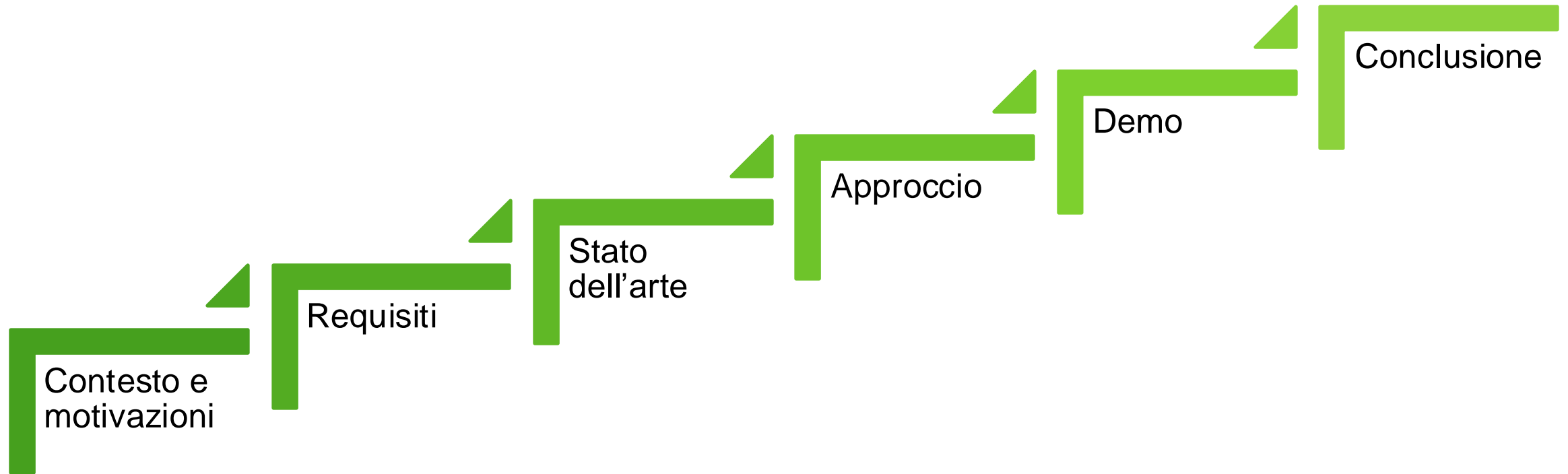


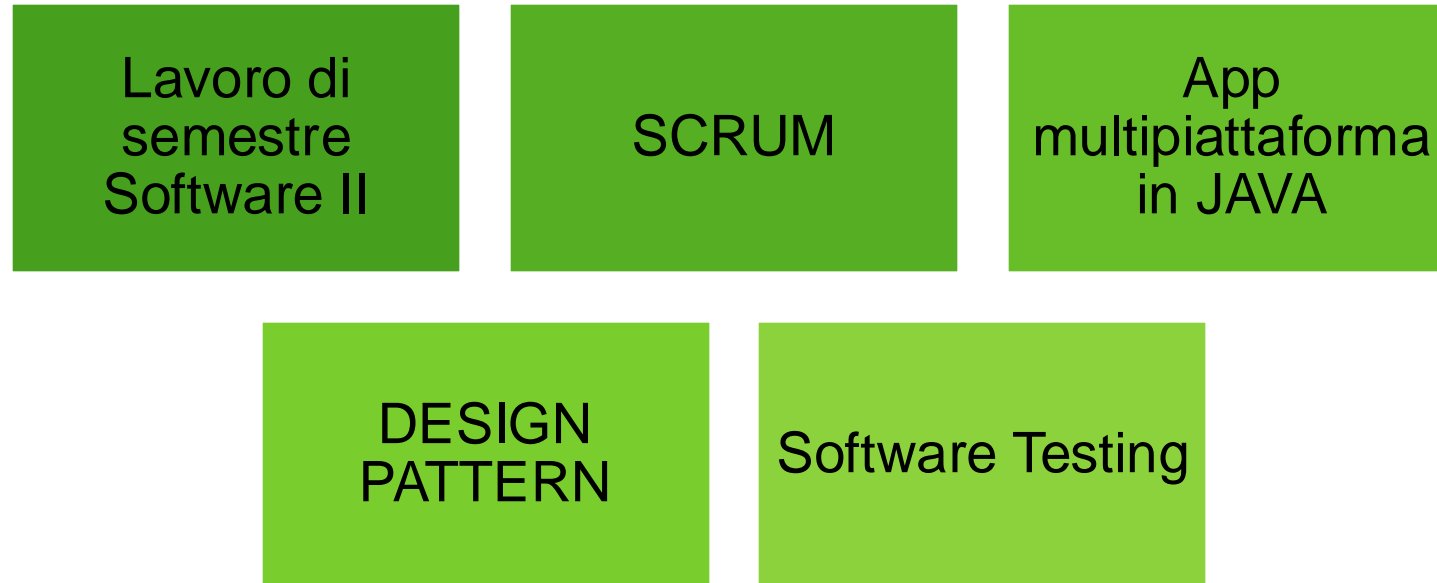
SUPSI

# 2D Editor for PNM files

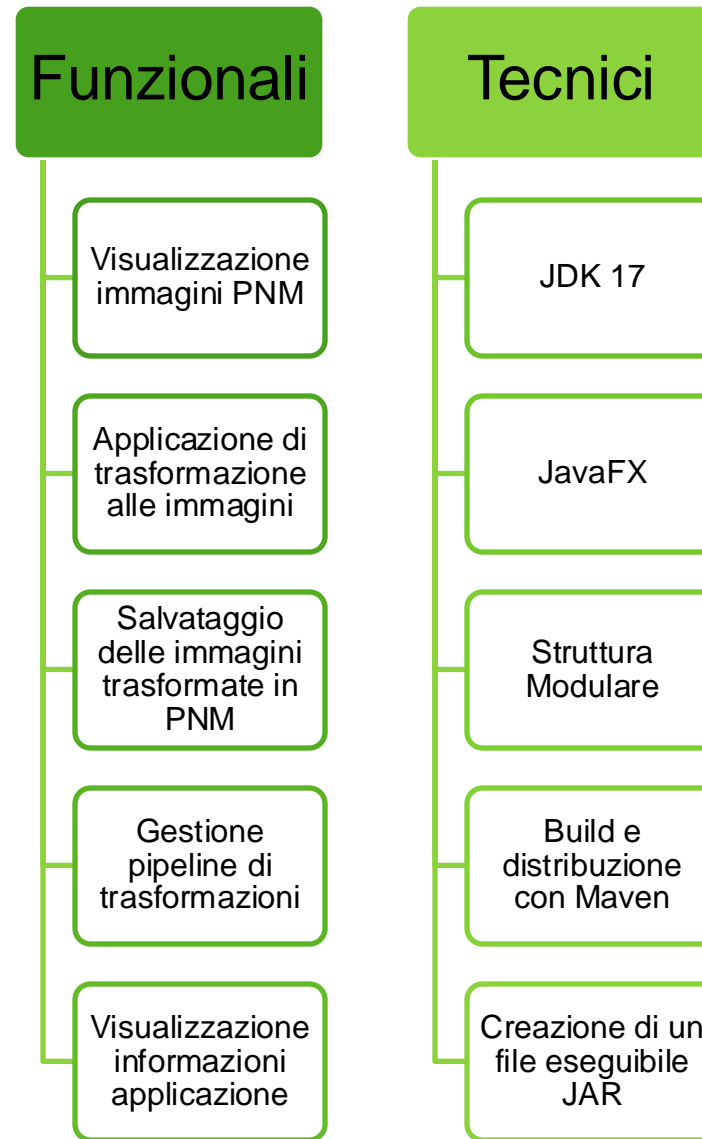
Studente/i	Relatore	Correlatore
Dominik Panzarella Mattia Mancino Alessandro Spagnuolo	Corti Giancarlo	Brocco Amos
Corso di laurea	Modulo / Codice Progetto	Anno
Ingegneria Informatica	Ing. Software II	2024-2025
Committente	Data	
Corti Giancarlo Brocco Amos	16.12.2024	



