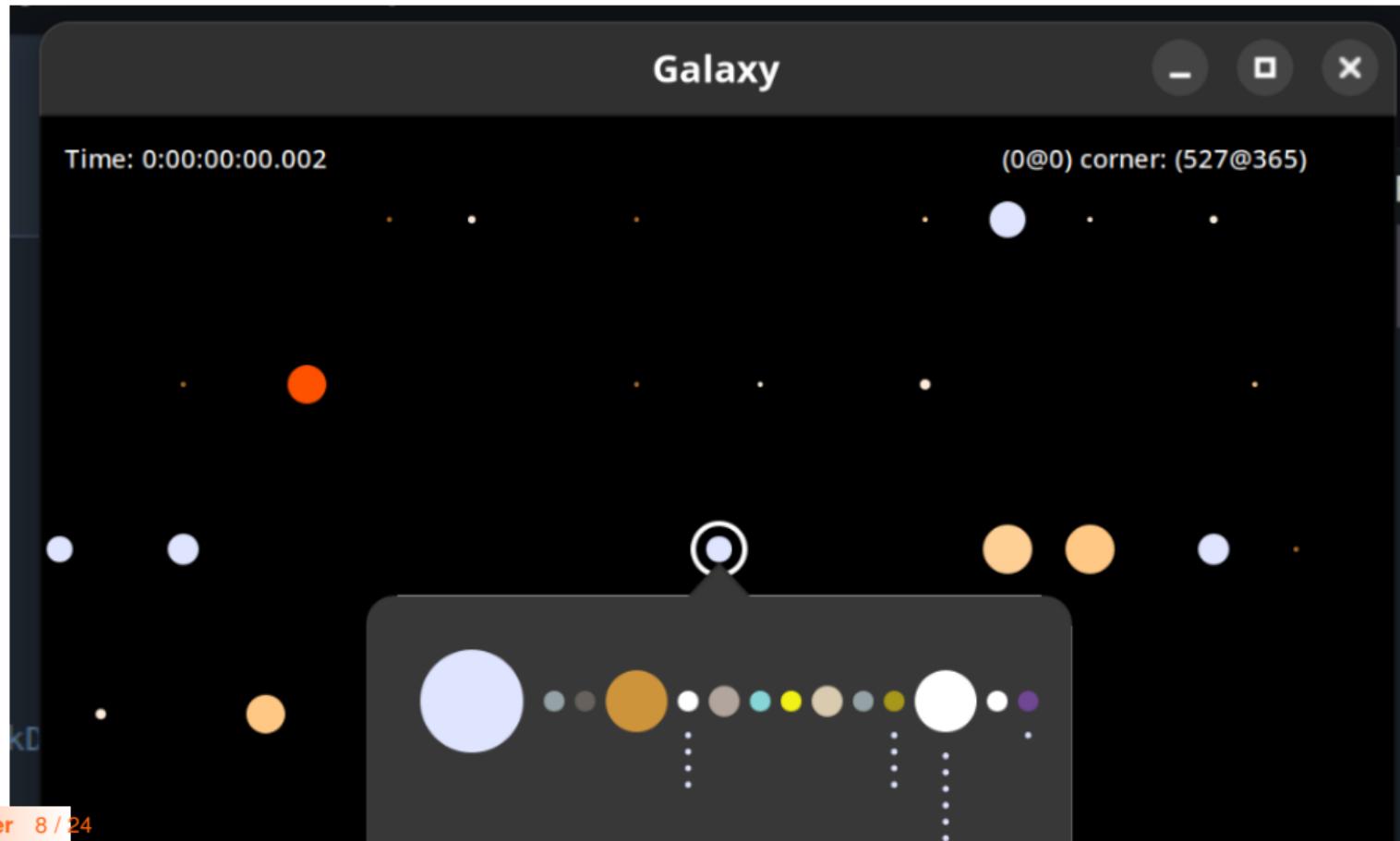
Abstract: In this talk, we will discuss the evolution of the Spec framework, which is used by Pharo to build its IDE and is also proposed as a solution for building desktop applications. Starting from its early beginnings in Spec 1.0, the framework has undergone significant changes, ultimately reaching a level of maturity that enables us to envision the next step while maintaining compatibility.

