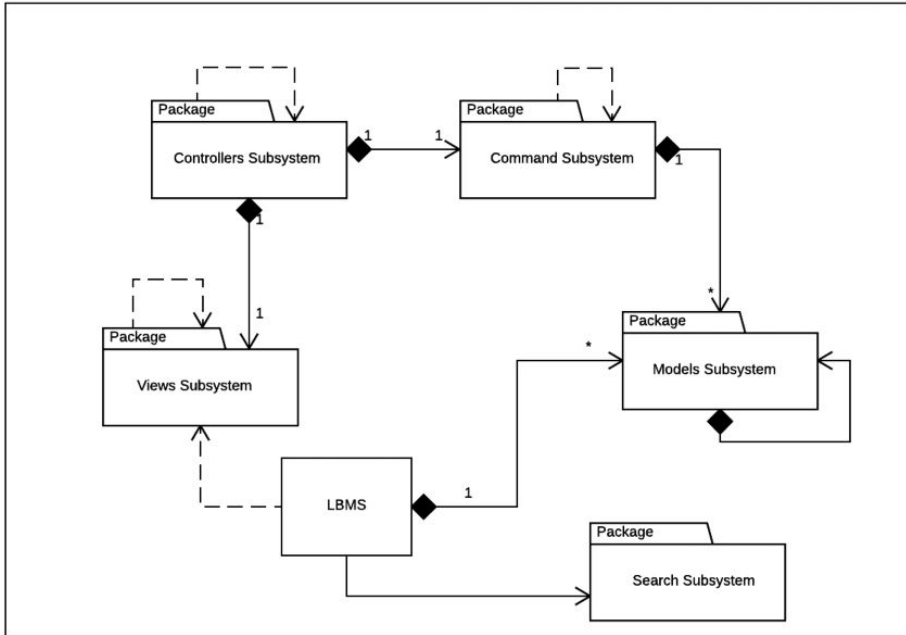

Library Book Management System R2

Team B: Charles Barber, Nicholas Feldman,
Christopher Lim, Anthony Palumbo, Edward Wong

