HDK – LIBRARY WORKSHOP
SOFTWARE DESIGN (SWD)

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1. INTRODUCTION

This is Library Workshop for MPP (Modern Programming Practices) course CS401-2023-03A-03D-01. In this project we will create trivial software to manage library systems, like register/add member, add/checkout books, etc.

Programming languages that will be used in this project is Java and we will apply other frameworks/libraries/technologies, like Java Swing, Maven, MongoDB.

2. GIT REPO

GitHub: https://github.com/ddhuy/HDK-Library-Workshop.git

Note: please contact Huy Dang (dinhhuy.dang@miu.edu) with your GitHub account if you want to collaborate.
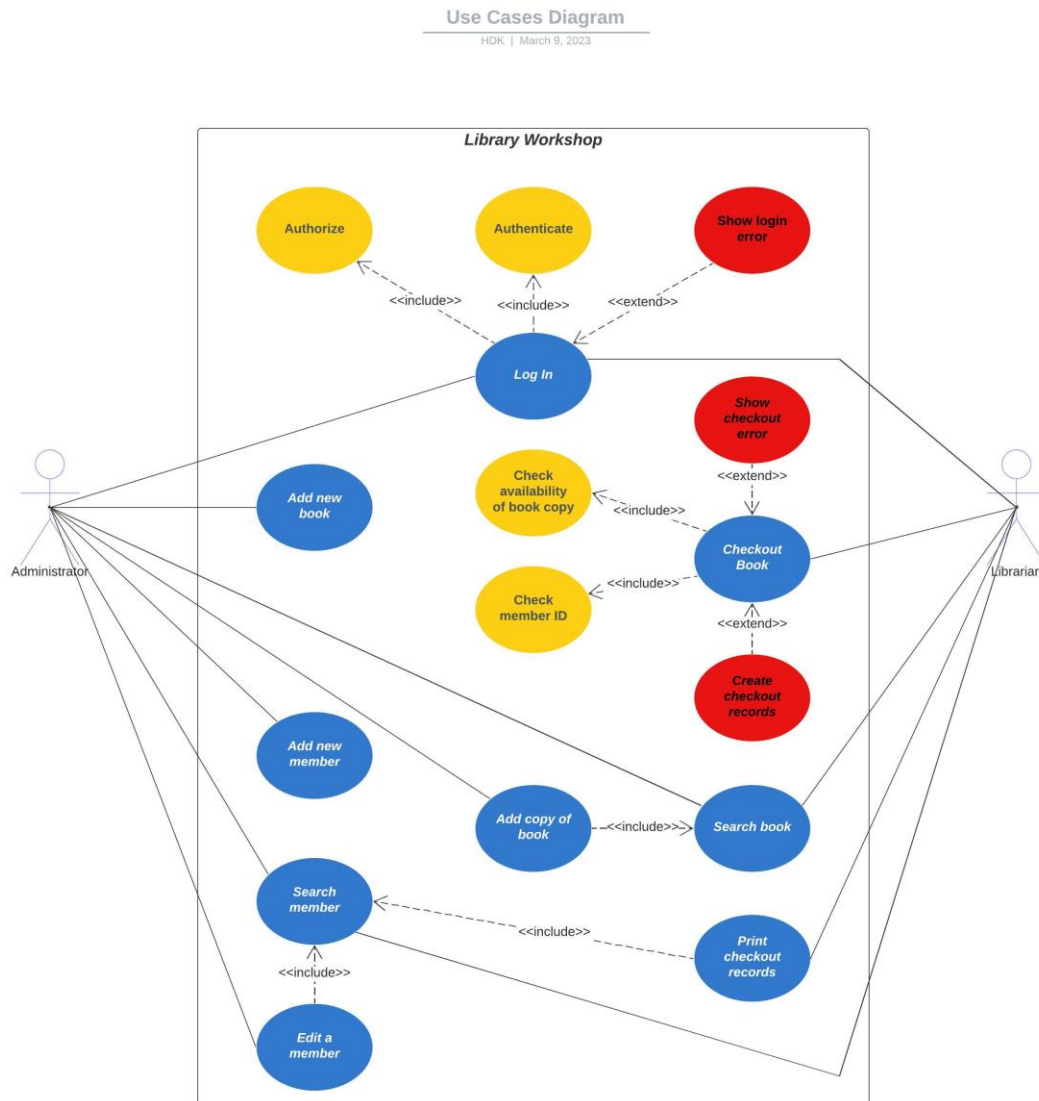
3. HOW TO BUILD

- JDK 19
- IDE Eclipse / IntelliJ
- Maven

4. SOFTWARE DESIGNS

4.1.   High-level designs

4.1.1.   Use case diagrams

Use Cases Diagram
HDK | March 9, 2023

4.1.1.1. Login

Use case name	Login
Stakeholders / Actors	1. Librarian 2. Administrator
Pre-condition	
Post-condition	

Primary scenario	1. Librarian / Administrator fill in username & password then click Login 2. Systems verify login information and check for user role (Librarian, Administrator, Both)
Includes	1. Authenticate user 2. Authorize user
Exceptional scenarios	Show error if invalid login information is input

4.1.1.2. Checkout a book

Use case name	Checkout a book for library member
Stakeholders / Actors	Librarian
Pre-condition	User logs in with Librarian role
Post-condition	A book copy is assigned to library member
Primary scenario	1. Librarian fill in member ID and book ISDN in checkout form then click "Checkout" 2. System selects one book copy and assigns it to member. 3. System creates checkout records in the database.
Includes	1. Check availability of book copy 2. Verify member ID
Exceptional scenarios	If member ID is invalid or book copy is out of stock, system will show error.