## Why one would choose Pharo  
(or any other smalltalk, for what it means)?

- performance? Nah...
- productivity? Right...
- modifiability? Uhm...
- tools? Tools! Just...



# Mixing GTK and Cairo



# Thales Covid room allocation

gRoom

Etat Prénom Nom Mode

Etat	Prénom	Nom	Mode
Balthazar	Mc Picsou	Permanent	
Donald	Duck	Permanent	
Rifi	Duck	Permanent	
Fifi	Duck	Permanent	
Loulou	Duck	Permanent	

Balthazar Mc Picsou

Lundi 25/05 Mardi 26/05 Mercredi 27/05 Jeudi 28/05 Vendredi 29/05 Samedi 30/05 Dimanche 31/05

PreciousGem File3

Plan du 26 May

The floor plan shows the layout of the building's interior. The fourth floor contains areas labeled 'STOCKS AND BONDS', 'CONTRACTS', 'FILE CABINETS', and 'OFFICES'. A green highlighted area is labeled 'SLIGHTLY LOOSED PAPER'. The third floor contains 'PRECIOUS GEM CROSSES' labeled with names like RUBIES, SAPPHIRES, DIAMONDS, TOPAZ, EMERALDS, PEARLS, BLACK PEARLS, and DIAMONDS (FLYING). A red highlighted area is labeled 'LOCKED GATE'. A callout box points to a specific location on the third floor with the text 'PreciousGem Balthazar Mc Picsou - Journée'.

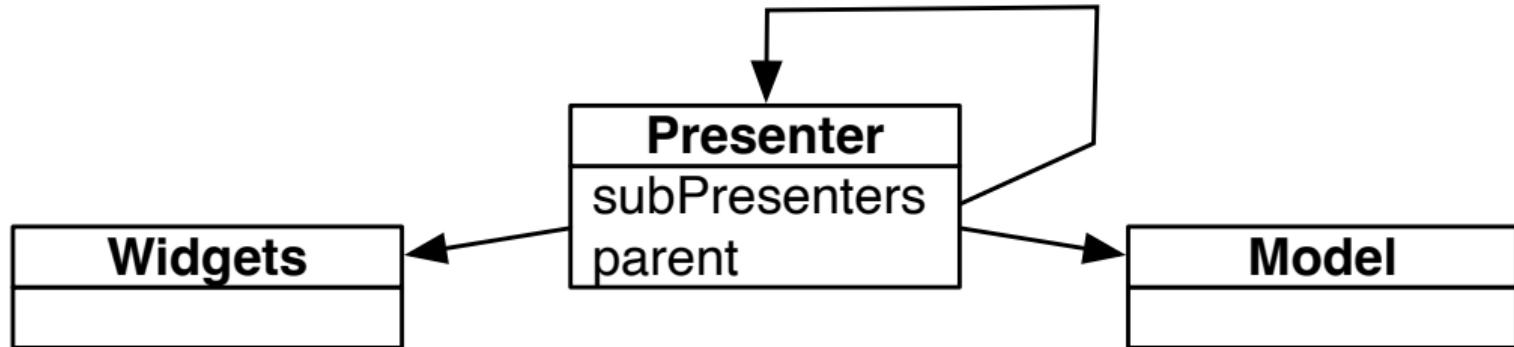
1. ONE CORRESPONDING DETAIL SHEET FOR FLOORS 7 THRU 10 WHICH ARE UNPRINTED AREAS SIMILAR TO FLOOR PLANS THAT ALLOW FOR NUMEROUS EMPLOYEE DESKS AND FILE CABINETS.  
2. MISSING TILE DESIGN TO BE SUPPLIED BY KENT ROSA CO. OF LOUVELLE.  
DRAWN BY F.L. DRAKE DATE 4/5/1992 SHEET 1 THIS DRAWING NOT TO SCALE  
REV. A BY D. SHAW TWO

