Medical Image Viewing Console (MIVC)

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Presentation

1. Design Discussion
2. Design Choices with Project Requirements
3. Design Patterns
4. Strengths/Weaknesses
5. Status of Implementation

Design Discussion

Design Discussion

- Multiple smaller patterns for different subsystems of the MIVC software package

- StudyImage uses a virtual image proxy pattern in order to defer loading image resources until they are actually needed. By using this design we are able to reduce resource overhead while running the application.

Design Discussion (cont.)

- Singleton pattern is used on all external data access classes to ensure only one instance exists throughout the entire system.

- Using singleton ensures that all calls to update data contained within these classes is the same for each object that makes calls.

Design Obstacles

- Designing a system that cleanly used the best pattern for the application

- Using a 3rd party library could cause potential issues if implemented incorrectly, we approached this issue by ensuring we understood the functionality of the third party package before incorporating it.

Design Choices with Project Requirements

Grouping Images as Studies

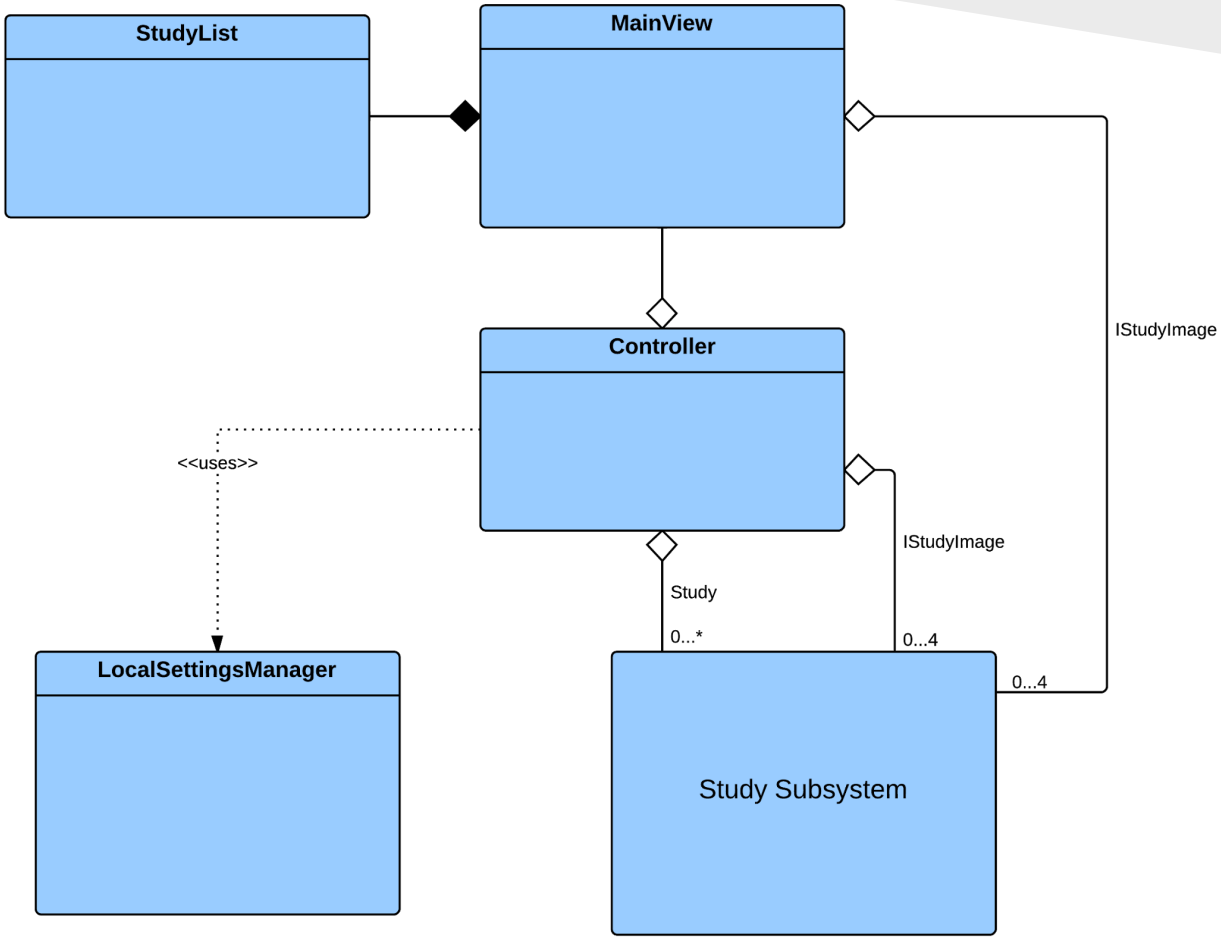
- Needed to encapsulate a study as one element of the system