4.1.1.3. Search a book

Use case name	Search a book
Stakeholders / Actors	1. Librarian 2. Administrator
Pre-condition	User logs in
Post-condition	
Primary scenario	1. User fill in book ISDN in search form then click "Search". 2. System searches for books in the database.
Includes	
Exceptional scenarios	

4.1.1.4. Add new book

Use case name	Add a new book
Stakeholders / Actors	Administrator

Pre-condition	User logs in with Administrator role
Post-condition	A new book will be added to the database.
Primary scenario	1. User fill in book information in add new book form then click "Add". 2. System adds this book to the database.
Includes	
Exceptional scenarios	

4.1.1.5. Add book copy

Use case name	Add a book copy
Stakeholders / Actors	Administrator
Pre-condition	User logs in with Administrator role
Post-condition	A new book copy is added to the database.
Primary scenario	1. User searches for the book need to add copy. 2. User fill in book copy information and click "Add Copy". 2. System adds this book copy to the database.
Includes	Search book
Exceptional scenarios	

4.1.1.6. Add a new library member

Use case name	Add new library member
Stakeholders / Actors	Administrator
Pre-condition	User logs in with Administrator role
Post-condition	New user is added to the database
Primary scenario	1. Administrator fill in member information then click "Add Member" 2. System assigns unique id and adds a new member to the database.
Includes	
Exceptional scenarios	

4.1.1.7. Edit information of existing member

Use case name	Edit an existing library member
Stakeholders / Actors	Administrator
Pre-condition	User logs in with Administrator role
Post-condition	New member information is updated to the database

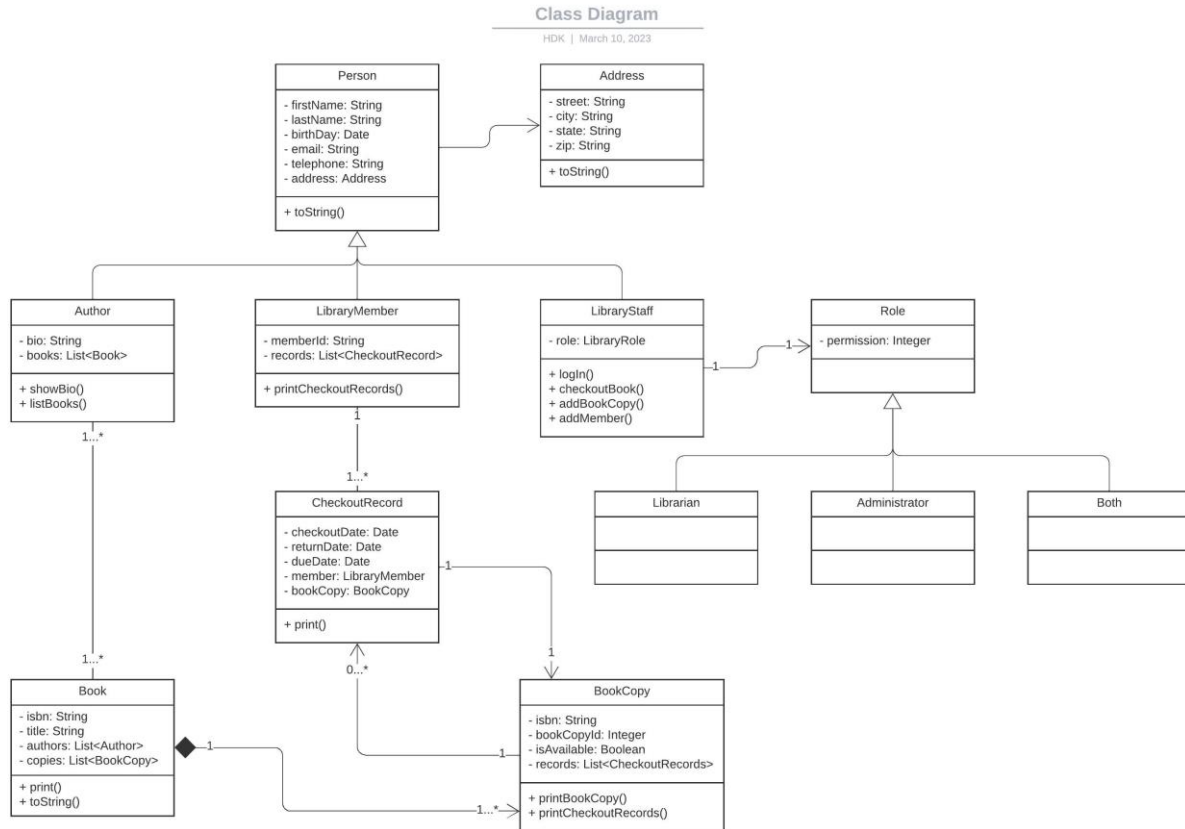| Primary scenario	1. Administrator searches for an existing member and changes information. 2. System update new member information to the databases.
Includes	Search member
Exceptional scenarios	

4.1.1.8. Search member

Use case name	Search library member
Stakeholders / Actors	1. Librarian 2. Administrator
Pre-condition	User logs in.
Post-condition	Member information is returned from the system.
Primary scenario	1. User searches for an existing member using member ID. 2. System returns member information.
Includes	
Exceptional scenarios	

4.1.1.9. Print checkout records

Use case name	Print checkout records
Stakeholders / Actors	Librarian
Pre-condition	User logs in with Librarian role.
Post-condition	Member information and his/her checkout records are printed to console.
Primary scenario	1. User searches for an existing member using member ID then click print checkout records 2. System prints member information and his/her checkout records to console.
Includes	Search member.
Exceptional scenarios	

4.1.2. Class diagrams

4.1.3. Sequence diagrams

4.1.4. Block diagrams

4.1.5. Finite state machine