"MONEY BIN" FOR SCROOGE McDUCK

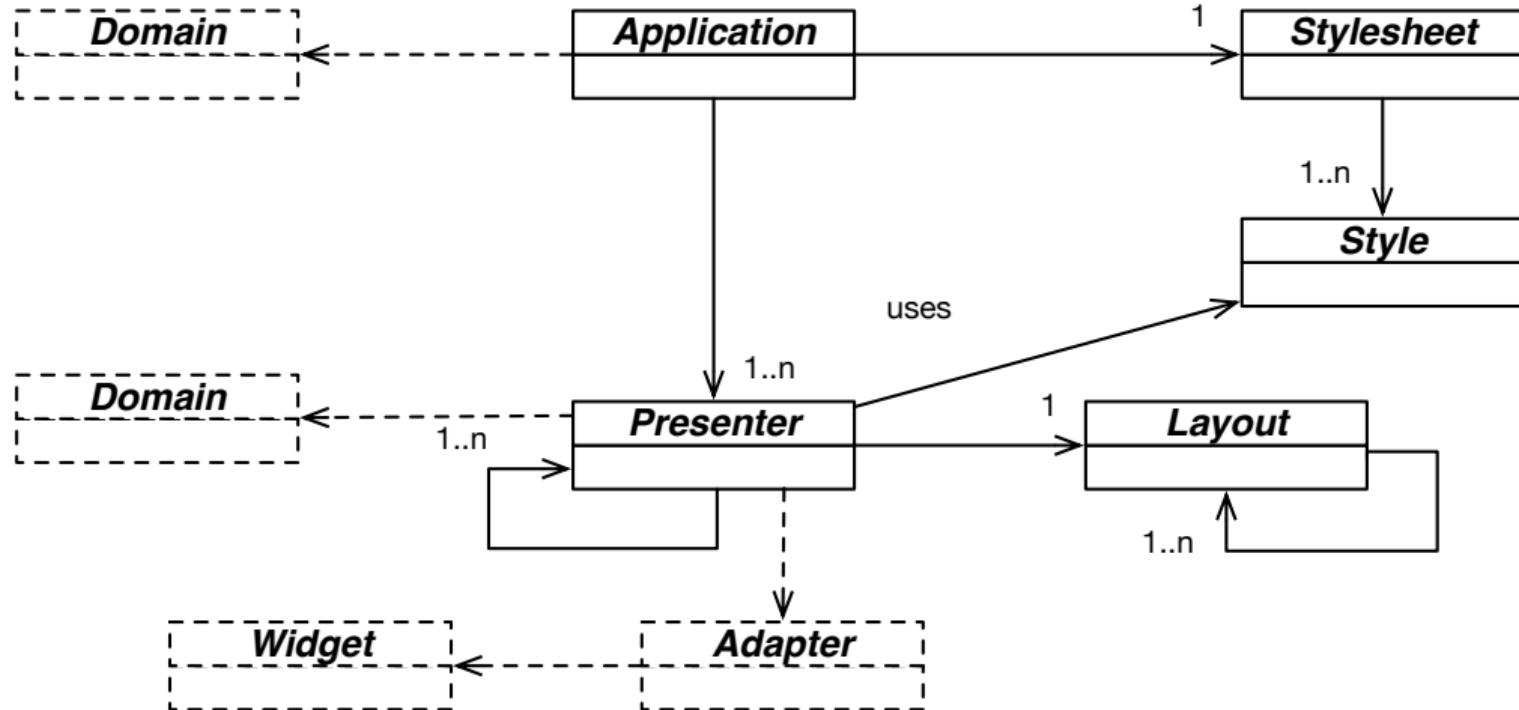
# Key concepts



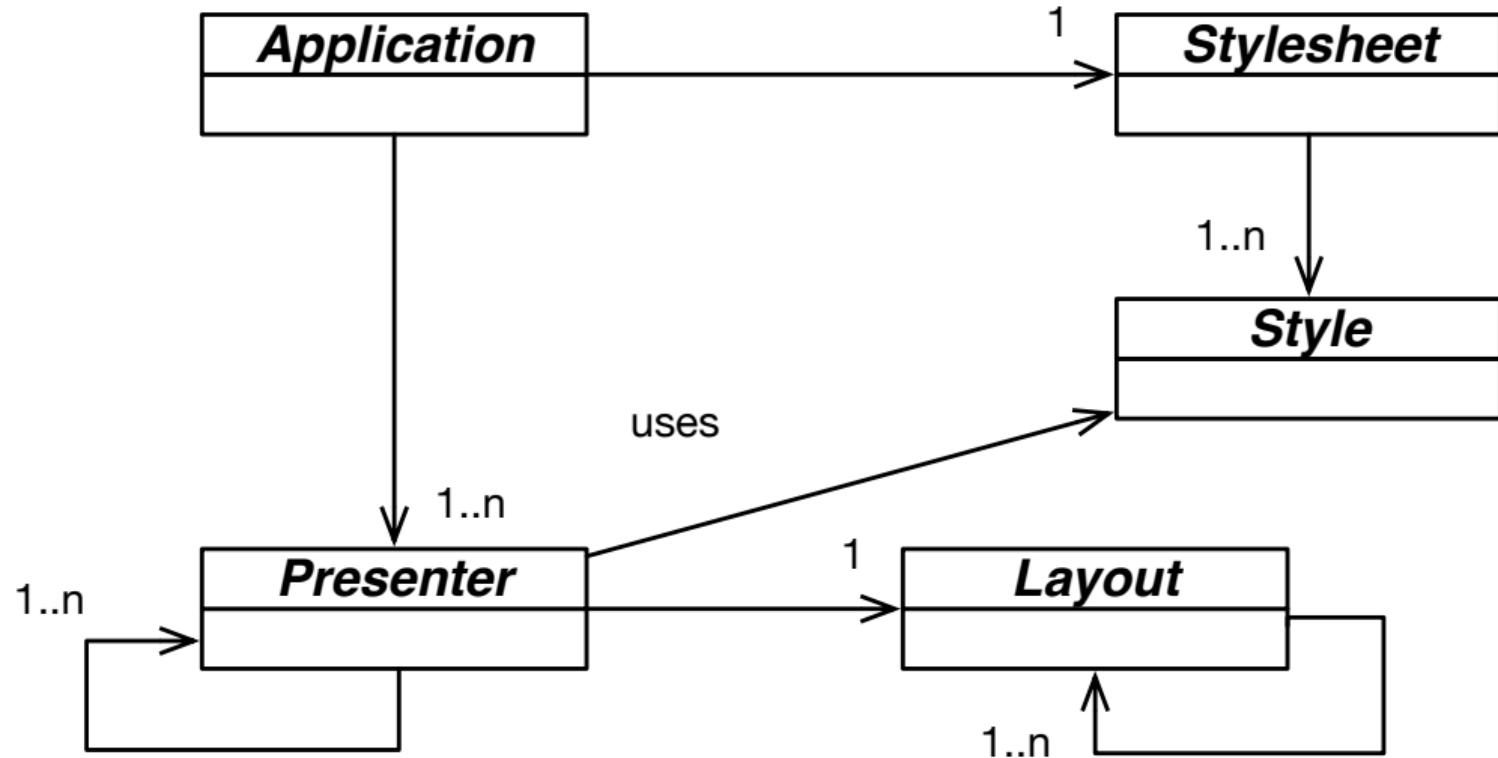
# Spec is based on MVP



# Key concepts



# Key concepts



# Focus on Presenter part

A presenter describes

- its subcomponents
- their configuration
- their layout
- communication with domain model