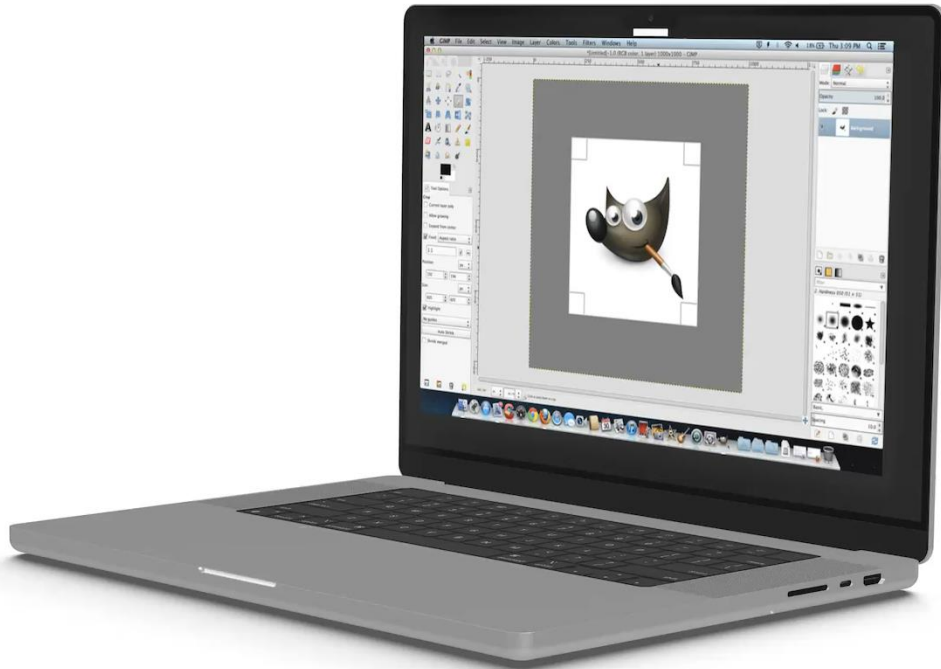
## Contesto e Motivazioni



# Requisiti



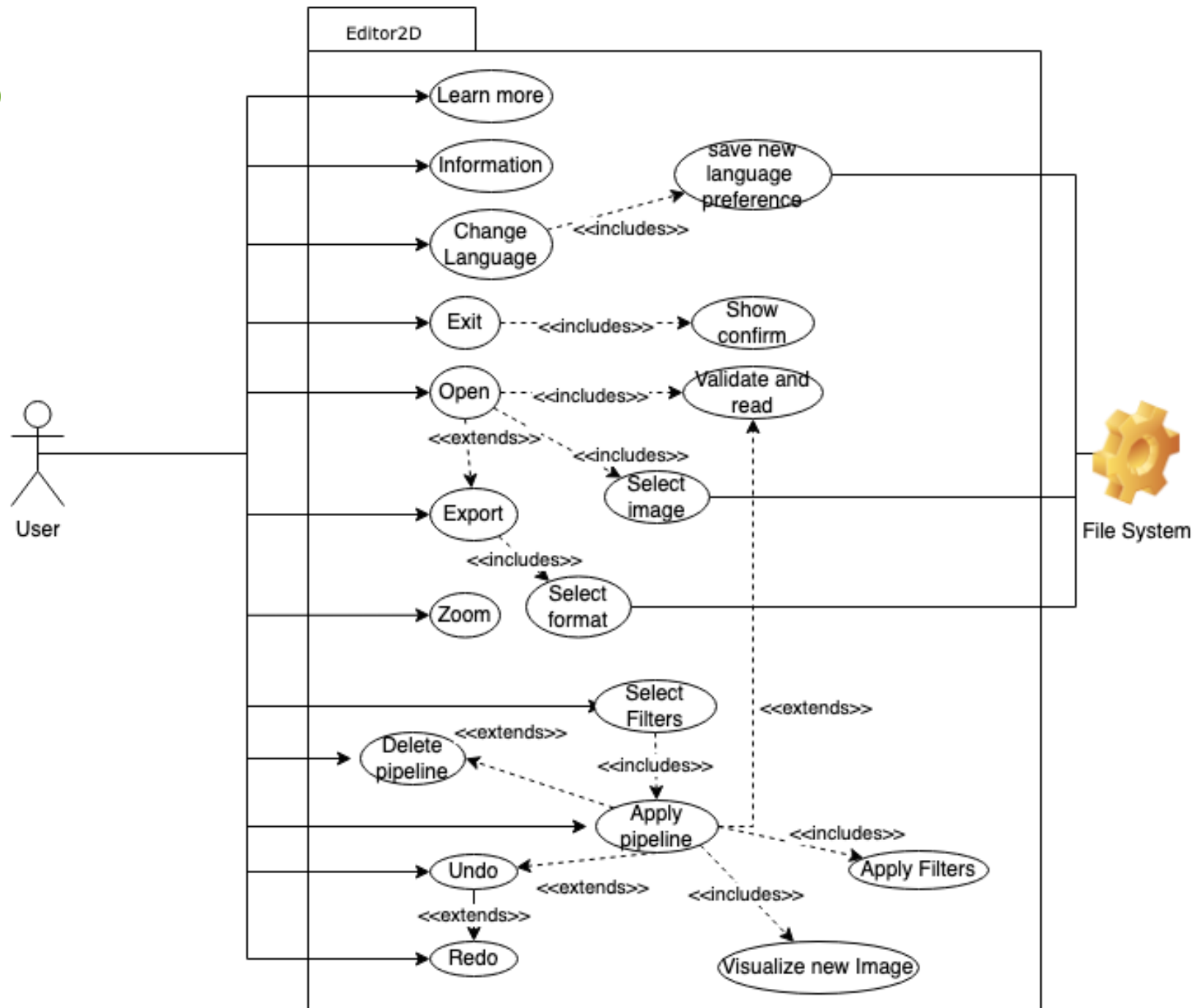
# Stato dell'arte

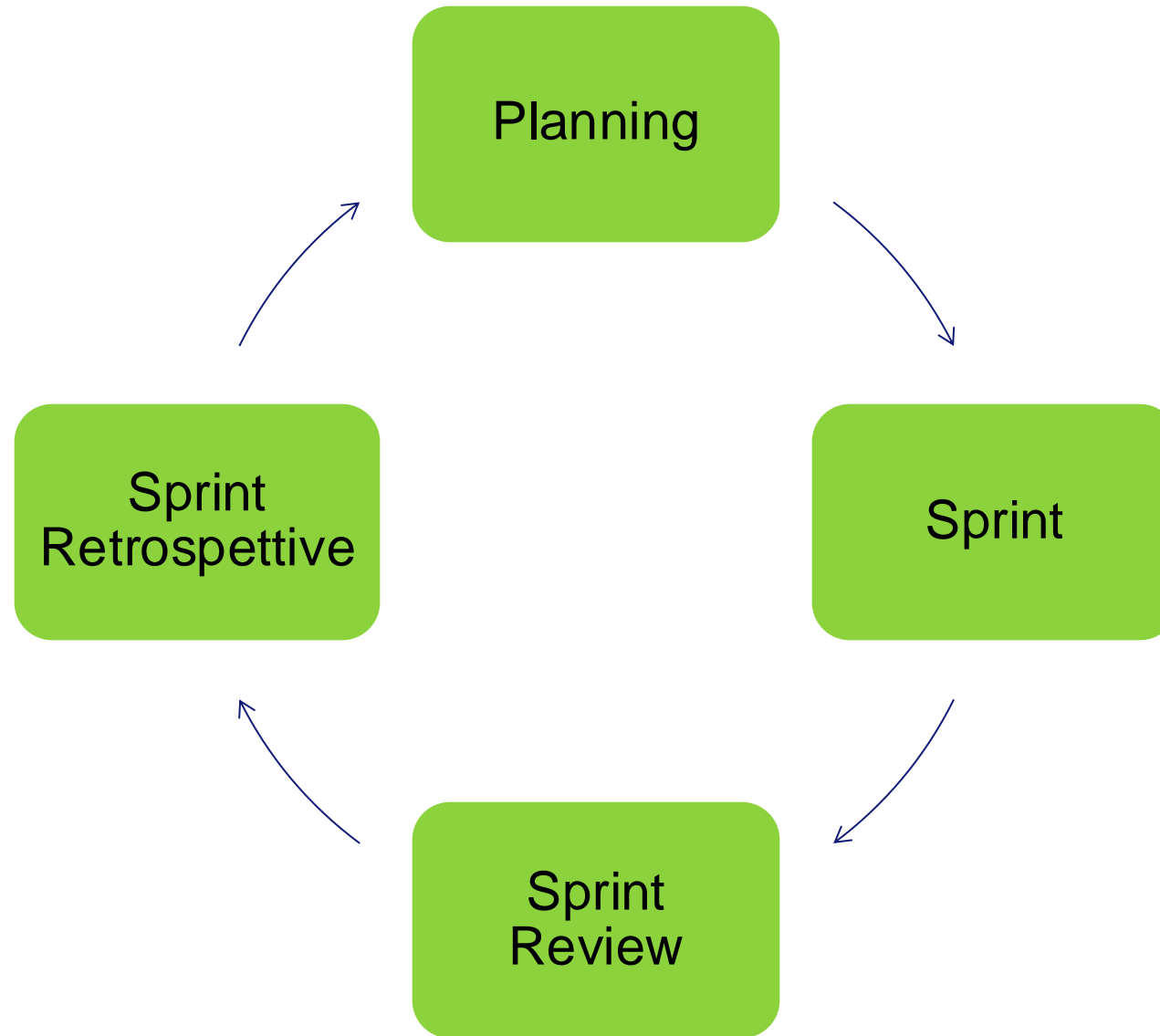


- XnView
- ImageMagick (solo CMD)
- ...

## Approccio

Use Case Diagram





# Approccio

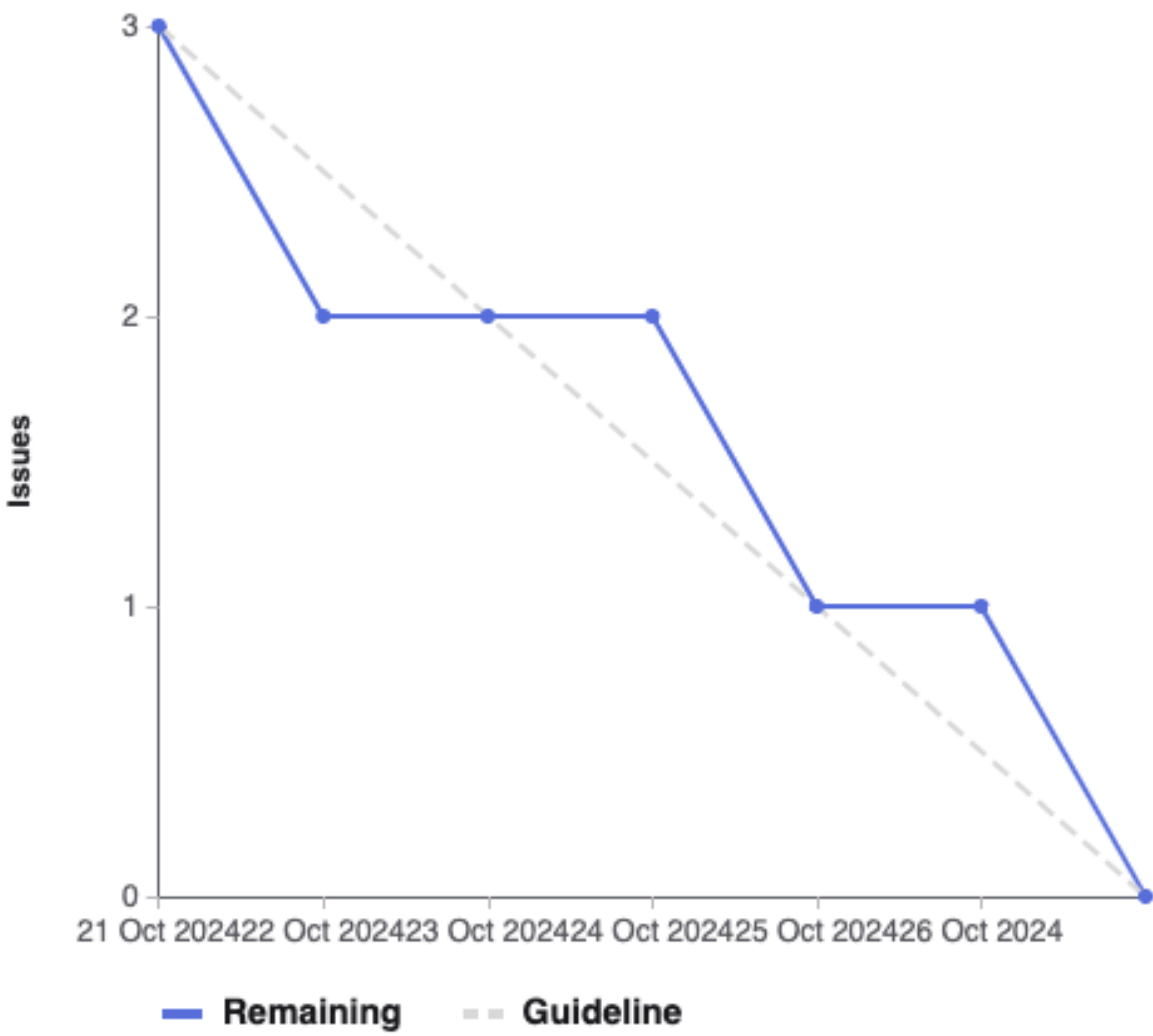
Sprint

- Sprint di una settimana
- Average Team Velocity: 76 Punti

ITERATION-01	DTI-ISIN / labingsw / labingsw02 / 20242025 / group08	Oct 7, 2024–Oct 13, 2024	Closed	7/7 complete	<div></div>	100%	
ITERATION-02	DTI-ISIN / labingsw / labingsw02 / 20242025 / group08	Oct 14, 2024–Oct 20, 2024	Closed	9/9 complete	<div></div>	100%	
ITERATION-03	DTI-ISIN / labingsw / labingsw02 / 20242025 / group08	Oct 21, 2024–Oct 27, 2024	Closed	6/6 complete	<div></div>	100%	
ITERATION-04	DTI-ISIN / labingsw / labingsw02 / 20242025 / group08	Oct 28, 2024–Nov 3, 2024	Closed	2/2 complete	<div></div>	100%	
ITERATION-05	DTI-ISIN / labingsw / labingsw02 / 20242025 / group08	Nov 4, 2024–Nov 10, 2024	Closed	2/2 complete	<div></div>	100%	
ITERATION-06	DTI-ISIN / labingsw / labingsw02 / 20242025 / group08	Nov 11, 2024–Nov 17, 2024	Closed	0/0 complete	<div></div>	0%	
ITERATION-07	DTI-ISIN / labingsw / labingsw02 / 20242025 / group08	Nov 18, 2024–Nov 24, 2024	Closed	6/6 complete	<div></div>	100%	
ITERATION-08	DTI-ISIN / labingsw / labingsw02 / 20242025 / group08	Nov 25, 2024–Dec 1, 2024	Closed	3/3 complete	<div></div>	100%	
ITERATION-09	DTI-ISIN / labingsw / labingsw02 / 20242025 / group08	Dec 2, 2024–Dec 8, 2024	Closed	2/2 complete	<div></div>	100%	