Persist the Study Display State

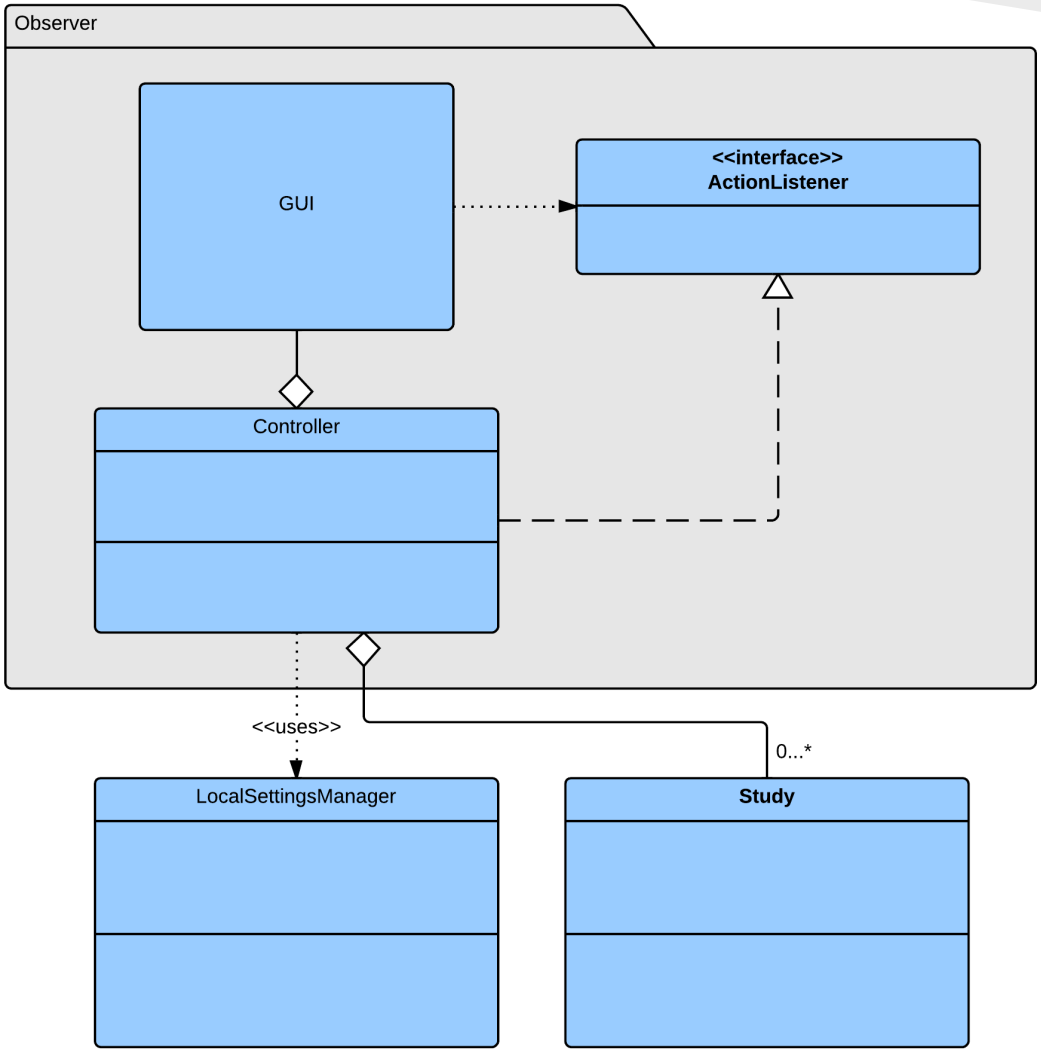
- Using a settings manager to handle the local settings