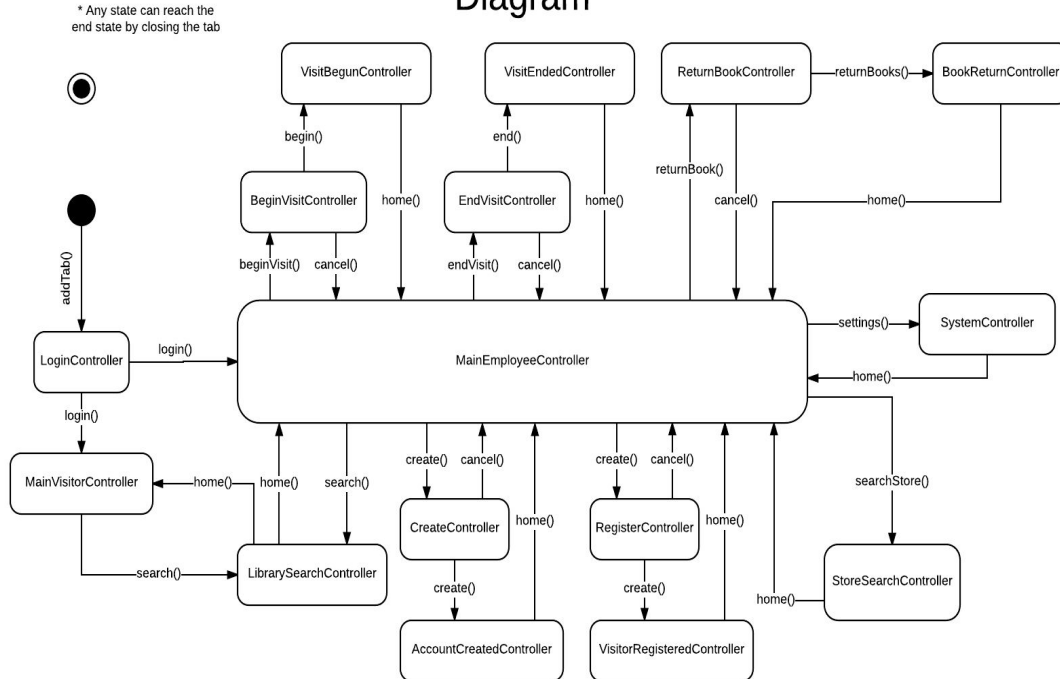
System Architecture



- MVC
- Reduced coupling for the system and high cohesion within packages

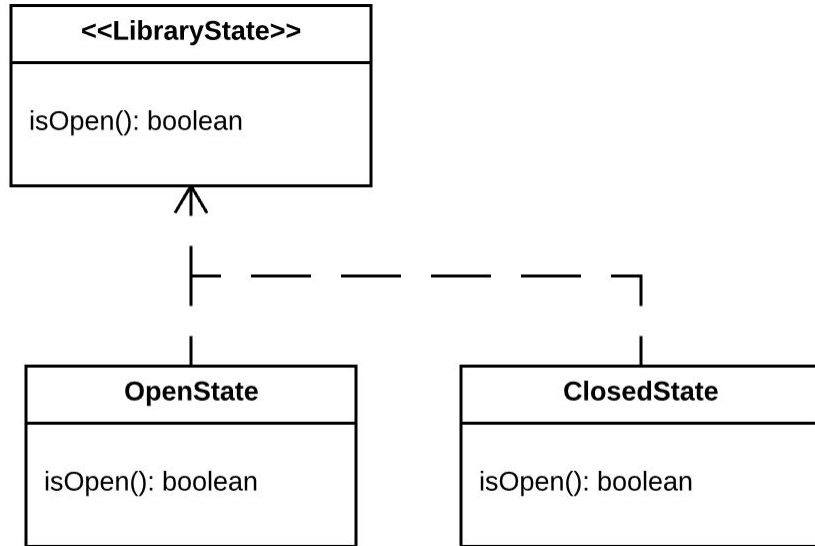
State Pattern

Controller State
Diagram



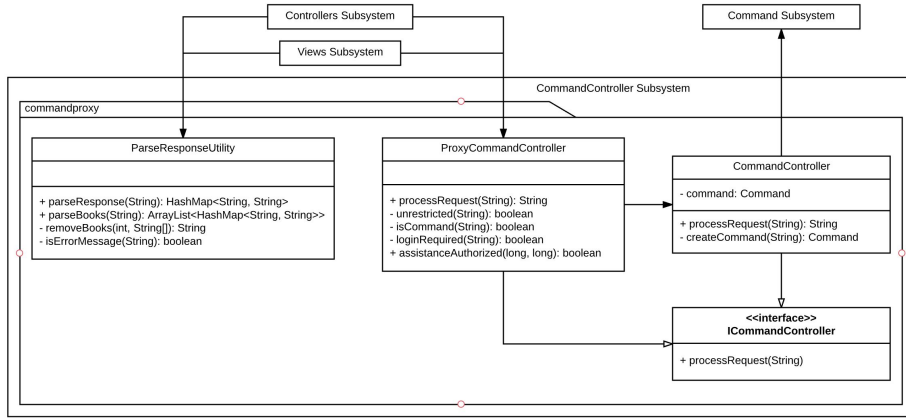
- GUI Views
- Upgraded from R1 implementation
- SessionManager holds controller
- Change handled in subclasses

State Pattern



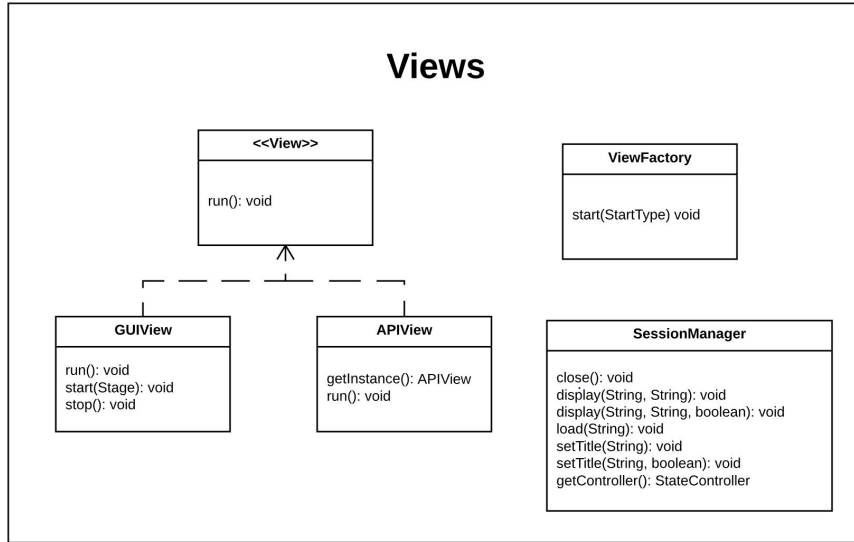
- Library Open / Closed
- LibraryState Interface
- Based on System Clock