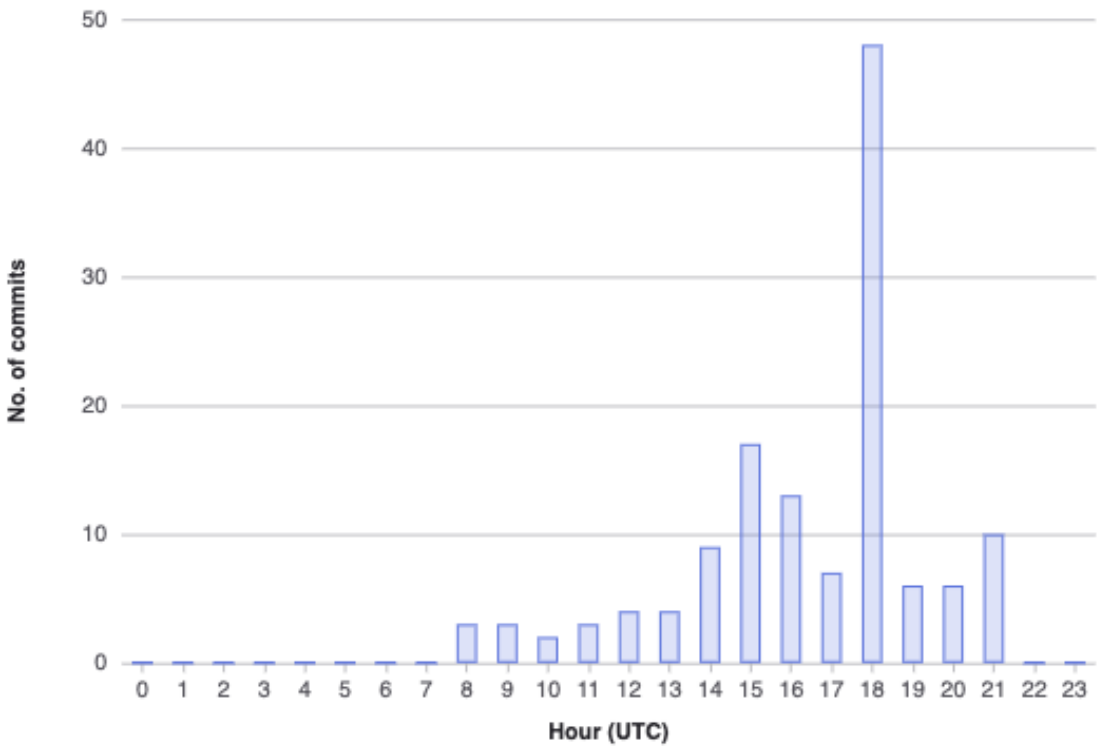
Burndown chart



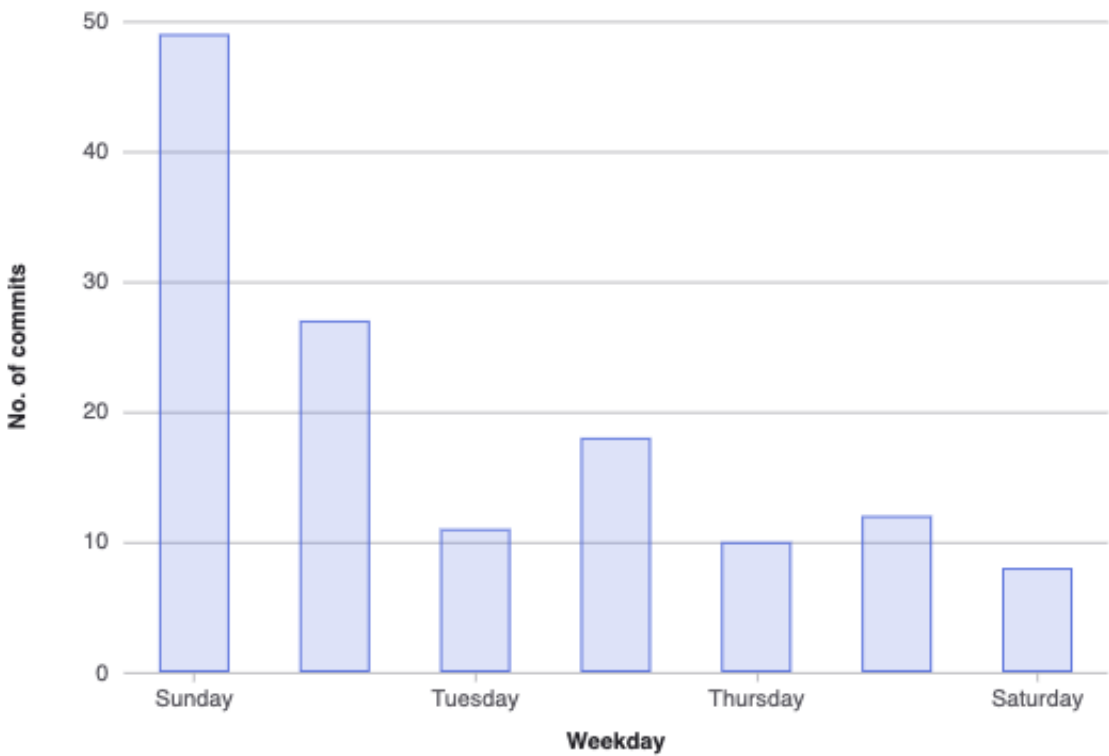
# Approccio

Sprint

Commits per day hour (UTC)



Commits per weekday



Features

Read PNM image

Closed Issue created 2 months ago by Spagnuolo Alessandro

AS A: user  
I WANT TO: read a PNM image  
SO THAT: I can view it

Edited 2 months ago by Panzarella Dominik

0 0

Drag your designs here or [click to upload](#).

Child items 0

Add

No child items are currently assigned. Use child items to break down this issue into smaller parts.

Linked items 3

Add

Is blocked by

Read PPM image #7

20

Read PGM image #6

ITERATION-01 20 Oct 13

Read PBM image #5

ITERATION-01 20 Oct 13

Activity

Sort or filter

- Spagnuolo Alessandro changed milestone to %2D IMAGE EDITOR PRODUCT BACKLOG 2 months ago
- Spagnuolo Alessandro added USER STORY label 2 months ago
- Spagnuolo Alessandro marked this issue as blocked by #7 (closed) 2 months ago
- Spagnuolo Alessandro marked this issue as blocked by #6 (closed) 2 months ago
- Spagnuolo Alessandro marked this issue as blocked by #5 (closed) 2 months ago
- Spagnuolo Alessandro set weight to 60 2 months ago
- Panzarella Dominik changed the description 2 months ago [Compare with previous version](#)
- Spagnuolo Alessandro changed title from Display PNM image to Read PNM image 2 months ago
- Spagnuolo Alessandro changed due date to October 13, 2024 2 months ago
- Spagnuolo Alessandro changed milestone to %ITERATION-01 2 months ago
- Panzarella Dominik closed 1 month ago

Edit

Mark as done

3 Assignees

Edit

- Panzarella Dominik
- Spagnuolo Alessandro
- Mancino Mattia

Epic

None

Edit

Labels

Edit

USER STORY

Milestone

None

Edit

Iteration

None

Edit

Weight

60 - remove weight

Edit

Due date

Oct 13, 2024 - remove due date

Edit

Time tracking

No estimate or time spent

+

Health status

None

Confidentiality

Edit

Not confidential

2 Participants

- 
- 

Move issue

Read PPM image

Closed Issue created 2 months ago by Spagnuolo Alessandro

0

0

Drag your designs here or [click to upload](#).

Child items 0

Add

No child items are currently assigned. Use child items to break down this issue into smaller parts.

Linked items 1

Add

Blocks

Closed Read PNM image #4

60 Oct 13

Related merge requests 1

Resolve "Read PPM image" !8

2D IMAGE EDIT...

Activity

Sort or filter

- Spagnuolo Alessandro changed milestone to %2D IMAGE EDITOR PRODUCT BACKLOG 2 months ago
- Spagnuolo Alessandro added FEATURE label 2 months ago
- Spagnuolo Alessandro marked this issue as blocking #4 (closed) 2 months ago
- Spagnuolo Alessandro set weight to 20 2 months ago
- Mancino Mattia created branch 7-read-ppm-image to address this issue 2 months ago
- Panzarella Dominik mentioned in merge request !8 (merged) 2 months ago
- Closed Panzarella Dominik closed 1 month ago
- Spagnuolo Alessandro removed milestone %2D IMAGE EDITOR PRODUCT BACKLOG 2 weeks ago

Edit



Add a to-do item



3 Assignees

Edit

- Spagnuolo Alessandro
- Mancino Mattia
- Panzarella Dominik

Epic

None

Edit

Labels

Edit

FEATURE

Milestone

None

Edit

Iteration

None

Edit

Weight

20 - remove weight

Edit

Due date

None

Edit

Time tracking

No estimate or time spent



Health status

None

Confidentiality

Not confidential

Edit

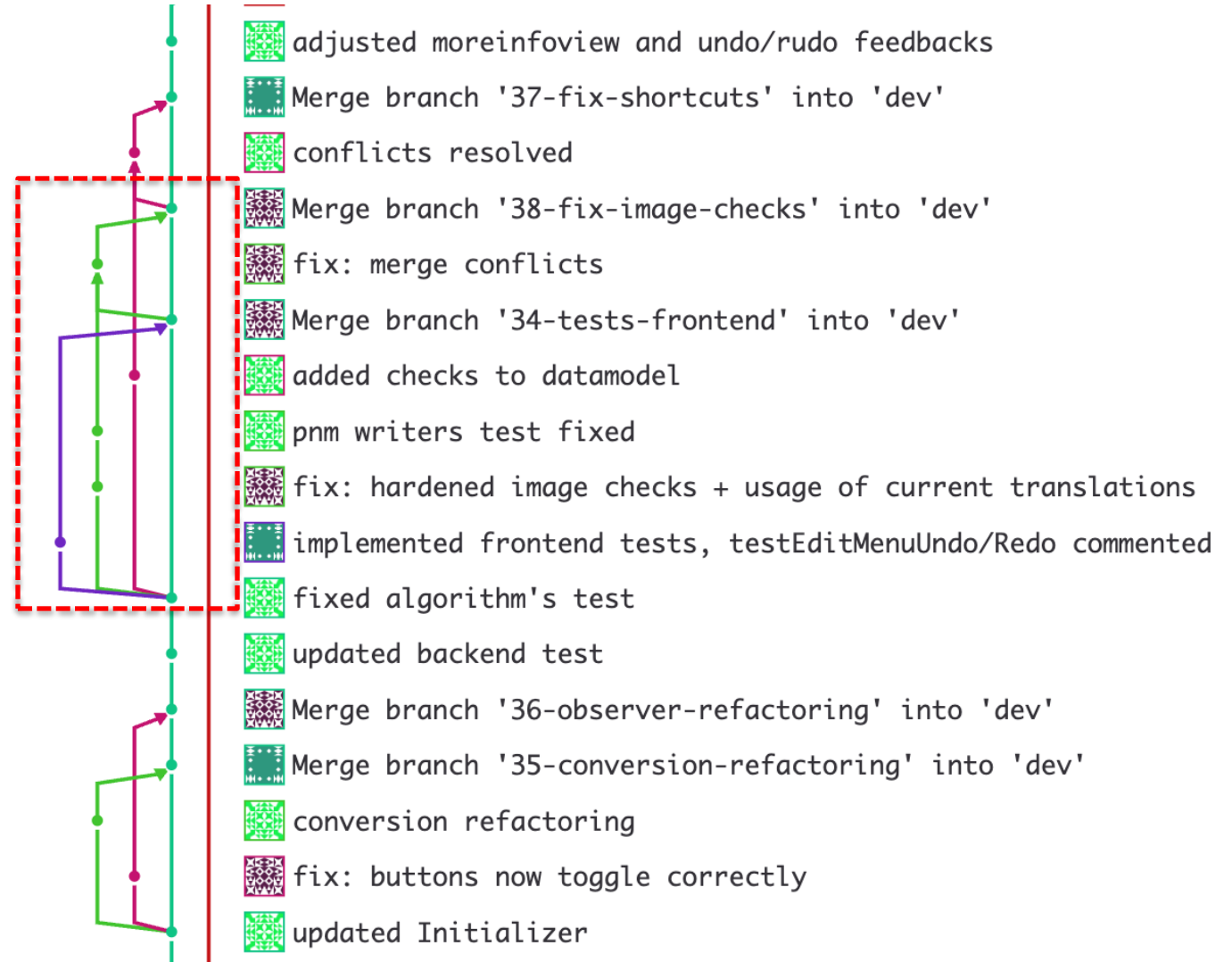
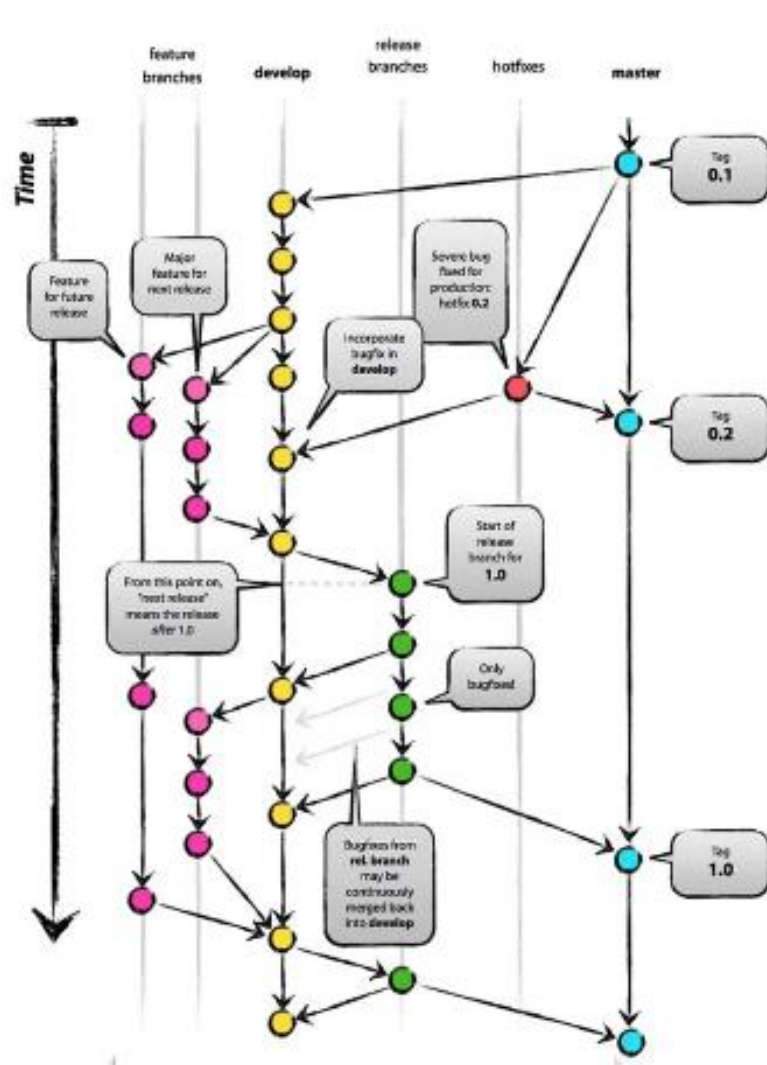
3 Participants