Design Patterns

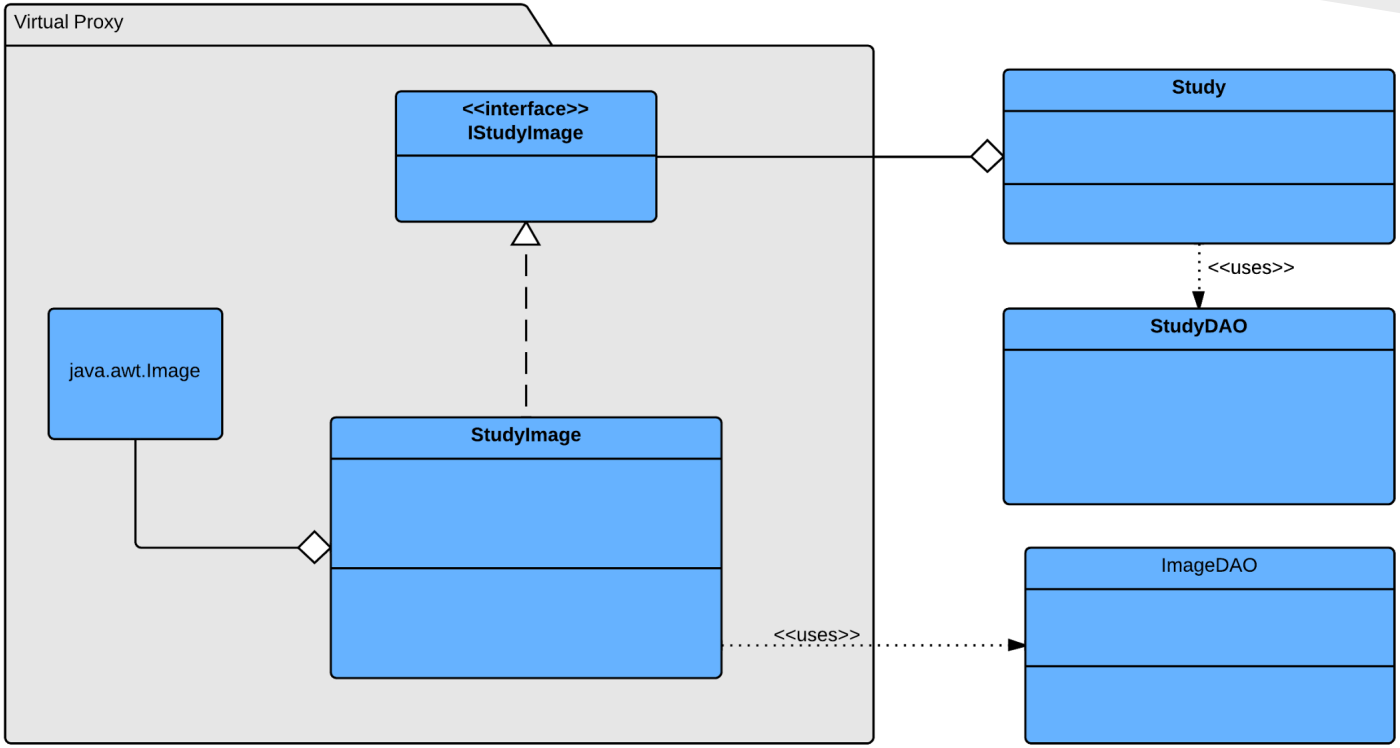
Top Level Design



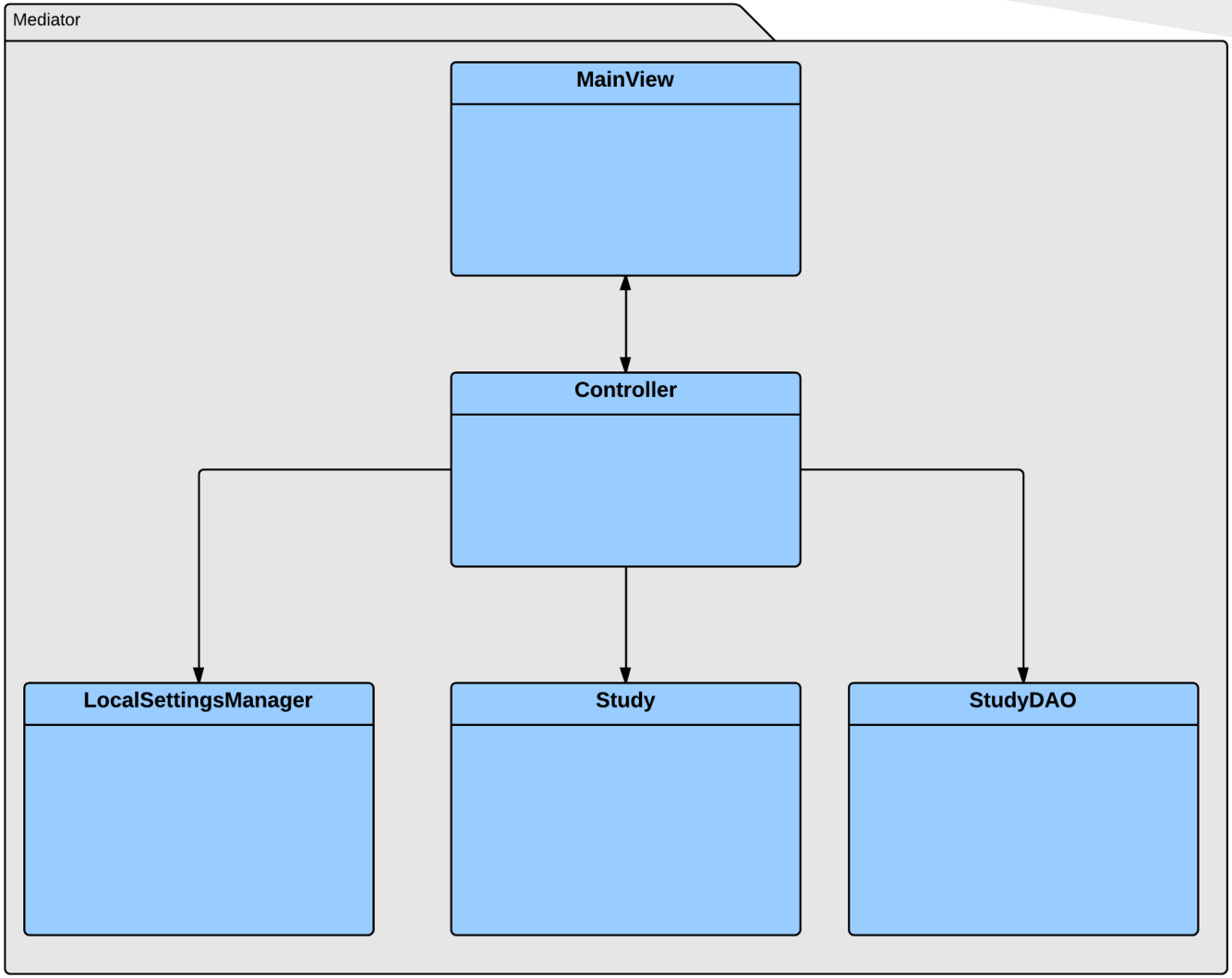
Observer


Observer
GUI
<<interface>>
ActionListener
Controller
<<uses>>
0...*
LocalSettingsManager
Study