Proxy Pattern



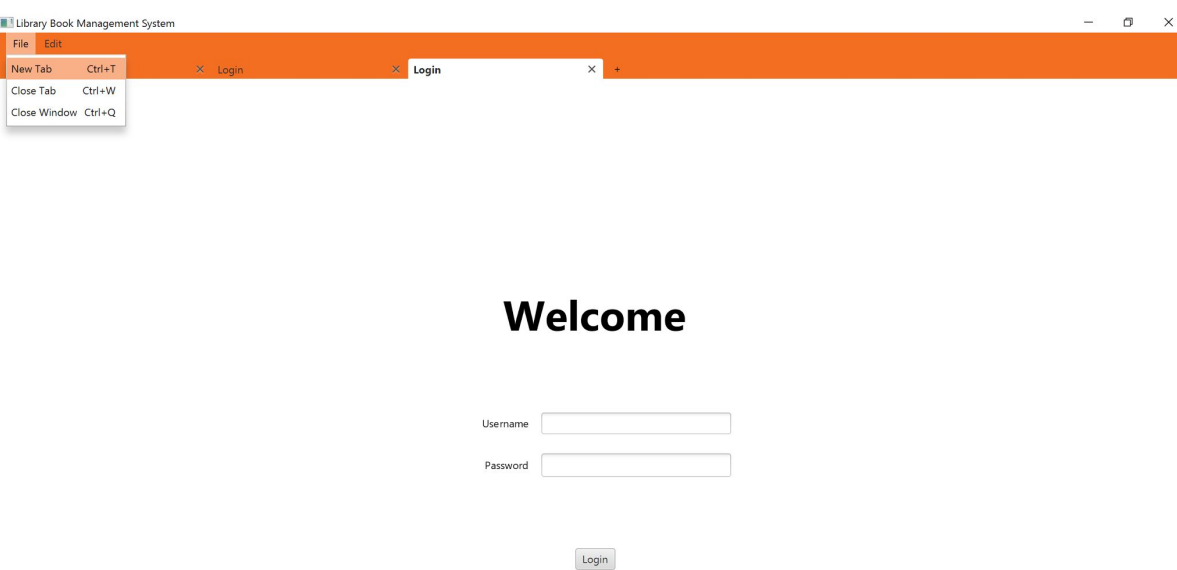
- Used as protection proxy
- Controls access to CommandController based on access rights
- Command object never created if unauthorized

Factory Method Pattern



- For choosing the view (API or GUI)
- ViewFactory looks at LBMS to choose the view

Graphical User Interface



- JavaFX
- Tab == Client Connect
- Access All Functionality
- Common System Clock
- Hotkeys

Workflow

SessionManager

Begin Visit

Visitor ID

Cancel

Begin Visit

09:21 04/19/2017

Visit Begun Successfully

Visit Information

Visitor ID: 0000000001
Visit Date: 2017/04/19
Visit Start Time: 09:22:22

Finish

09:22 04/19/2017

Register Functionality

The screenshot shows a web application window titled "Library Book Management System". It features a top navigation bar with "File" and "Edit" menus. Below this is a tab bar with a single active tab labeled "Visitor ID: 1 - Register Visitor". The main content area is titled "Register Visitor" and contains a form with four input fields: "First Name", "Last Name", "Address", and "Phone Number". At the bottom of the form are two buttons: "Register" and "Cancel". The bottom of the window has an orange footer bar displaying the time "04:14" and the date "04/19/2017".

Library Book Management System

File Edit

Visitor ID: 1 - Register Visitor

Register Visitor

First Name

Last Name

Address

Phone Number

Register Cancel

04:14 04/19/2017

Employee Main View

The screenshot displays the 'Employee Main View' of a 'Library Book Management System'. The interface features a top navigation bar with 'File' and 'Edit' menus, and a visitor ID indicator showing 'Visitor ID: 1 - admin'. The main content area is divided into two sections: 'Store' and 'Library'. Each section contains a search bar with tabs for 'Search By Title', 'Search By Author', and 'Search By ISBN'. The search bars are labeled 'Search Store' and 'Search Library' respectively. At the bottom, there are five buttons: 'Begin Visit', 'End Visit', 'Return Book', 'Register Visitor', and 'Create Account'. A footer bar at the very bottom shows the time '04:13' and the date '04/19/2017'.