- 
- 
- 

Move issue

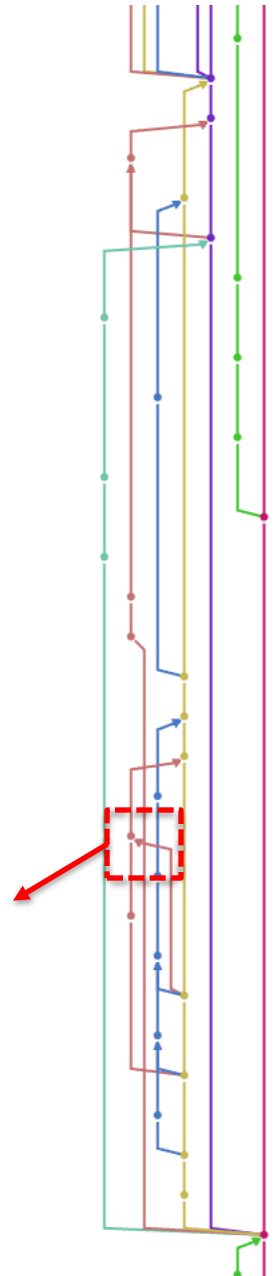
# Approccio

Repository Graph



# Approccio

Repository Graph



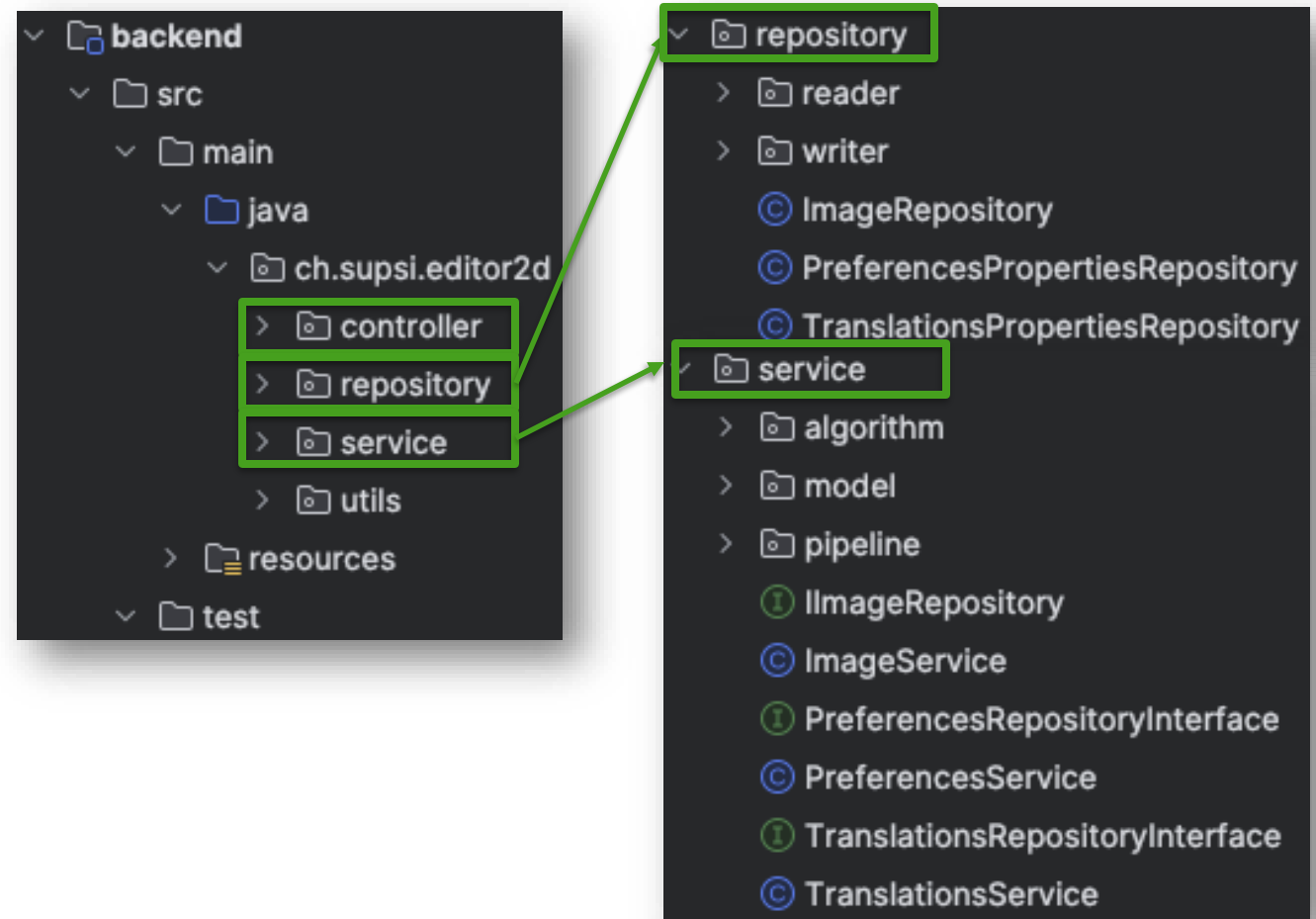
Conflict solved

- added converter structure
- Merge branch 'algos' into 'dev'
- Merge branch '16-change-the-application-language' into 'dev'
- fix: merge
- Merge branch '15-negative-image' into 'algos'
- Merge branch '19-app-about' into 'dev'
- test: started testing pnm + pgm
- aboutview refactoring
- feature: added logic for writing the header and pixels
- Negative filter and test implementation
- feature: instanceof for the pgm image
- first version of AboutView with controller
- feature: structure of chain of responsibility of the writers for the export
- added about view (missing developers section in pom)
- bug-fix: language change was not needing the restart of the application, now works correctly
- feature: created command for changing language and associated the relative instance to the change language
- filter's name added
- Merge branch '13-flip-image' into 'algos'
- Merge branch '14-rotate-image-by-90-degrees' into 'algos'
- feature: added app icon
- rotate algorithms implementation and test
- feature: flip algos implemented and tested + tested deep copy of data of the image
- Salvataggio modifiche a ImageWrapper prima del merge
- Merge branch 'algos' of <https://gitlab-edu.supsi.ch/dti-isin/labingsw/labingsw02/20242025/group08/os> into
- fix: added clone method that uses copy constructor and setters for ImageWrapper fields
- feature: copy-constructor for the image wrappers
- feature: copy-constructor for the image wrappers
- feature: side and updown implemented and tested
- filters hierarchy
- filters(algorithms) structure
- Merge branch '27-refactor-backend-frontend' into 'dev'
- refactor observer pattern interfaces

# Approccio

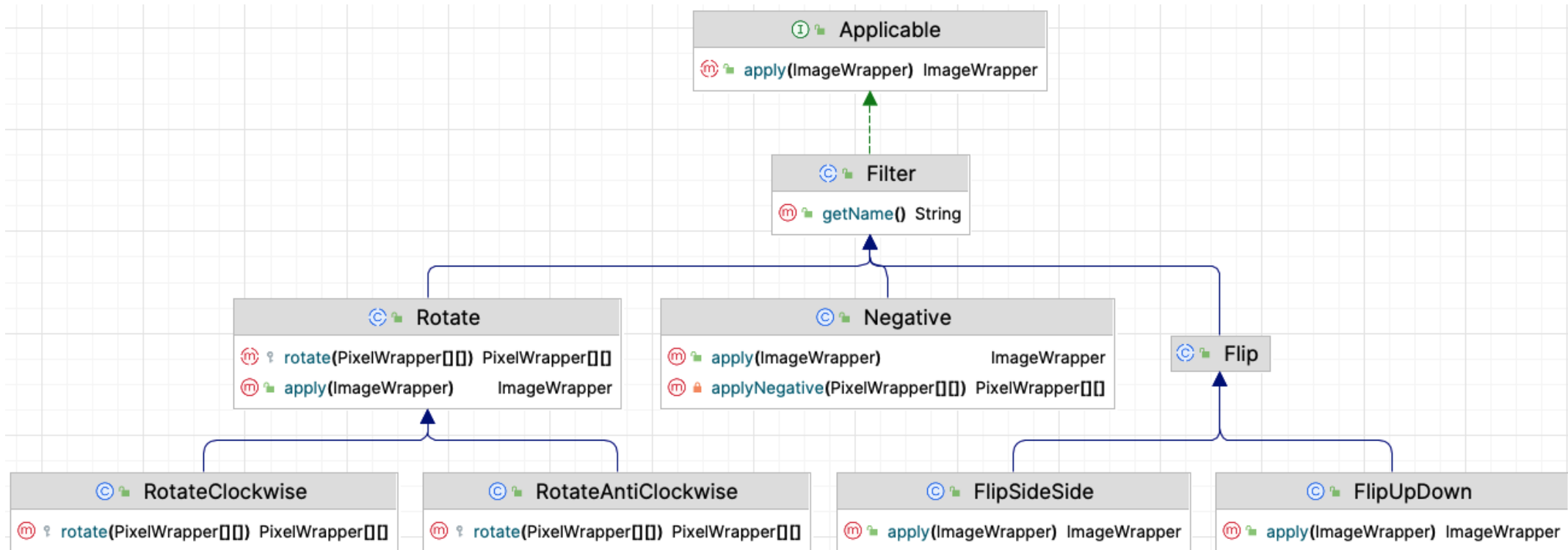
Backend - Struttura

- **Backend** -> Multi-Layer
  - Import/Export immagini
  - Internazionalizzazione
  - Pipeline di esecuzione dei filtri
- **Dipendenze**
  - JUnit