Proxy (Virtual)



Mediator


Mediator
MainView
Controller
LocalSettingsManager
Study
StudyDAO

Strengths and Weaknesses

Design Strengths

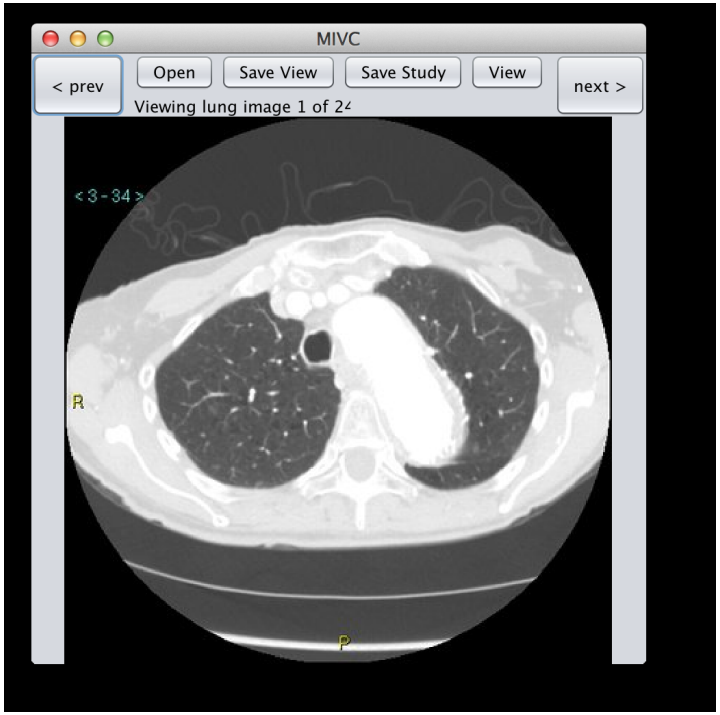
- Controller mediates logic
- Objects are encapsulated (Study, StudyImage)
- Low coupling
- Expandable

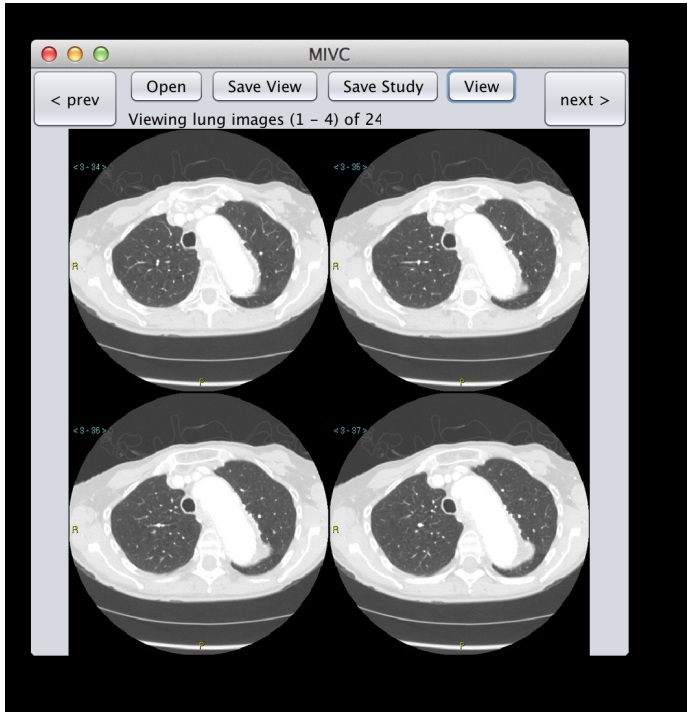
Design Weaknesses

- Controller handles a heavy load of the logic

Current Implementation

1. Studies can be viewed in a single view or a grid of images





Current Implementation (cont.)

- Actual connection to a remote device

Q/A