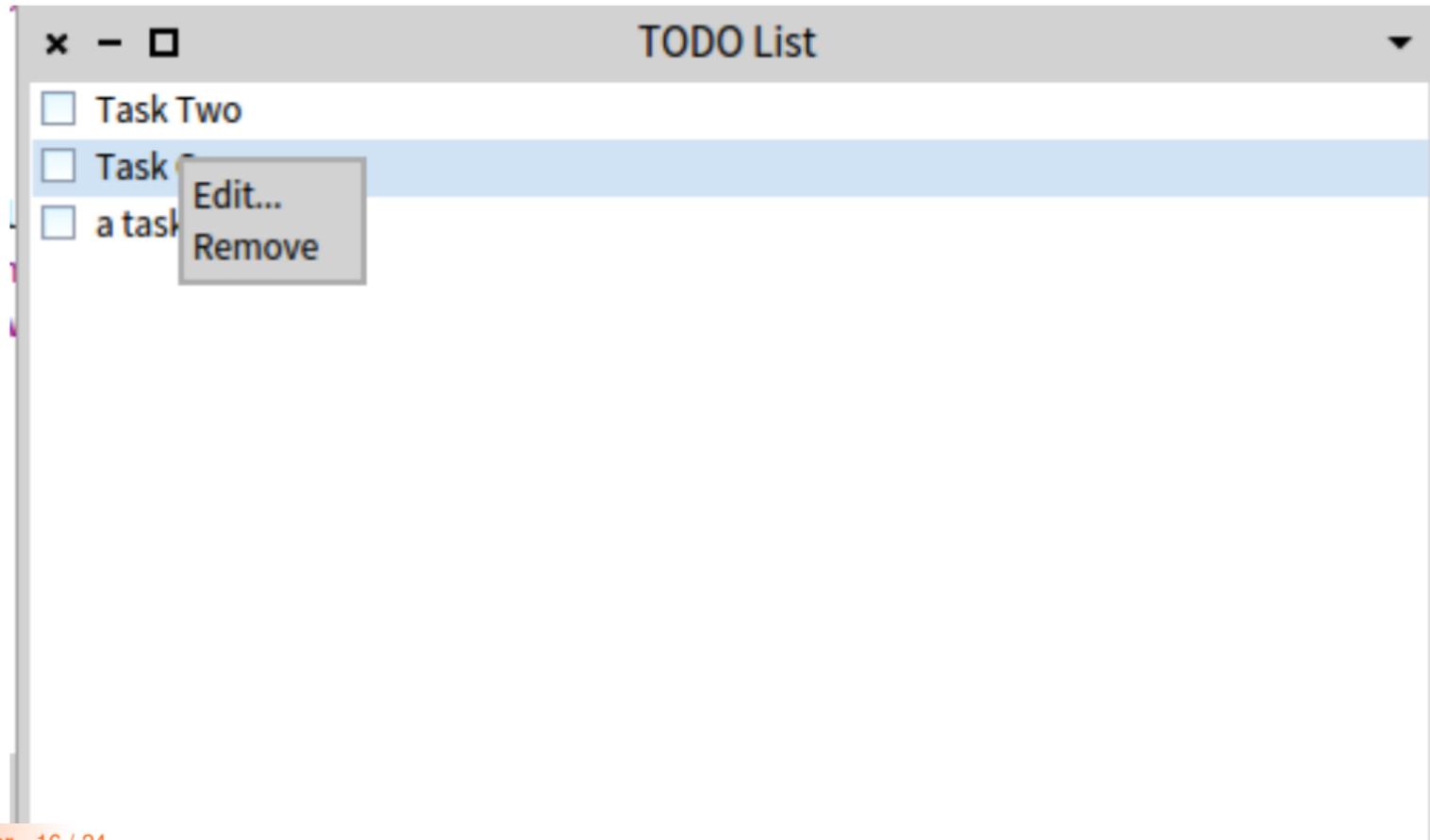


# Example

Illustrating key API of ‘SpPresenter‘



## Example: a simple todo



# InitializePresenter

```
TodoListPresenter >> initializePresenters
todoListPresenter := self newTable
    addColumn: ((SpCheckBoxTableColumn
        evaluated: [:task | task isDone]) width: 20);
    addColumn: (SpStringTableColumn
        title: 'Title' evaluated: [:task | task title]);
yourself.
```



# defaultLayout

```
TodoListPresenter >> defaultLayout
  ^ (SpBoxLayout newTopToBottom
    add: todoListPresenter;
    yourself)
```



# Update Presenter

```
TodoListPresenter >> updatePresenter  
todoListPresenter items: TodoTask tasks
```



# Initialize window

```
TodoListPresenter >> initializeWindow: aWindowPresenter
```

```
aWindowPresenter
```

```
    title: 'Todo List';
```

```
    initialExtent: 500@500
```



# Connecting presenters

When a component is composed of multiple ones, you may need to maintain some invariant. For example, imagine that you have a list of items and an item description text. You may want to always show the description of the selected item.

connectPresenters

```
itemList whenSelectionChangedDo: [ :each | description text: each text]
```



# What we did talk about

- Application's role
- Component reuse
- Styles
- Different components (list, tables, menubar, combox)
- Different Layouts
- Menus



# Free Book

The forthcoming book freely available at: <https://github.com/SquareBracketAssociates/BuildingApplicationWithSpec2>



Produced as part of the course on <http://www.fun-mooc.fr>

# Advanced Object-Oriented Design and Development with Pharo

A course by  
S.Ducasse, L. Fabresse, G. Polito, and P. Tesone



Except where otherwise noted, this work is licensed under CC BY-NC-ND 3.0 France  
<https://creativecommons.org/licenses/by-nc-nd/3.0/fr/>