# UML – Class diagram

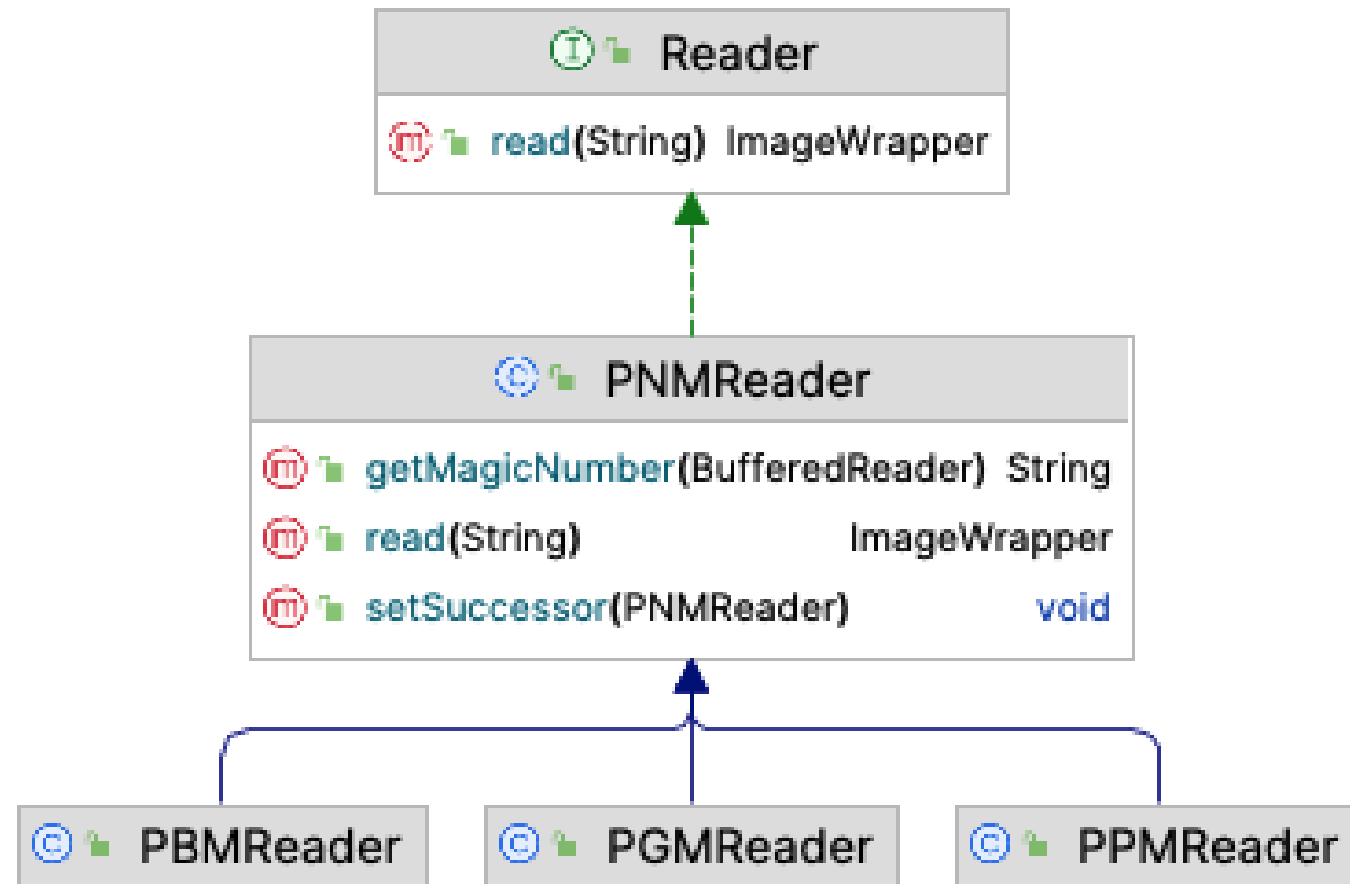
Filtri – Strategy Pattern





# UML – Class diagram

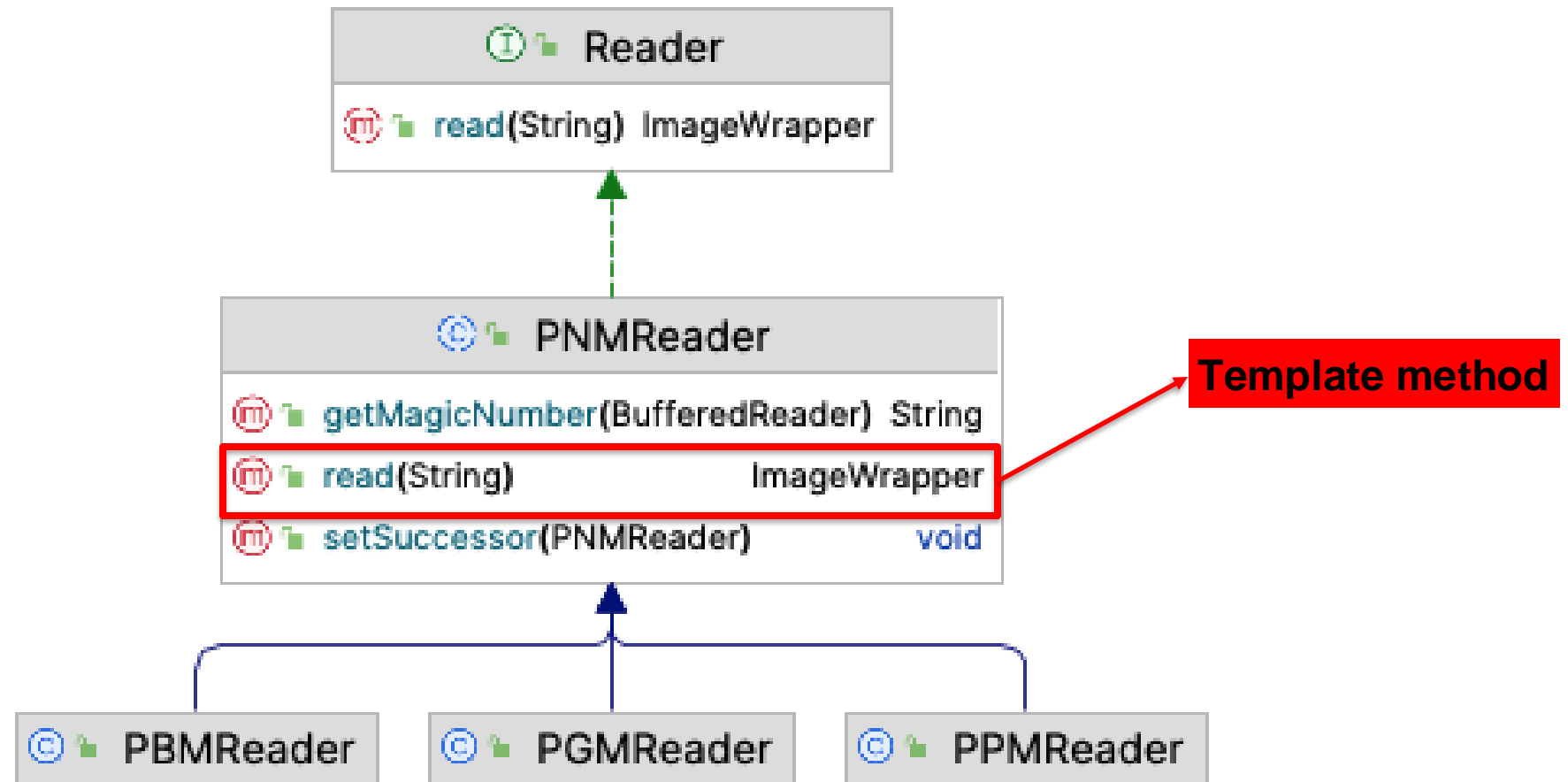
Reader\* – Strategy + Chain of Responsibility + Template Method



\* UML in questo caso non presenta tutti i metodo all'interno delle classi

# UML – Class diagram

Reader\* – Strategy + Chain of Responsibility + Template Method



\* UML in questo caso non presenta tutti i metodo all'interno delle classi

# Approccio

Reader\* – Strategy + Chain of Responsibility + Template Method

```
public ImageWrapper read(final String path) throws FileReadingException, IOException {  
    try(BufferedReader reader = new BufferedReader(new FileReader(path))) {  
        final String magicNumber = getMagicNumber(reader);  
        if(canHandle(magicNumber)) {  
            return helperReader(reader, magicNumber);  
        }  
        else if(successor != null) {  
            return successor.read(path);  
        } else {  
            throw new FileReadingException(translationsController.translate(key: "label.cantHandle"));  
        }  
    }  
}
```

Template method

# Approccio

Reader\* – Strategy + Chain of Responsibility + Template Method

```
public ImageWrapper read(final String path) throws FileReadingException, IOException {  
    try(BufferedReader reader = new BufferedReader(new FileReader(path))) {  
        final String magicNumber = getMagicNumber(reader);  
        if(canHandle(magicNumber)) {  
            return helperReader(reader, magicNumber);  
        }  
        else if(successor != null) {  
            return successor.read(path);  
        } else {  
            throw new FileReadingException(translationsController.translate(key: "label.cantHandle"));  
        }  
    }  
}
```

Template method

La richiesta viene propagata lungo la catena

# Approccio

Reader\* – Strategy + Chain of Responsibility + Template Method

```
public ImageWrapper read(final String path) throws FileReadingException, IOException {  
    try(BufferedReader reader = new BufferedReader(new FileReader(path))) {  
        final String magicNumber = getMagicNumber(reader);  
        if(canHandle(magicNumber)) {  
            return helperReader(reader, magicNumber);  
        }  
        else if(successor != null) {  
            return successor.read(path);  
        } else {  
            throw new FileReadingException(translationsController.translate(key: "label.cantHandle"));  
        }  
    }  
}
```

Template method

`protected abstract boolean canHandle(final String magicNumber);`

# Approccio

Reader\* – Strategy + Chain of Responsibility + Template Method

```
public ImageWrapper read(final String path) throws FileNotFoundException, IOException {  
    try(BufferedReader reader = new BufferedReader(new FileReader(path))){  
        final String magicNumber = getMagicNumber(reader);  
        if(canHandle(magicNumber)){  
            return helperReader(reader, magicNumber);  
        }  
        else if(successor != null){  
            return successor.read(path);  
        }else{  
            throw new FileNotFoundException(translationsController.translate( key: "label.cantHandle"));  
        }  
    }  
}
```

Template method

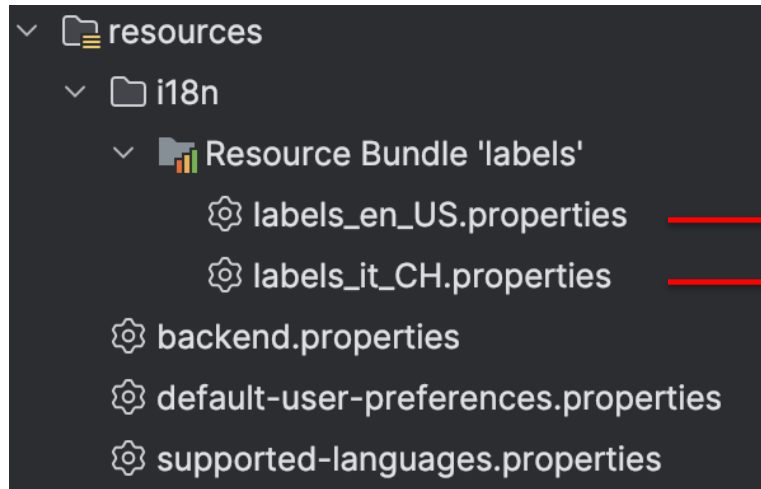
```
private ImageWrapper helperReader(BufferedReader reader, final String magicNumber) throws IOException {  
    String[] header = getHeader(reader);  
    PixelWrapper[][] pixels = getPixels(reader, header);  
    return createImageWrapper(header, pixels);  
}
```

```
protected abstract ImageWrapper createImageWrapper(final String[] header, PixelWrapper[][] pixels);
```