Library Book Management System

File Edit

Visitor ID: 1 - admin

Store

Search By Title Search By Author Search By ISBN

Search Store

Library

Search By Title Search By Author Search By ISBN

Search Library

Begin Visit End Visit Return Book Register Visitor Create Account

System Settings Logout

04:13 04/19/2017

Search Functionality

Library Book Management System

File Edit

Visitor ID: 1 - Store Search

Return

Store Search

Search By Title

Search By Author

Search By ISBN

Local Store

Google Store

ISBN	Title	Author	Page Count	Publish Date	Publisher
9780545387200	The Hunger Games Trilogy	Suzanne Collins	1000	05/01/2011	Scholastic Inc.
9780545452373	The World of the Hunger Games	Kate Egan	192	03/23/2012	Scholastic Inc.
9780545227247	Catching Fire (The Second Book of the Hunger Games)	Suzanne Collins	400	06/01/2010	Scholastic Inc.
9780545470070	The Hunger Games Tribute Guide	Emily Seife	128	02/07/2012	Scholastic Inc.
9781407139982	The Hunger Games Complete Trilogy	Suzanne Collins	1344	10/03/2013	Scholastic UK
9780545229937	The Hunger Games	Suzanne Collins	384	09/01/2009	Scholastic Inc.
9781118206027	The Hunger Games and Philosophy	George A. Dunn, Nicolas Michaud	272	01/26/2012	John Wiley & Sons
9781556124525	A Hunger for God	William A. Barry, Kerry A. Maloney	150	01/01/1991	Rowman & Littlefield

10:06 04/19/2017

Purchase Functionality (similar to borrow)

The screenshot displays a web application titled "Library Book Management System". A modal window titled "1 - Harry Potter Collector's Handbook" is open, showing details for a book. The modal includes fields for Author, ISBN, Publisher, Publisher Date, and Page Count. At the bottom of the modal, there is a "Quantity" input field and a "Purchase" button. The background shows a list of books with columns for ISBN, Title, Date, and Publisher. The bottom right corner of the application shows a timestamp "04:17 04/19/2017".

Harry Potter Collector's Handbook

Author	William Silvester
ISBN	9781440216268
Publisher	Unknown
Publisher Date	08/19/2010
Page Count	272

Quantity Purchase

ISBN	Title	Date	Publisher
9781937520984	Harry Potter and the Sorcerer's Stone	12/08/2015	Unknown
9781429978217	Harry Potter and the Chamber of Secrets	01/08/2015	Unknown
9781921479311	Harry Potter and the Prisoner of Azkaban	10/08/2015	Unknown
9781616431150	Harry Potter and the Goblet of Fire	10/08/2015	Unknown
9781458154040	Harry Potter and the Order of the Phoenix	14/08/2015	Unknown
9780830874323	Harry Potter and the Half-Blood Prince	09/08/2015	Unknown
9781440216268	Harry Potter Collector's Handbook	10/08/2015	Unknown
9781440527234	Harry Potter and the Deathly Hallows	12/08/2010	Unknown
9780812696974	Harry Potter and the Sorcerer's Stone	04/08/2015	Unknown
9781507203026	Harry Potter and the Chamber of Secrets	11/01/2016	Unknown
9781781100547	Harry Potter and the Half-Blood Prince	12/08/2015	Unknown
9781781102435	Harry Potter and the Deathly Hallows	12/08/2015	Unknown

04:17 04/19/2017

Difficulties in Creating Design

- Parsing responses was a difficult task
 - Separation of concerns
- Figuring out a 2nd use of State pattern
 - Open/Close

Strengths and Weaknesses of Design (Tradeoffs)

- Exceptions are handled gracefully but provide vague responses
- Low coupling, High cohesion
- Sessions store data for each connection
 - Necessary complexity increase

Future Improvements

- Improve architecture for guicontrollers (i.e. implement patterns for SearchControllers, Popups, etc.)
- Add more precise exception and error handling
- Improve front-end design
- Undo/Redo GUI functionality

Thank You!

— Have a nice day —