\* UML in questo caso non presenta tutti i metodo all'interno delle classi

# Internationalization

## Labels



```
String currentLanguage = preferencesModel.getCurrentLanguage();
this.translationsModel.changeLanguage(currentLanguage);
```

TranslationController

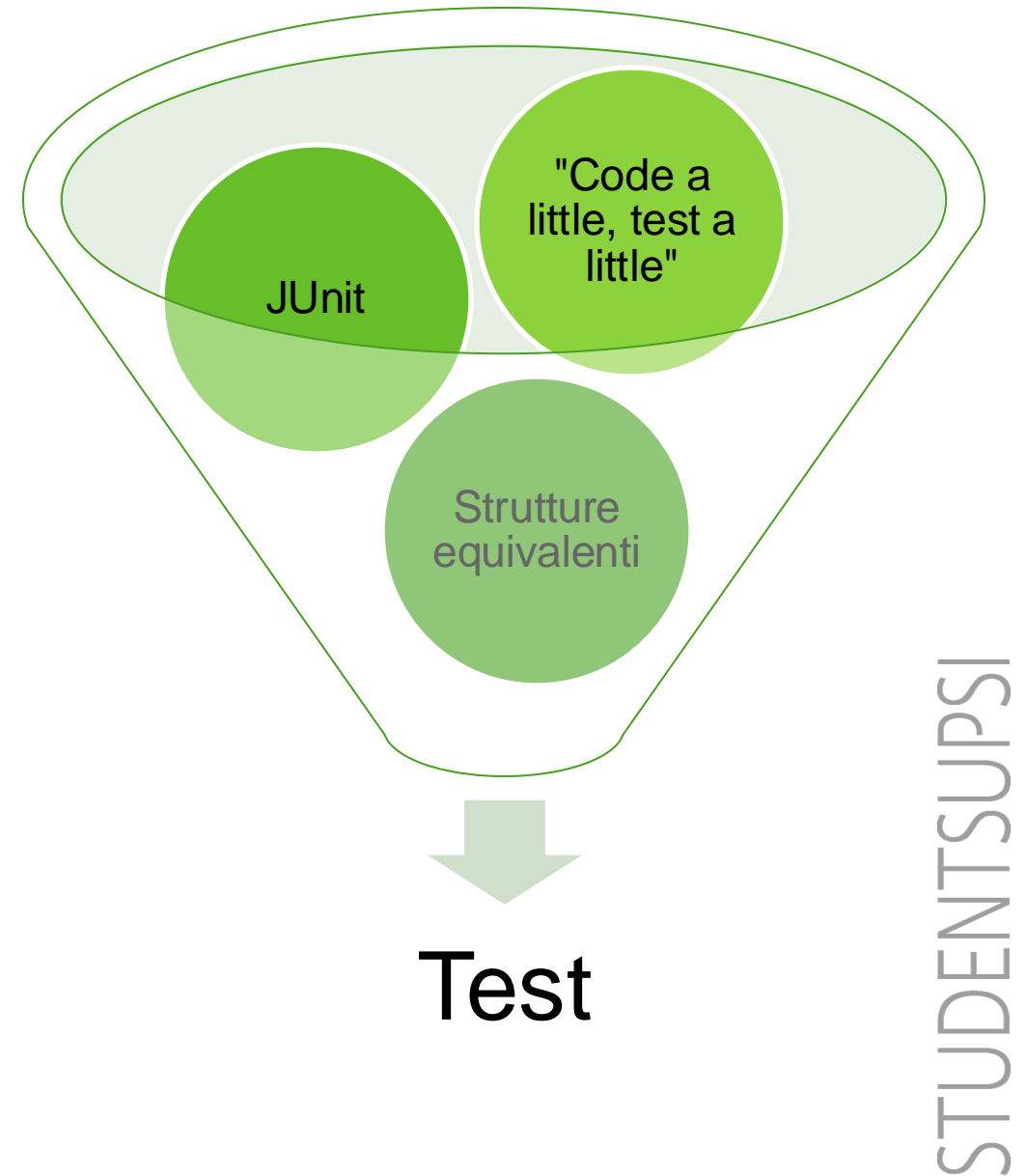
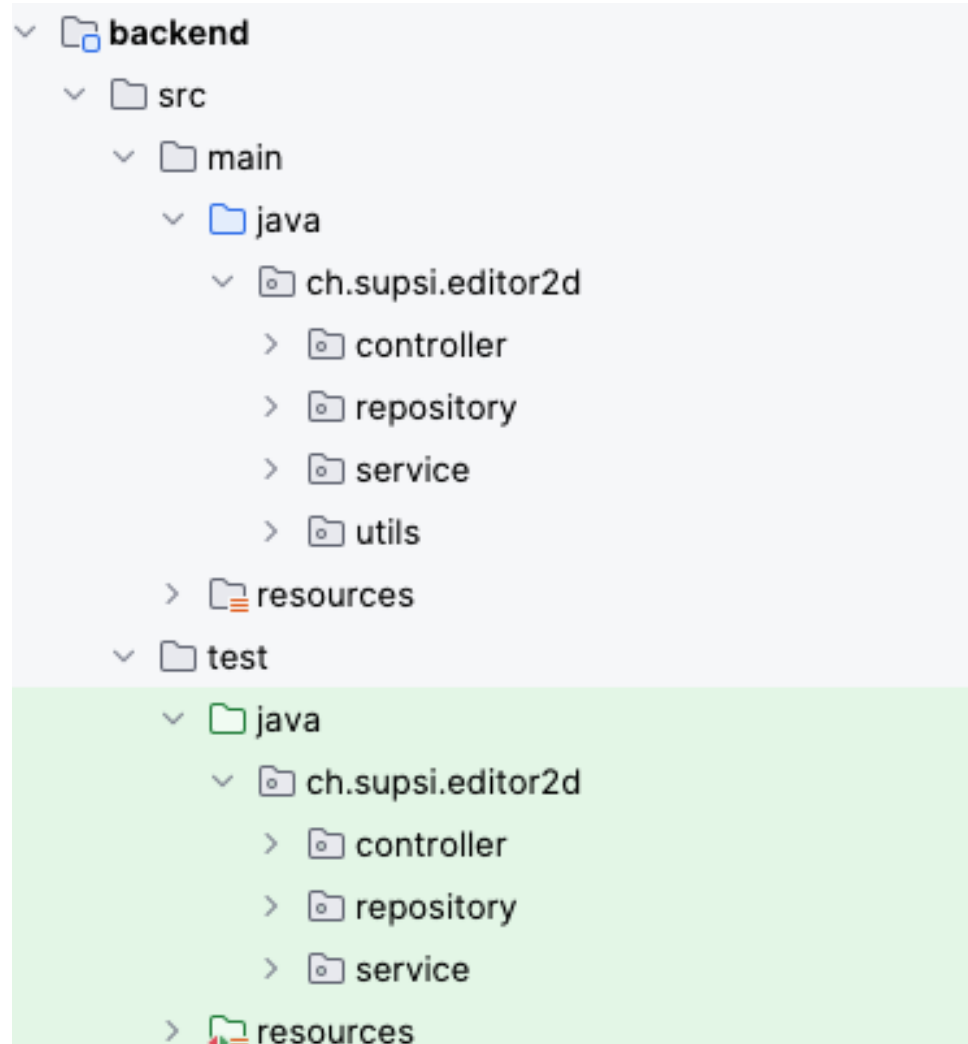
label.pipelineCleared=The pipeline has been emptied

label.pipelineCleared=La pipeline è stata svuotata

```
notifyFeedbackObservers(translationsController.translate(key: "label.pipelineCleared"));
return text.getText().contains(translationsController.translate(key: "label.pipelineCleared"));
```

# Test

Backend





## Test

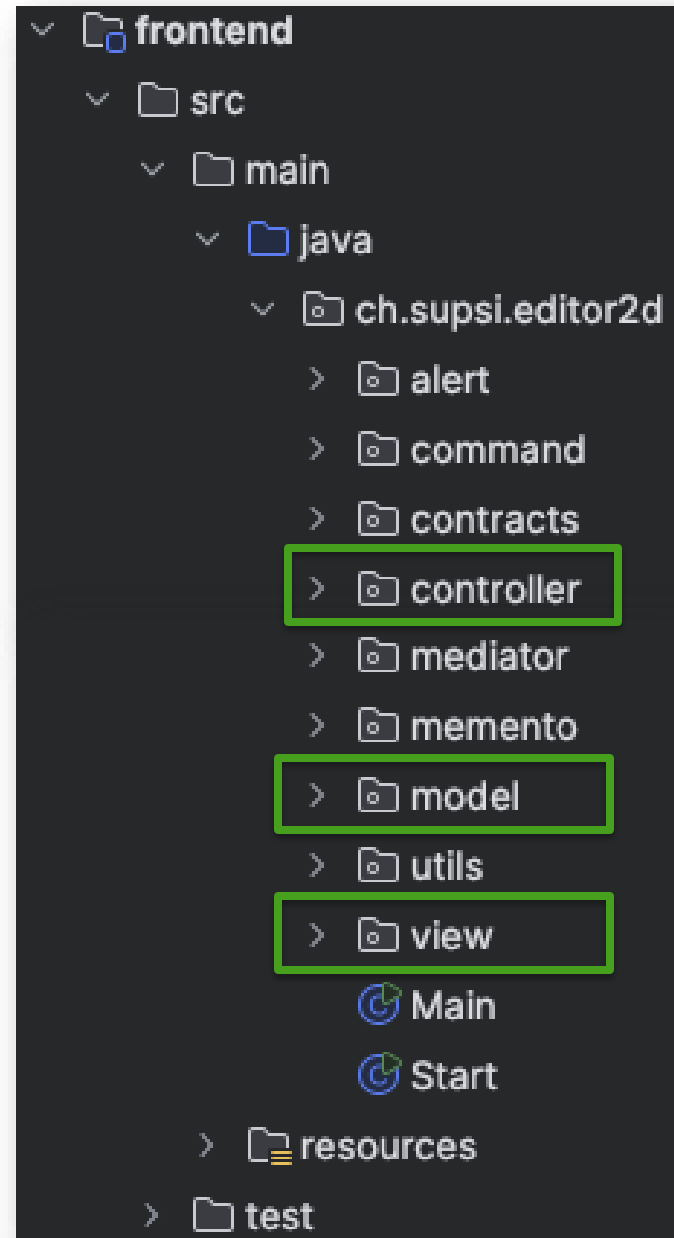
Backend



# Approccio

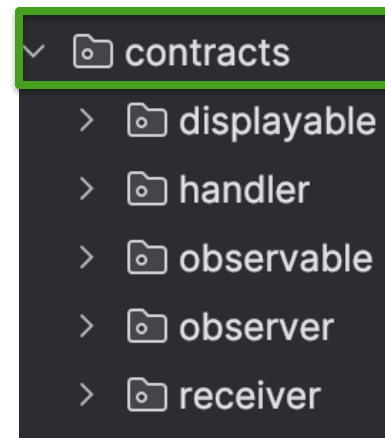
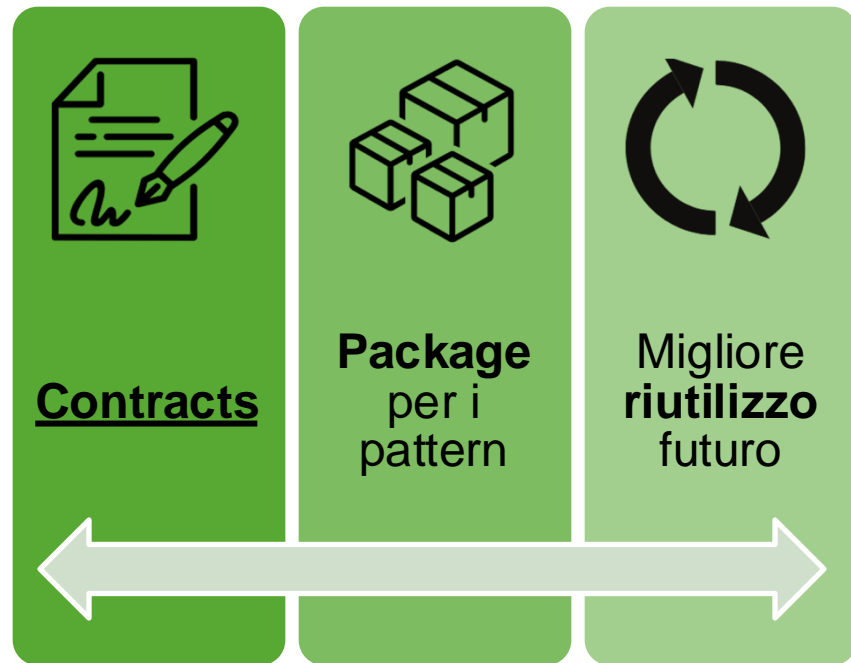
Frontend - Struttura

- **Frontend** -> MVC
  - Interfaccia grafica
  - Apertura/Salvataggio immagine
  - Editing immagine
  - Help & About
- **Dipendenze**
  - Backend
  - JavaFX
  - Junit
  - TestFX
  - Mockito



# Approccio

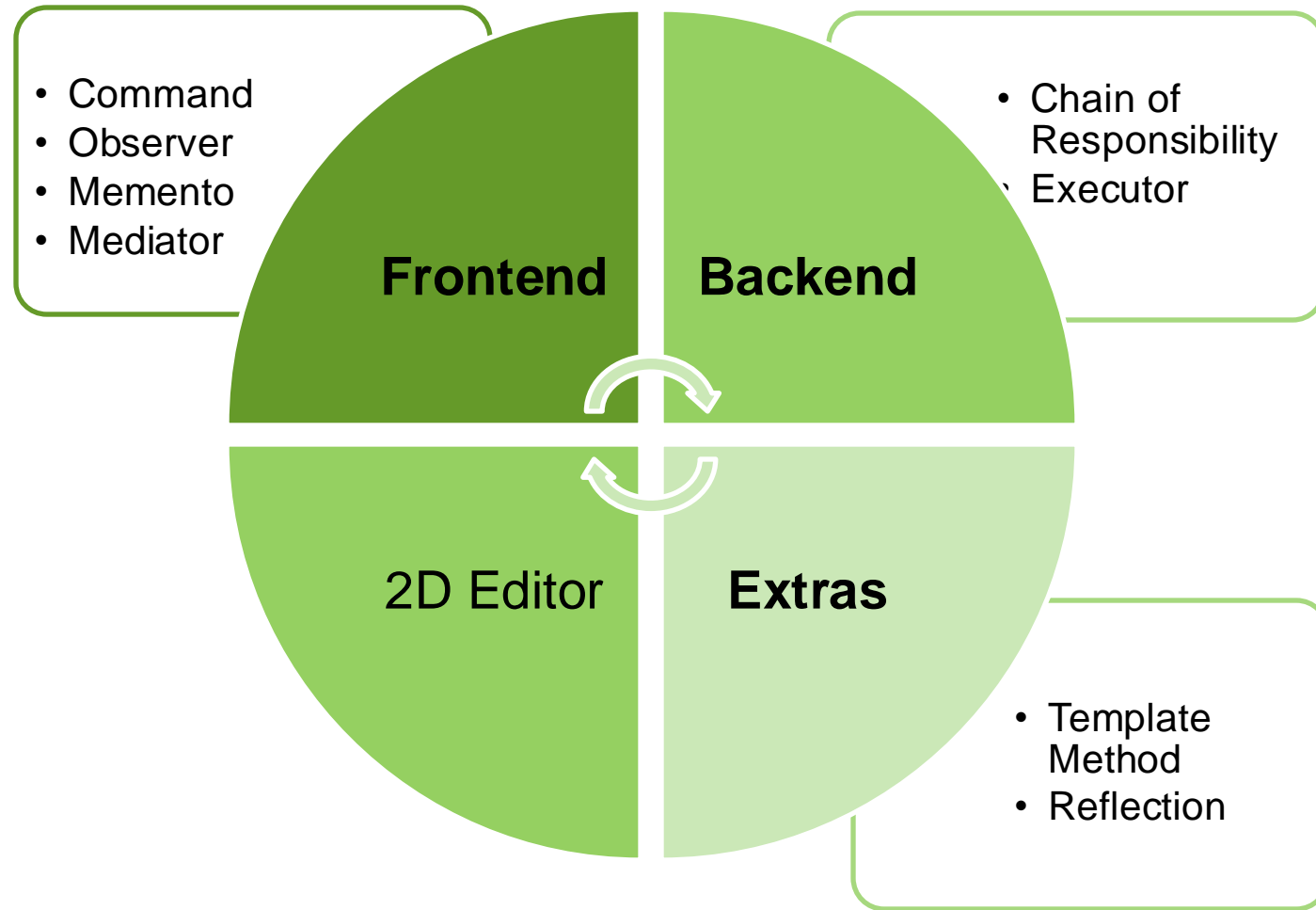
Coesione + Coupling ridotto



70+ interfacce

# Approccio

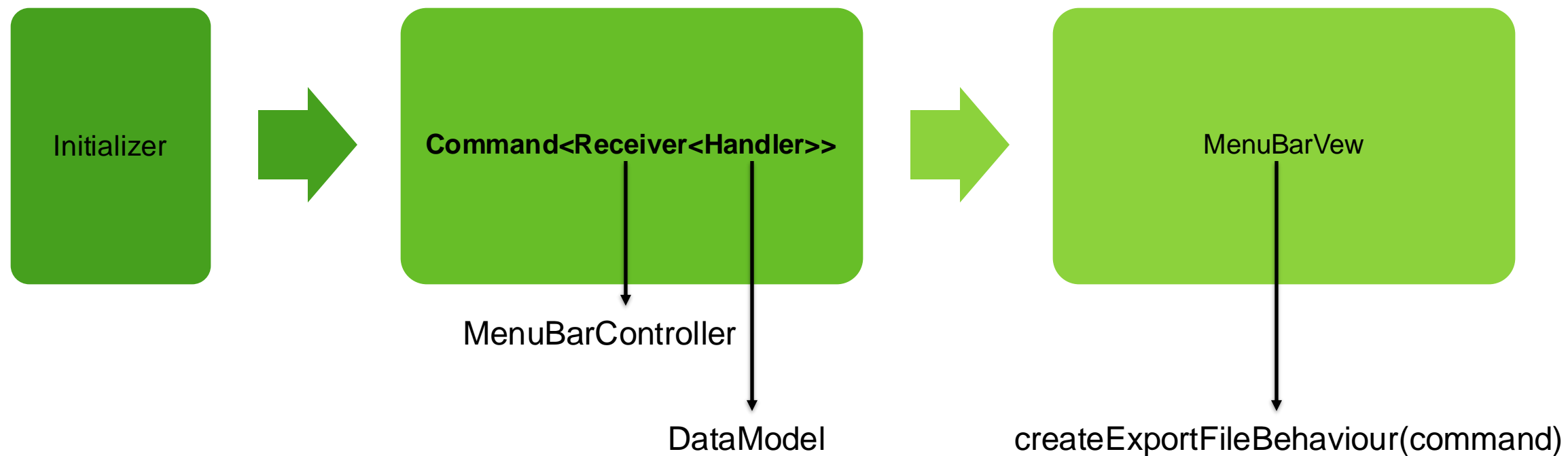
Design Patterns



# Approccio

Export Immagine

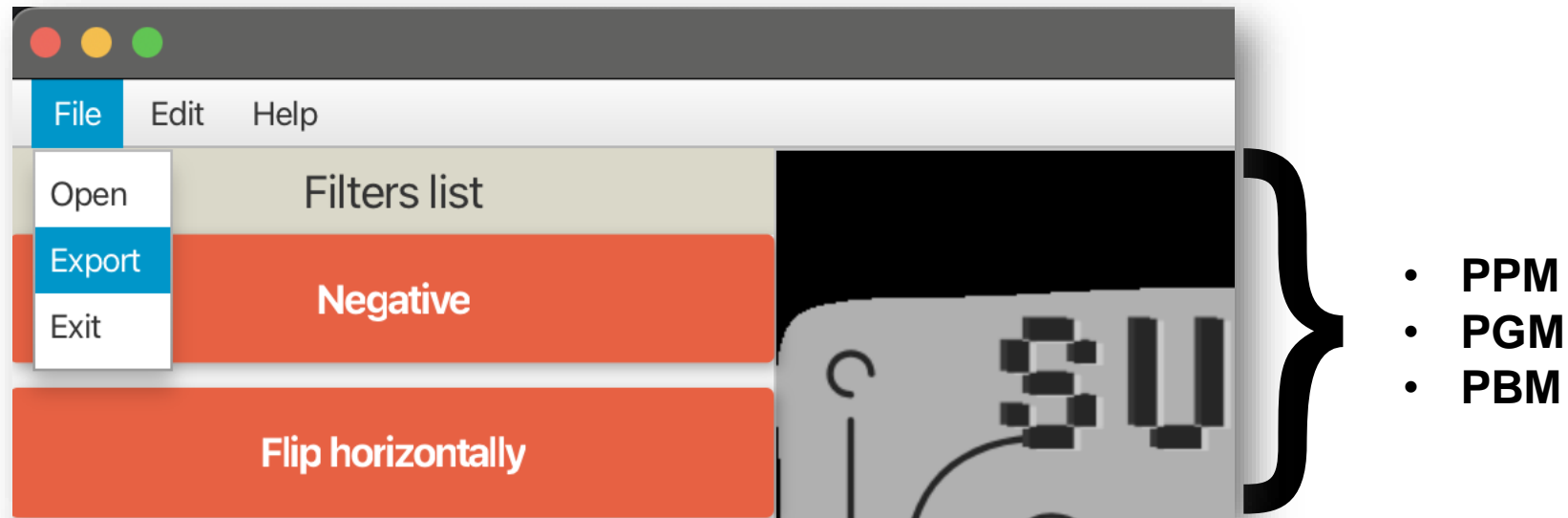
- Come viene associata l'azione dell'export dell'immagine?



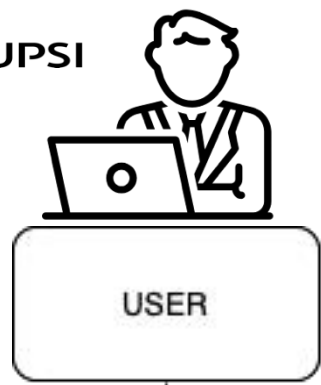
# Approccio

Export Immagine

- Come avviene l'export?



- Esempio **Parte 1: UML sequence diagram** per l'export in **PGM**



USER

## Frontend

MenuBarController

DataModel

## Backend

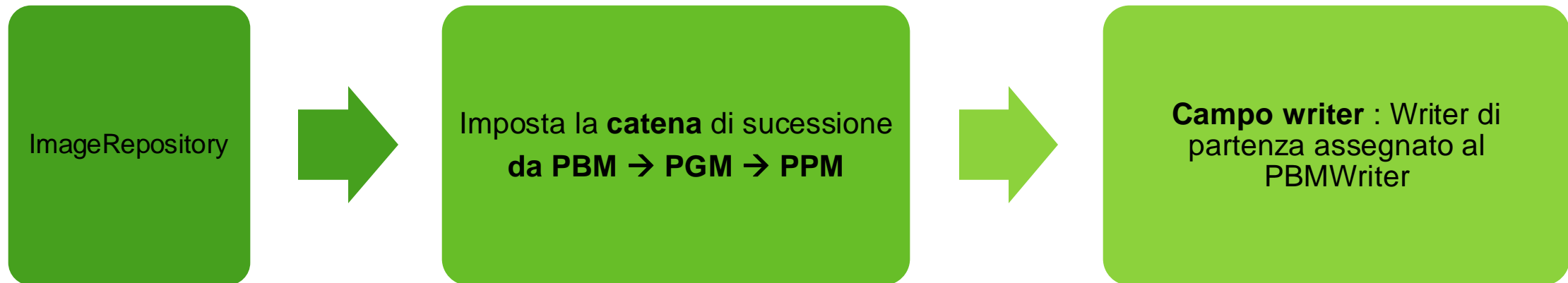
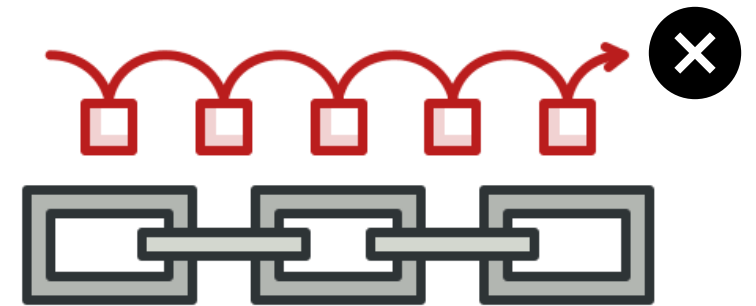
ImageController



# Approccio

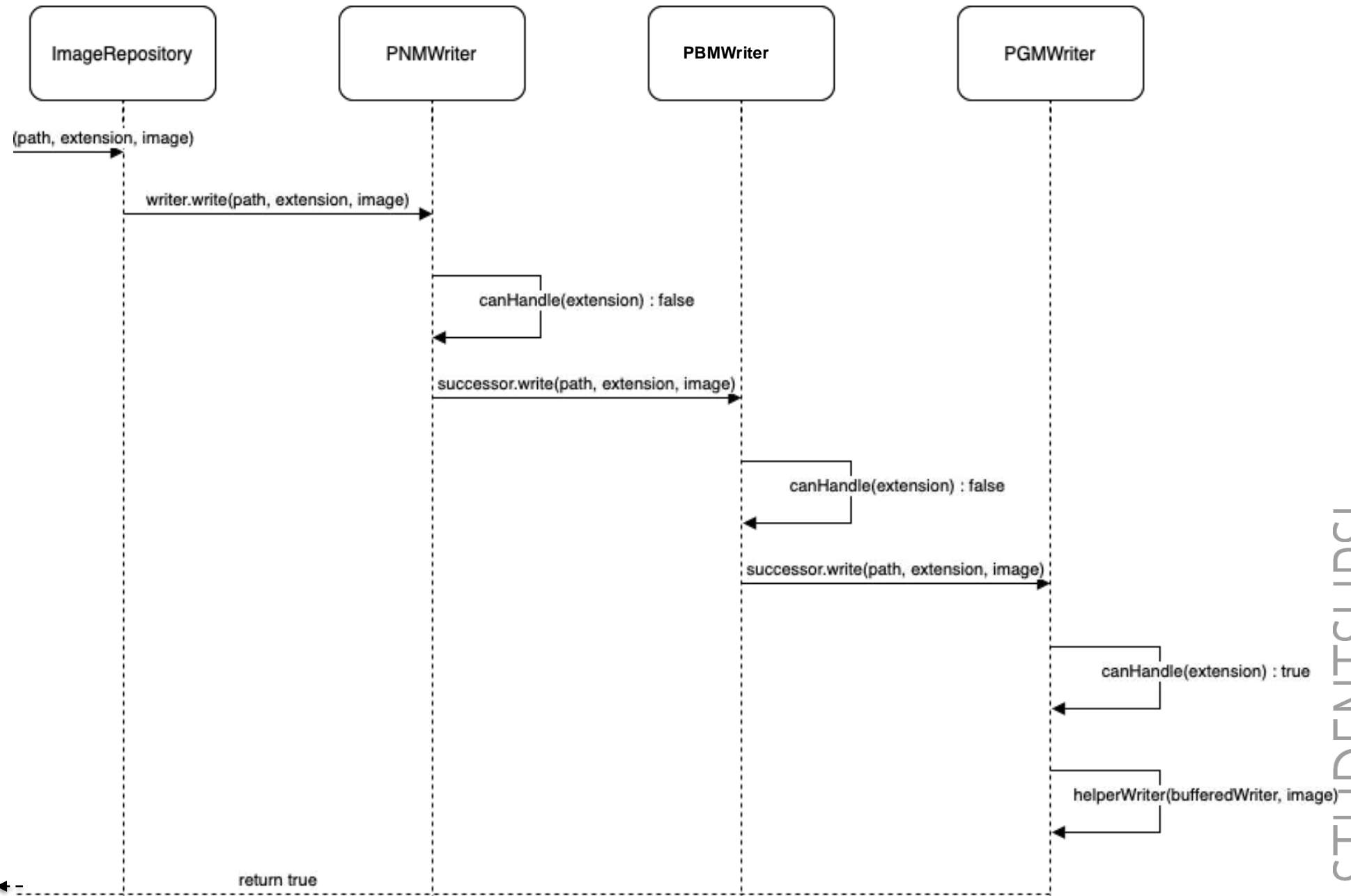
Export Immagine

- Come viene associata la **chain of responsibility** dei writer?



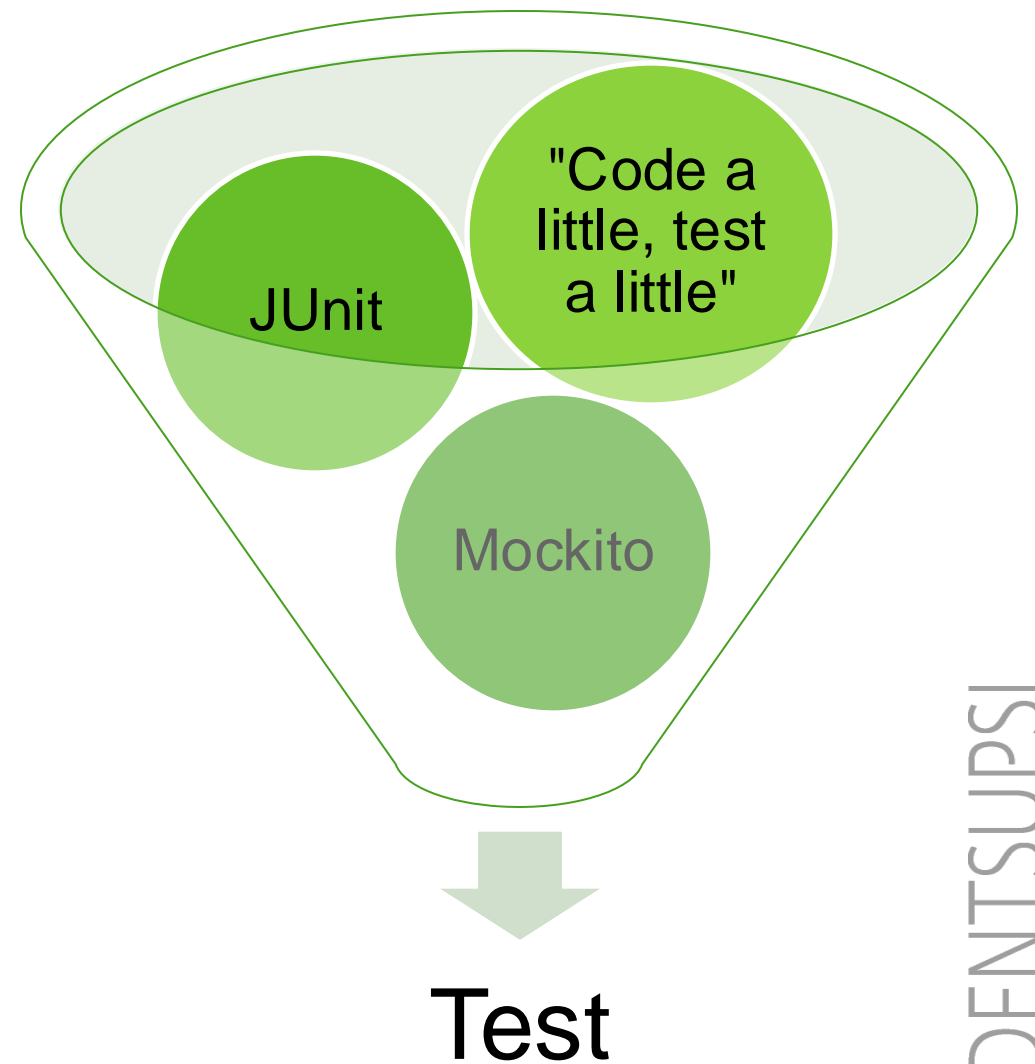
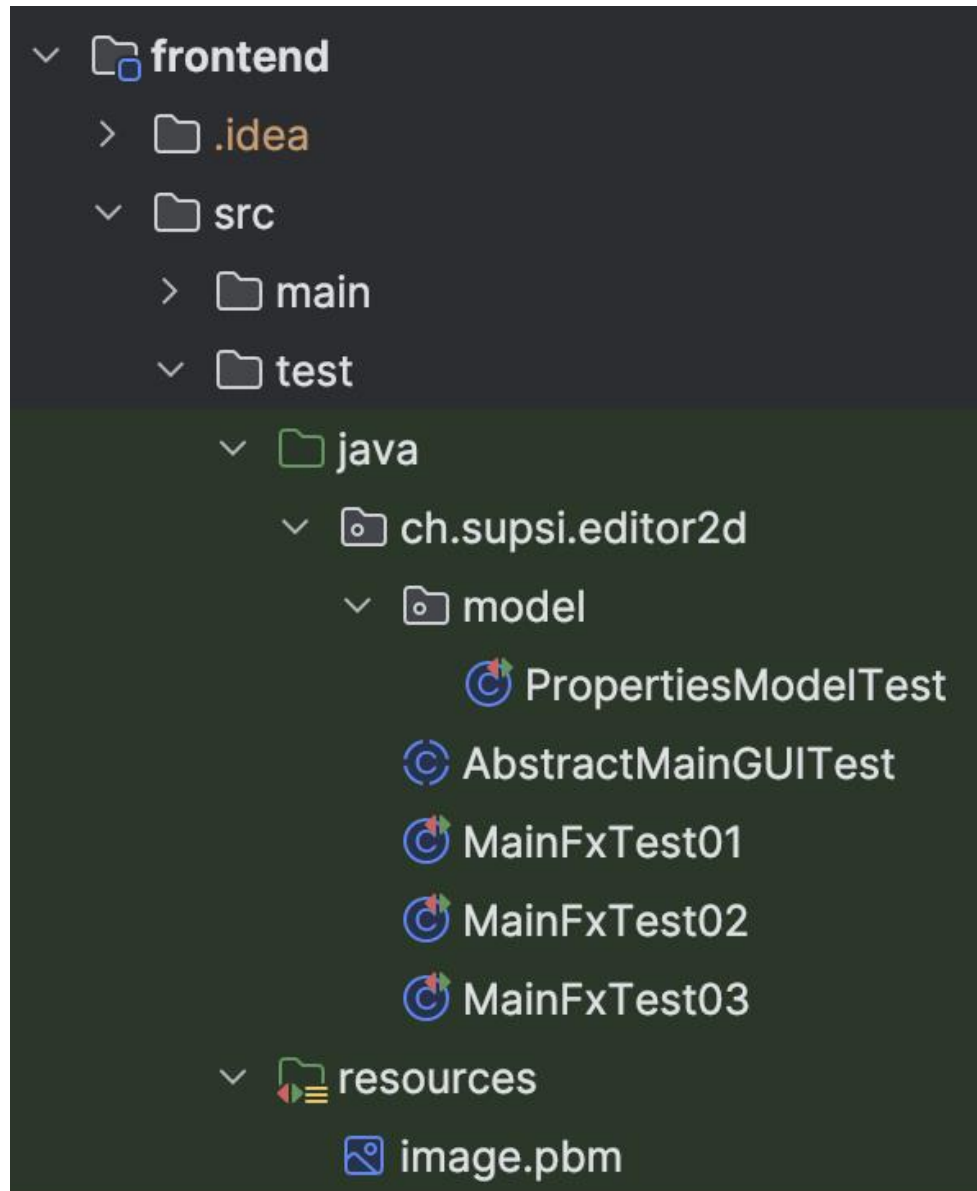
- Esempio **Parte 2: UML sequence diagram** per l'export in **PGM**





# Test

Frontend





**DEMO**

## Conclusione

